

TOBIN

Shessy Solar Farm, County
Galway

Updated Appropriate
Assessment Screening &
Natura Impact Statement



BUILT ON KNOWLEDGE

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1. REQUEST FOR FURTHER INFORMATION RESPONSE

1.1 BACKGROUND CONTEXT

BNRG Shessy Ltd. (the Applicant) submitted a planning application to Galway County Council (Planning Number: 25/61380) on the 24th September 2025 to develop a Solar Photovoltaic (PV) Farm and Battery Energy Storage (BESS) facility in the townlands of Shessy North, Shessy South and Lydacan which is situated approximately 3km east of the town of Kinvara, County Galway. The application included an Appropriate Assessment (AA) Screening and Natura Impact Statement (NIS) (combined report hereafter referred to as the NIS), a Planning and Environmental Consideration Report (PECR), as well as other relevant documentation in support of the application.

Notification of an appeal made by a third-party was issued by An Coimisiún Pleanála (ACP) on the 17th December 2025 under ACP Ref: PL-500475-GY-25. A response to the appeal was submitted to ACP by TOBIN (on behalf of the Applicant) on the 22nd January 2026. A Further Information (FI) request was then issued by ACP on 10th June 2026 and received by TOBIN, stating the need for additional information within the NIS to enable them to determine the appeal. Therefore, this NIS has been updated to provide additional information, specifically in relation to further information on qualifying interest habitats and species of relevant European sites as well as clarification around hydrogeology.

1.2 UPDATED SECTIONS

The following sections, tables and figures have been updated and colour coded in red in response to the RFI request:

- Section: 4.3.3 - Bird Surveys
- Section: 4.3.5 - Survey Limitations
- Section: 7.1.4.2.1 - Otter (*Lutra lutra*)
- Section: 7.2.2.2 - Birds
- Section: 8.1.5 - Noise and Disturbance
- Section: 8.2.5 - Collision and Reflection Risk
- Figure 8 1: Hedgerow Removal Associated with the Proposed Development Site
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- Section: 9 - Assessment of Likely significant Effects
- Table 12 2: Qualifying Interests, Extent of Habitat and Conservation Objectives for the Caherglassaun Turlough SAC and Potential for Effect
- Section: 12.1.3 Coole-Garryland SPA (004107)
- Table 12 4: Coole-Garryland SPA
- Section: 13.1.2 - Caherglassaun Turlough SAC
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- Table 13 3: Evaluation of Potential Adverse Effects on the Conservation Objectives of the Coole-Garryland SPA as a Result of the Proposed Development
- Section: 14.2 - Mitigation for Hedgerow Loss and Impacts to Lesser Horseshoe Bat



- Section: 14.3 - Mitigation for Noise Disturbance
- Section: 14.4 - Mitigation for Disturbance associated with Fire Risk
- Figure 14 1: Whooper Swan Mitigation
- Section: 16 - Conclusion

1.3 UPDATED SURVEYS

Updated winter bird surveys were carried out in respect of the proposed development, post-submission. These surveys were carried out from October to December 2025. Details of these surveys are included in Section 4.3.3 and in the Breeding and Winter Bird Summary Report which has been included within Appendix D of this NIS. The Breeding and Winter Bird Summary Report details all bird surveys undertaken, including breeding bird surveys carried out from April to September 2025 and winter bird surveys undertaken between January to March 2025 and October to December 2025. The findings of the bird surveys were used to inform this NIS.

2. INTRODUCTION

BNRG are proposing to develop a solar farm in the townlands of Shessy North, Shessy South and Lydacan which is situated approximately 3km east of the town of Kinvara, County Galway.

The proposed solar farm, hereafter referred to the proposed development, is not directly connected with or necessary to the 'management' of European sites within the Natura 2000 network having regard to Article 6 of the Habitats Directive, and as such it is appropriate that the proposed development is subjected to screening for appropriate assessment.

This report was prepared by TOBIN, on behalf of BNRG, and includes a Stage One Screening for Appropriate Assessment (AA) (Sections 5 to 11) and a Stage two Natura Impacts Statement (NIS) (Sections 12 to 16) for the proposed development. The purpose of this report is to inform the AA process, which is carried out by the competent authority (in this case Galway County Council). Further details on the AA process are provided in Section 3.

A short of summary of the proposed development is provided in Section 2.1 with full project details provided in Section 6.

2.1 PROJECT SUMMARY

The proposed solar farm is located on private land and will consist of a low-density installation of solar PV panels (covering approximately 29.2% of the total landholding), BESS, and associated cabling. A separate planning application will be submitted to An Coimisiún Pleanála for the grid connection and loop-in substation.

Depending on the outcome of the planning application and procurement, construction is likely to take place during 2027-2028. Following the up to 9 month construction phase and 3-6 month commissioning phase, the solar development is then expected to become operational in 2029.

As the solar panels will be located on private lands, minimal disruption is anticipated during the construction phase, with a limited period of heavy construction. Access to local houses, farms and businesses will be maintained.

The proposed development will include solar panels, internal access tracks, MV stations, BESS, storage containers, hard standings, storage, internal electrical and communications cabling, CCTV, temporary construction compound, drainage infrastructure and all associated works related to the construction of the solar farm as well as measures designed to protect and enhance existing habitats.

The development will consist of:

- Linear arrays of solar PV panels on ground mounted steel supported structures with associated cabling and ducting;
- 12 no. proposed single storey MV stations;
- 1 no. Battery Energy Storage System (BESS) installation (including 32 no. containers with cells and 8 no. Power Conversion System (PCS) MV Stations) with associated security fencing and gates;
- Site perimeter fencing;



- Security gates at all permanent and temporary access points;
- 3 no. temporary construction compound/carpark/material storage areas with associated temporary site offices, parking areas and security fencing;
- 6 no. steel storage containers;
- 6 no. turning bays;
- On-site pole mounted CCTV cameras;
- 3 no. temporary construction stage Moby Dick type wheel wash systems; and
- 3 no. concrete wash out locations (one within each temporary construction compound).

Permanent site entrances are proposed at four locations; two along the L4518 (one into the northern section of the site and one into the southern section of the site), one along the Cahercarney road (perpendicular to the L4518 along the north-western boundary of the site), and one off the L4506 (to access the most southern section of the site). A temporary site entrance is also proposed off the proposed L4506 permanent site entrance, along an existing access track to enable access to the southern section of the site during construction. An existing site entrance along the L4518 will also be upgraded (to include security fencing) to allow access for grazing in the northeastern section of the site during operation.

A temporary sealed below ground wastewater storage tank will be constructed on site to hold wastewater generated by toilets in the temporary staff building during the construction phase. It will have a high-level alarm to alert when it should be emptied, and its content transported offsite by a licensed waste haulier for treatment at a licenced facility.

All MV stations and the energy storage containers will sit on a reinforced concrete slab.

The proposed solar panels (modules) will be fixed in position with galvanised steel framing pile driven into the ground, so there will be no moving parts. The solar PV panels are to be arranged in south facing rows, ranging from 2 m to 6 m apart, within the existing field boundaries, whose perimeter will be fenced. A 5 m buffer between the field boundaries/hedgerows and fencing is proposed.

The proposed solar panels are typically set 0.6 m above ground level at the lowest point increasing to a maximum height above ground level of 3 m, and 3.5 m in flood risk zone. The panels will be mounted typically at 5-25 degrees to the horizontal, but this may be adjusted to suit local conditions.

An overview of the proposed solar farm site layout and site entrances are presented in the Proposed Development Site Master Plan Map (Figure 6-2).

2.2 STATEMENT OF AUTHORITY

This report provides information to assist the competent authority in undertaking an AA of the proposed development and was informed by a desktop study survey undertaken by TOBIN including Ecologists Úna Butler MSc. (Agr.) and reviewed by Áine Sands (B.Sc. (Hons) MCIEEM).

Úna Butler MSc (Agr)



Úna has four years post-graduate experience in the environmental consultancy sector. She has a M.Sc. (Agr) in Environmental Resource Management from University College Dublin. She completed the Identiplant Plant Identification Course for Beginners in Serious Botany in 2024 with the Botanical Society of Britain and Ireland (BSBI). Úna has been involved predominantly in large public and private infrastructure projects, acting as Ecological Clerk of Works for a flood relief scheme; carrying out multidisciplinary surveys (including protected and invasive species surveys); carrying out Screenings for Appropriate Assessment and preparing Natura Impact Statements and Ecological Impact Assessments.

Áine Sands B.Sc. (Hons) MCIEEM

This report was senior reviewed by TOBIN Principal Ecologist Áine Sands B.Sc. (Hons) MCIEEM. Áine has over ten years post-graduate experience in ecology consultancy and holds Full CIEEM Membership. Áine has predominantly been involved in large public and private infrastructure projects where she has carried out numerous Screenings for Appropriate Assessments, Natura Impact Statements and Ecological Impact Assessments for proposed developments. Áine has a strong understanding of National and European legislation associated with biodiversity and is cognisant of relevant rulings by the Court of Justice of the European Union (CJEU). Áine also has experience with undertaking ecological surveys for protected habitats and species.

Other external collaborators included:

John Curtin (B.Sc. Hons)

John Curtin (B.Sc. Hons), Consultant Ecologist with Éire Ecology, was responsible for the design, implementation, analysis, and reporting of all bat-related ecological surveys and assessments undertaken in relation to the proposed development. His remit encompassed the formulation of survey methodologies, coordination and execution of fieldwork, and the preparation of mitigation and enhancement measures specific to bat conservation. His work included static detector surveys, dusk emergence and dawn re-entry surveys, ground-level assessments of features with potential to support roosting bats, and the evaluation of potential impacts on bat species in accordance with current best practice guidelines (e.g. Collins, 2016/2023).

3. THE APPROPRIATE ASSESSMENT METHODOLOGY

3.1 LEGISLATIVE CONTEXT

The Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora, better known as the ‘Habitats Directive’, provides legal protection for habitats and species of European importance. Articles 3 to 9 provide the legislative means to protect habitats and species of community interest through the establishment and conservation of an EU-wide network of sites known as Natura 2000 network.

Articles 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans and projects likely to affect European sites (Annex 1.1). Article 6(3) establishes the requirement for AA:

‘Any plan or project not directly connected with or necessary to the management of the [Natura 2000] site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subjected to appropriate assessment of its implications for the site in view of the site’s conservation objectives. In light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.’

Article 6(4) states:

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

The provision for an AA is transposed into Irish law by Part XAB of the Planning and Development Act 2010 (as amended). Section 177U (4) of the said Acts provides for screening for Appropriate Assessment as follows:

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

Section 177U (5) provides as follows:

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

An AA should be based on best scientific knowledge, and the competent authority should ensure that expertise such as ecological, geological, and hydrological are utilised, where relevant.



The Court of Justice of the European Union (CJEU) has made a number of rulings in relation to AA, regarding when it is required, its purpose, and the standards it should meet. Consideration has been given to the evolution in interpretation and application of directives and national legislation arising from jurisprudence of the European and Irish courts, in respect of Article 6 of the Habitats Directive.

3.2 STAGES INVOLVED IN THE APPROPRIATE ASSESSMENT PROCESS

There are potentially four stages in the AA process; the result of each stage determines the requirement for assessment under the next.

Stage 1: Screening / Test of Significance

This process identifies the likely significant effects upon a European site from a proposed project or plan. Its purpose is to determine, on the basis of a preliminary assessment and objective criteria, whether a plan or project which is not directly connected with or necessary to the management of the site as a European site, individually or in-combination with other plans or projects is likely to have a significant effect upon the European site, in view of its conservation objectives. A project may be 'screened-in' if there is a possibility or uncertainty of possible effects upon the European site, requiring a Stage Two AA. If there is no evidence to suggest significant effects due to the proposed plan or development the project is 'screened-out' from further assessment.

Stage 2: Appropriate Assessment

In this stage, consideration is given to ascertain whether the plan or project would adversely affect the integrity of a European site(s), either alone or in-combination with other plans or projects, with respect to the European site's structure and function and its conservation objectives. This stage of the assessment is carried out by the consenting authority and is informed by a Natura Impact Statement (NIS). A NIS is required where there is uncertainty as to whether or not an adverse effect arises, uncertainty of the effect itself, or a potential effect has been defined which requires further procedures/mitigation to remove uncertainty of a defined impact (i.e., significant effects cannot be excluded). Where there are adverse effects, an assessment of the potential mitigation to ameliorate those effects is required. If the assessment results in a negative conclusion, i.e., adverse effects on the integrity of a site cannot be excluded (by design or mitigation) or there is uncertainty as to whether an adverse impact arises, then the process must consider alternatives (Stage 3) or proceed to Stage 4.

Stage 3: Assessment of Alternatives

This stage of the potential process arises where adverse effects on the integrity of a European site cannot be excluded and examines alternative ways of achieving the objectives of the project or plan that avoid adverse impacts on the integrity of the European site. However, in circumstances where there will not be any adverse effects on any European site, the developer places no reliance upon this third stage of the process in the context of this application for planning permission for the proposed project.

Stage 4: Assessment Where Adverse Effects Remain

This is the derogation process of Article 6(4), which examines whether there are imperative reasons of overriding public interest [IROPI] for allowing a project to proceed where adverse



effects on the integrity of a European site have been predicted. Compensatory measures must be proposed and assessed as part of this stage and the EU Commission must be informed of the compensatory measures. Again, the developer places no reliance upon this stage of the process in the context of the application for planning permission for the proposed project.

This report details a Stage One: Screening and Stage Two: Appropriate Assessment (NIS), to assist the competent authority in carrying out its AA for the proposed development.

3.3 LEGISLATION

This report has been carried out in accordance with the following legislation

- European Communities (Birds and Natural Habitats) Regulations, 2011 (S.I. No. 477 of 2011)
- Planning and Development Acts 2000 to 2024, as amended including Part XAB
- European Commission (EC, 2000). Communication from the Commission on the Precautionary Principle
- European Commission (EC, 2006). Nature and biodiversity cases: Ruling of the European Court of Justice. Office for Official Publications of the European Communities, Luxembourg
- European Commission (EC, 2013) Interpretation Manual of European Union Habitats. Version EUR 28
- European Commission (EC, 2019) Managing Natura 2000 Sites – The provisions of Article 6 of the Habitats Directive 92/43/EEC
- European Commission (EC, 2021). 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, Office for Official Publications of the European Communities, Luxembourg. European Commission
- Appropriate Assessment of Plans and Projects in Ireland, Guidance for Planning Authorities, Department of the Environment, Heritage and Local Government (DoEHLG, 2010)
- Applications for Approval for Local Authority Developments made to An Bord Pleanála under 177AE of the Planning and Development Act, 2000, as amended (Appropriate Assessment) – Guidelines for Local Authorities (An Bord Pleanála, 2013)
- Office of the Planning Regulator (OPR, 2021). Appropriate Assessment Screening for Development Management

3.4 DEFINITIONS

Definitions of conservation status, integrity and significance used in this assessment are defined in accordance with 'Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC' (EC, 2018):

- Favourable conservation status (FCS) can only be defined and achieved at the level of the natural range of a species or a habitat type. A broad conservation objective aiming at achieving FCS can therefore only be considered at an appropriate level, such as for example the national, biogeographical or European level. The conservation measures

have to correspond to the ecological requirements of the natural habitat types in Annex I and of the species in Annex II present on the site. The ecological requirements of those natural habitat types and species involve all the ecological needs which are deemed necessary to ensure the conservation of the habitat types and species. They can only be defined on a case-by-case basis and using scientific knowledge;

- The integrity of a European site is defined as the coherent sum of the site's ecological structure, function, and ecological processes, across its whole area, which enables it to sustain the habitats, complex of habitats and/or populations of species for which the site is designated; and
- Significant effect should be determined in relation to the specific features and environmental conditions of the protected site concerned by the plan or project, taking particular account of the site's conservation objectives and ecological characteristics.

4. METHODOLOGY

4.1 STUDY AREA

The study areas for the desk study and field surveys were identified by considering the nature of the proposed development, the size and location of the proposed development and the ecological features likely, or known, to be present. Further details describing the survey area for the surveys undertaken is provided in Section 4.3.

4.1.1 Zone of Influence Methodology

The Chartered Institute of Ecology and Environmental Management (CIEEM, 2018) defines the Zol of a project as the area within which ecological features may be impacted by biophysical changes. The Zol often extends beyond the immediate project site, especially when ecological or hydrological connections exist beyond site boundaries.

To establish the Zol for the activities associated with the proposed development, an assessment was conducted using the source-pathway-receptor (S-P-R) model (OPR, 2021). This S-P-R model, a standard tool used in environmental assessments, provides a structured approach to identify potential impacts by examining:

- **Source(s):** potential impacts from the proposed development, e.g. loss of habitat, direct emissions (water, air, noise and light)
- **Pathway(s):** hydrological¹, hydrogeological², physical³ or ecological⁴ connectivity between the proposed development and the European site; (e.g. water bodies and proximity)
- **Receptor(s):** qualifying interests (QI) and/or special conservation interests (SCI) of the European sites

The assessment identified relevant pathways and receptors beyond the proposed development to delineate the Zol for impact sources consistent with CIEEM (2018) guidance. For an impact to be established all three elements (source, pathway, and receptor) must be present.

In this report, 'relevant' European sites are those with QIs and / or SCIs within the Zol of activities as identified through the S-P-R model. The Zol of potential impact sources (S) varies in extent depending on the nature of the pathway (P) and whether the receptor (R) is sensitive to or impacted by those specific pathways.

4.2 DESKTOP STUDY AND INFORMATION SOURCES

An ecological desk study was carried out to identify European sites within the Zone of Influence (Zol) of activities associated with the proposed development through the identification of potential pathways of impact from the proposed development to the European sites.

¹ Pathways via surface water

² Pathways via groundwater

³ Pathways via physical interaction/overlap

⁴ Pathways via ecological interaction (e.g. overlap of foraging/commuting routes pr breeding/resting sites etc.)



Principal sources of information utilised for the desktop assessment included the following;

- National Parks and Wildlife Service (NPWS) natural heritage database for designated areas of ecological interest and sites of nature conservation⁵
- National Parks and Wildlife Service (NPWS) site synopsis, Natura 2000 data forms and Conservation Objectives for European sites identified through potential pathways from the proposed development site⁶
- European Sites Natura 2000 data forms and Conservation Objectives⁷
- NPWS datasets on Annex I habitats, Annex II species and Annex I bird species⁸
- Article 17 habitats and species datasets⁹ compiled to meet the Habitats Directive reporting requirements, covering the status, trends, conservation measures, and threats to Annex I habitats and Annex II species
- National Biodiversity Data Centre online database¹⁰
- Annex II species and Annex I bird species recorded by the (NBDC) for 2km grid square (hectad) M40J and M40P11¹¹
- Natura 2000 viewer¹²
- Environmental Protection Agency (EPA) mapping database¹³
- Geological Survey Ireland Spatial Resources¹⁴

Reference was also made to the following policy documents:

- Galway County Development Plan 2022-2028
- Ireland's 4th National Biodiversity Action Plan, 2023–2030 produced by the Department of Culture, Heritage and the Gaeltacht

In addition, aerial photography (Google Maps, Bing Maps) and mapping (Geological Survey Ireland) were used to identify non-designated habitats such as rivers, woodlands, and hedgerows which may provide connectivity/corridors to surrounding habitats or designated sites.

4.3 ECOLOGICAL SURVEYS

4.3.1 Multidisciplinary Surveys

Multidisciplinary ecological field surveys were undertaken by TOBIN Ecologists at the proposed development site on the 28th-30th of April 2025.

The site was surveyed for protected flora and fauna and any evidence of Annex I habitats or Annex II species listed on the EU Habitats Directive (92/43/EEC) and bird species listed on the EU Birds Directive (2009/147/EC). The proposed development site was also searched for evidence

⁵ [Habitat and Species data | National Parks & Wildlife Service](#) (Accessed June 2026)

⁶ [Protected Sites in Ireland | National Parks & Wildlife Service](#) (Accessed June 2026)

⁷ [Conservation Objectives | National Parks & Wildlife Service](#) (Accessed June 2026)

⁸ [Article 17 GIS and Metadata Downloads | National Parks & Wildlife Service](#) (Accessed June 2026)

⁹ [Article 17 Data – 2019 | National Parks & Wildlife Service](#) (Accessed June 2026)

¹⁰ [National Biodiversity Data Centre Documenting Ireland's Wildlife](#) (Accessed June 2026)

¹¹ [Home - Biodiversity Maps](#) (Accessed June 2026)

¹² [Natura 2000 Viewer](#) (Accessed June 2026)

¹³ [EPA Maps](#) (Accessed June 2026)

¹⁴ [Data & Maps](#) (Accessed June 2026)



of invasive plant species listed in Part 1 of the Third Schedule of S.I No. 477 of 2011, European Communities (Birds and Natural Habitats) Regulations (2011). The findings of the surveys were used to inform this assessment. A brief summary of the survey findings are described in Section 7.2. The survey area for the multidisciplinary ecological field surveys is shown in Figure 6-1.

4.3.2 Targeted Bat Surveys

In order to assess the presence and activity of bats within the study area, Eire Ecology carried out a number of bat surveys, which included the following:

- A ground level Preliminary Roost Assessment (PRF) of trees and buildings within the Zol of the proposed development in February 2025;
- Bat Emergence Surveys which were carried out in June and July 2025 and consisted of multiple surveyors recording activity levels at two clusters of sheds within the proposed development site to examine for roosting bats that could be impacted by the proposed development, observe bat interactions such as commuting routes, feeding areas, and examine the presence of any current impediments to bats within the surrounding environment; and
- Static detector activity surveys in the spring and summer bat seasons of 2025 to record bat species and abundance in locations across the proposed development site.

The bat survey area within the proposed development site is depicted in Figure 7-4 and Figure 7-5. All bat surveys were carried out in accordance with Irish Wildlife Manual No. 134. Bat Mitigation Guidelines for Ireland- V2 (Marnell, *et al.*, 2022) and Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition) (Collins, 2023). A summary of results of the bat surveys carried out are detailed in Section 7.2.2.1. The full Bat Survey Report for the proposed development is included in Appendix A of this report.

4.3.3 Bird Surveys

A total of **five** transect walkover bird surveys were conducted monthly between January and August of 2025 **prior to submission of the planning application, and an additional four surveys were conducted monthly between September and December 2025 post-submission. These surveys were undertaken** by TOBIN Ornithologists. A transect survey follows a defined linear route through a specific area. To achieve maximum coverage of suitable habitat, three transect routes were needed for the proposed development site. These transects covered a large and representative portion of the survey area (the survey area included the proposed development site plus a 500m buffer) and were walked at a standard speed. Notes on aural and visual registrations of bird species were recorded during field surveys. Visual registrations were recorded with the aid of binoculars (e.g., 8 x 42).

During the transect surveys, SCI species for which European sites are designated were recorded. Results of the bird transect surveys carried out are detailed in Section 7.2.2.2.

Breeding and wintering bird surveys were continued after the submission of the planning application for the proposed development and were undertaken from October to December 2025. All bird data collected between October and December has been incorporated into this updated NIS. As mentioned, the Breeding and Winter Bird Summary Report has been included within Appendix D of this NIS.

4.3.4 Hydrogeology Survey

A TOBIN senior hydrogeologist, John Dillon, carried out an additional hydrogeology inspection survey of the proposed development site on 10 July 2026. The survey was focused on identifying the presence or absence of karst features within the proposed development site, with particular focus on a mapped karst spring (GSI reference 1419NWK133). The findings of the surveys are outlined within Section 7.1.3.

4.3.5 Survey Limitations

The winter bird survey season used for this proposed development runs from October to March. As stated above, the initial bird surveys were carried out between January and August, which was previously acknowledged as a limitation of the bird survey data in the original NIS prepared for this proposed development. However, additional breeding and winter bird surveys were undertaken from October to December 2025, completing a full year of bird surveys. This additional data has been incorporated throughout this updated NIS. Considering these additional bird surveys, as well as all other surveys undertaken for the project, no survey limitations were encountered.

~~considering the nature of the proposed development and its geographical location it is considered that a good representation of activity, abundance and distribution of bird species within the study area was collected during the surveys in order to inform this assessment.~~

4.4 CONSULTATIONS

A pre-planning meeting was held with Galway County Council on 28th January 2025. At this meeting, planning and site considerations were flagged by the Council. European Sites and the requirement of an Appropriate Assessment noted.

A meeting with the National Parks and Wildlife Service was also held on 24th of June 2025. Relevant topics to the Appropriate Assessment Screening were also discussed, regarding water source for solar panel cleaning and in-combination impact assessment.

A sensitive data request was submitted to the NPWS on 2nd of July 2025 to obtain records of protected species and habitats within the 10km grid squares encompassing the proposed development site boundary. No data was received prior to submission of the Shessy Solar Farm application on 12th of September 2025.

5. SCREENING FOR APPROPRIATE ASSESSMENT

The proposed development is not associated with the ‘management’ of European sites within the Natura 2000 Network having regard to Article 6 of the Habitats Directive, and as such it is appropriate that the proposed development is subjected to screening for appropriate assessment.

The Screening Stage of the AA process identifies any likely significant effects upon European sites from the proposed development alone or in-combination with other projects or plans. A series of questions are asked during the Screening Stage of the AA process to determine:

- whether a plan or project can be excluded from AA requirements because it is directly connected with or necessary to the management of a European site; and
- whether the project or plan will have a potentially significant effect on a European site, either alone or in-combination with other projects or plans, in view of the site’s conservation objectives or if residual uncertainty exists regarding potential impacts.

This screening assessment investigates, in view of best scientific knowledge, whether the proposed development, individually or in combination with other plans and projects, would be likely to have a significant effect on European sites. This section considers the likelihood of significant effects on European sites from the construction, operation and maintenance of the proposed development.

6. DESCRIPTION OF THE PROPOSED DEVELOPMENT

6.1 SITE LOCATION

The proposed development site is located in various townlands in south County Galway approximately 2.5km to the west of Laban village and 4km east of Kinvara. The site spans the townlands of Cahercarney, Shessy North, Shessy South and Lydacan, and predominantly comprises agricultural pastoral grass land extending north and south of the L4518 local road.

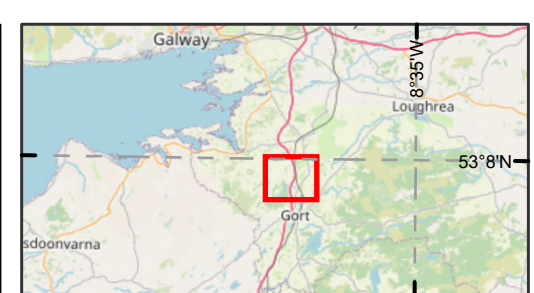
The proposed solar farm consists of an 86.3ha site which lies either side of the L4518 and slightly to the west of the L4506 and M18. The proposed development crosses the L4518 road at two points for cable connection (which will require shallow open-cut trenching).

The site will have access to a network of roads within 2km, minimising local disruption during the build. There will be minimal requirement for under-road cabling which will only need to cross the L4518 road at two points (shallow open-cut trenching).

The proposed location has been selected for its strong solar resource, discrete low-lying lands, proximity of the various land holdings to one another (requiring minimal underground cabling or disruption) and importantly, its proximity to the national grid via the 110kV EirGrid line between Ennis and Cashla.

The proposed development site location is outlined in Figure 6-1.





Legend

- Solar Farm Boundary
- Site Layout
 - BESS
 - Solar PV Modules
 - Site Roads
 - Substation
 - Inverters

0 500 1,000 Metres

Spatial Reference Datum: IRENET95 EPSG: 2157		Copyrights: © OpenStreetMap (and) contributors, CC-BY-SA, Maxar, Microsoft, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, ©		
A	02/09/2025	First Issue	S.P	S.R
Rev	Date	Description	By	Chkd.

Client: 

Project: **Shessy Solar Farm Project**

Title: **Figure 6-1: Site Location**

Scale @ A3: 1:20,000

Prepared by: S.Pezzetta Checked by: S.Ryan Date: September 2025



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Map Ref:	Draft:
12091-007..NIS-P.App.BO-AE-TOB-A	A

6.1.1 Project Details

Details of the proposed development are discussed hereunder. An overview of the proposed development site master plan is available in Figure 6-2.

6.1.2 Solar Panel Foundations

It is proposed that the solar panels will be fixed in place using pile driven steel framing. Where required, depending on ground conditions, some foundations may comprise a pre-cast concrete blocks and/or steel cages. The proposed solar panel arrays are shown in Figure 6-2.

6.1.3 Site Clearance /Earthworks

118m of hedgerow will be cleared for site entrances and the installation of access tracks and to enable site access and cable connection of the lands. The removal of hedgerows and installations will be done using an excavator.

There are some site levelling works proposed on site. Minimal earth works will be required for the overall development of the site. These works include the following:

- Site entrance and access tracks will be constructed and surfaced using a permeable gravel surface and CL804 material where required (i.e., in areas of soft ground)
- Excavated soil will be stored at temporary soil storage areas within the proposed development site;
- Any disturbed areas will be fully reinstated following the completion of the works. Topsoil will be reused where possible on site for landscaping. All remaining excavation material will be disposed of offsite, in accordance with Waste Legislation (Waste Management Act 1996 – 2001);
- All fill material arriving to site will be used immediately upon arrival, ensuring efficient use of resources and minimising the need for on-site storage. The delivery locations will not be located near any drainage ditches;
- Underground cable trenches will be necessary within the project site for cabling required by the proposed development. Laying underground cable trenches and cabling connecting the solar arrays to MV stations and to the proposed connection point of the loop in substation. This will involve Cable Trench Excavation. Trenches will be excavated and ducting installed. The trench will then be backfilled throughout the site. This will accommodate cables between the MV stations and onsite CCTV cabling;
- Where access tracks and cables cross hedgerows, then the hedgerow will be removed with an excavator under the supervision of an ecologist;
- Shallow open-cut trenching will be carried out at two crossing points on the L4518 local road for cable connection between lands;
- The foundation systems for the panel mounting system are usually the earth screw or driven type (depending on ground conditions). The installation of either technique involves a small track machine with a ram/screw attached. This machine tracks up and down in rows installing as it goes. The noise impacts are typical of the existing agricultural use of the lands. The short-term nature of the works is also a mitigating factor;
- Installing the MV Stations will involve the excavation and levelling of earth for a reinforced concrete base. The station is then dropped in to place on top of the reinforced concrete base.

Advance clearance of hedgerows, topsoil and vegetation in preparation for construction phase will be required. There will be 0 m³ of topsoil removed from site. All topsoil will be reused on site. Approximately 118 m of hedgerow will be cleared as detailed in the Biodiversity Management Plan (BMP) (Appendix D). It details the bolstering of current hedgerows, replacement of all hedgerows removed as a result of the proposed development and planting of 6.5km of new hedgerows.

6.1.4 Lighting & CCTV

~~There is no proposal to include any artificial lighting on the site. However, it is proposed to install~~
Security lighting will be installed around the BESS and Substation and will only be switched on manually in the event of an emergency.

Pole mounted CCTV cameras will be installed on site for security purposes. The proposal is to include cameras at all major corners around the perimeter of the site. The proposed height of the CCTV poles is approximately 4.5m from ground level. The CCTV would be remotely monitored via a 24/7 operational team who would alert all relevant personnel in the event of a break-in or vandalism at the site. The cameras will only be focused on the site to avoid any possibility of monitoring any neighbouring dwellings. Proposed CCTV camera locations are shown on proposed site layout plan in Figure 6-2.

6.1.5 Fencing

The fencing proposed is a meshed fence / deer fence constructed to a height of 2 m / 2.45 m using high pressure treated timber posts at 3.5 m / 6 m centres, and high tensile galvanised wire to BS EN 10223 and BS EN 10244 standards. The horizontal lines will comprise of 2.5 mm wire with typical spacing wires between 75 mm and 175 mm. The vertical lines will also comprise of 2.5 mm wire at approximately 150 mm centres. High tensile tension wire will be fitted on top with tensioner and tension springs.

The fence will include small mammal gates fitted to enable free access every 100m and will have ground clearance of all fencing installed to a minimum height of 0.1m above ground level. The fencing will be erected at least 5m away from the existing hedgerow and treelines boundaries.

6.1.6 Screening Planting

The three main principles of the screen planting include;

1. New sections of hedgerow are proposed to be planted in certain locations with feathered whips and advanced nursery stock in the form of 8-10cm girth trees, particularly along the L4518 which will require additional denser screening;
2. Bolstering the existing hedgerow with under-planting and inter-planting of whip transplants in order to ensure dense and consistent screening of the project site. Advanced nursery stock in the form of 8-10 cm girth trees will be used to fill any noticeable gaps in the existing perimeter hedgerow network;
3. Immediate screening for the dwellings adjacent to the site (using semimature tree planting).

Proposed screening planting plans are shown on the Proposed Site Layout in Figure 6-2.

6.1.7 Site Access and Internal Roads

Permanent site entrances are proposed at four locations; two along the L4518 (one into the northern section of the site and one into the southern section of the site), one along the Cahercarney road (perpendicular to the L4518 along the north-western boundary of the site), and one off the L4506 (to access the most southern section of the site). A temporary site entrance is also proposed off the proposed L4506 permanent site entrance, along an existing access track to enable access to the southern section of the site during construction. An existing site entrance along the L4518 will also be upgraded (to include security fencing) to allow access for grazing in the northeastern section of the site during operation. The proposed entrance points are shown in Figure 1-2 in Chapter 1 of the PECR.

The proposed accesses will be designed in accordance with the Transport Infrastructure Ireland's DN-GEO-03060 (June 2017) Geometric Design of Junctions (priority junctions, direct accesses, roundabouts, grade separated, and compact grade separated junctions).

Internal access tracks will be approximately 3.5 m wide with a 150 mm Type 1 Granular Running Surface. Access gates will also be required at the local road crossing in order to cross the site. A cable trench (where applicable) will run adjacent to the access track. Access locations and internal accesses tracks are shown on the Site Layout Map-Figure 6-2.

6.1.8 MV Stations

MV stations will be required to collect the electrical power and transfer it via the aforementioned loop-in substation connection to the existing EirGrid 110kV electricity line, which runs between Ennis and Cashla and passes over the site.

Each station will consist of a 20-foot single story container and will be located centrally throughout the site along the internal roads at a minimal distance to the solar panels.

Proposed MV station locations are shown on the proposed development site plan in Figure 6-2.

6.1.9 Inverter and Transformer Stations

13 no. Inverter and transformer stations (inverter stations) will be required to collect the electrical power and transfer it via the aforementioned loop-in substation connection to the existing EirGrid 110kV electricity line, which runs between Ennis and Cashla and passes over the site.

Each station will consist of a 20-foot single story container and will be located centrally throughout the site along the internal roads at a minimal distance to the solar panels.

Proposed inverter station locations are shown on the proposed development site plan in Figure 6-2.

6.1.10 Battery Energy Storage System (BESS) Facility

The proposed development will include a BESS, that will have the future ability to store excess power being generated locally on the grid and will release it back into the grid when there is a demand for it.

The BESS will be housed on-site (in the northeastern corner of the site, as illustrated in Figure 5-2 to ensure a reliable solar energy supply, and meet the highest of international safety standards.

The BESS will include the following elements:

- Site security fencing including a noise acoustic barrier;
- Access gates;
- BESS enclosures;
- The battery enclosures and associated equipment will sit on reinforced concrete slab;
- The surrounding site areas will be surfaced using a permeable gravel surface.

Elements of the BESS which are already considered under the development of the solar PV include the following:

- EGIP substation
- Switchgear to facilitate a back-up generator to connection;
- A monitoring house/Comms room;
- An auxiliary transformer;
- Spares containers.

The dimensions of the BESS are as follows:

- MV Substation (For solar) (SG4400UD-MV): 6058 mm × 2896 mm × 2438 mm;
- Battery Container (ST5015UX-4H): 6058 mm × 2896 mm × 2438 mm;
- PCS MV Substation (MVS5140): 6058 mm × 2896 mm × 2438 mm.

6.1.11 Grid Connection

The proposed connection to the national grid will be via loop-in substation connection to the existing EirGrid 110kV electricity line, which runs between Ennis and Cashla and passes over the site. The substation will be subject to a separate planning process, to be submitted directly to An Coimisiún Pleanála.

6.1.12 Waste and Waste Facilities

A temporary sealed below ground wastewater storage tank will be constructed on site to hold wastewater generated by toilets in the temporary staff building during the construction phase. It will have a high-level alarm to alert when it needs to be emptied, and its content transported offsite for treatment at a licenced facility.

6.2 CONSTRUCTION SEQUENCE

The construction period of the proposed development is anticipated to last approximately 9-months. The following is the typical sequence of the activities involved in constructing a solar PV project, and anticipated for the proposed development:

- Site entrances and internal access tracks will be constructed and surfaced using a permeable gravel surface. There will be no in-stream works and no direct run-off into watercourses for this proposed development and any surface water will percolate into the ground as is currently the case. This stage includes vegetation clearance and hedgerow planting/bolstering;
- A temporary construction compound/material storage area is used for storage of the modules, which are delivered to the site to suit the proposed 9-month construction programme. Materials are generally transported around the site by means of teleporter/small dumpers/tractor and trailer. Storage containers will be delivered to the site and craned into place using a hiab crane on the trucks;
- The BESS compound is constructed and the associated fencing and gates are installed. Reinforced concrete plinths are installed to allow placement of the BESS containers.
- Material and equipment is typically delivered to the site as it is needed during the construction phase. This includes fencing, panel mounting systems, panels, BESS contains, inverters, aggregate, concrete and all other material;
- Erection of 2 m high meshed perimeter fencing and CCTV Poles – usually completed by a tractor or a small tracked machine. Fencing is erected at least 5 m away from existing boundary hedgerows/fencing, while the CCTV poles are placed at field boundaries throughout the site;
- Cable Trench Excavation – Trenches are excavated, ducting installed, and trenches backfilled throughout the site to accommodate the CCTV cabling, and the cables between the site infrastructure (BESS, inverters, control and switch rooms, etc.). This work is usually carried out using a track machine/tractor with a plough on the back or may be carried out by excavator in some locations. Backfilling would be carried out by a track machine;
- Installation of Mounting System Foundations – The foundation system for the panel mounting system is usually the earth screw or driven type (depending on ground conditions). Both techniques involve a small track machine with a ram/screw attached. This machine tracks up and down in rows installing as it goes. The noise impacts are typical of the existing agricultural use of the lands. The short-term nature of the works is also a mitigating factor;
- Installation of Mounting System – This involves the erection of the aluminium frame to hold the panels. This usually comes in kit format for ease of assembly on site. The solar PV panels are then secured to the mounting systems;
- Installation of BESS units – The units are delivered on trucks and lowered into place on the concrete plinths;
- Installation of the MV and Transformer Stations – This involves excavation and levelling for a reinforced concrete base. The station is then just dropped in place on top;
- Any final landscaping will be carried out and any temporary structures will be removed from site. The construction compounds will be reinstated back to soil and sown in grass;
- The site will be commissioned following testing of the equipment on site.



6.3 SITE MAINTENANCE AND MANAGEMENT DURING OPERATIONAL PHASE

The proposed solar farm will be in operation for a duration of 40 years. Management and intermittent maintenance of the site will be required during the operational phase of the project, with agricultural use continuing during the lifetime of the project, e.g. sheep grazing.

The ground under the panels shall be maintained as grassland which will serve to reduce the risk of erosion and limit surface water flows across the site. The operation and maintenance of the solar farm shall include monitoring and maintenance of the grassland beneath the panels. Where compaction of soil is observed, the ground will be cultivated and re-seeded.

6.3.1 Water Source

Water is required as part of the operational phase of the proposed development for the washing of the solar panels when required. This activity is only expected to be carried out occasionally (panels typically need to be washed 1-3 times per year depending on the soiling condition on the panels) and require approximately 1500 litres per MW. It is proposed to provide water via a mobile tanker rather than drill a borehole well in each land parcel or to use water from the local public water supply. The water will percolate to the ground immediately after washing. The washing will only require water and will not require the use of any chemicals.

6.4 DECOMMISSIONING AND RESTORATION

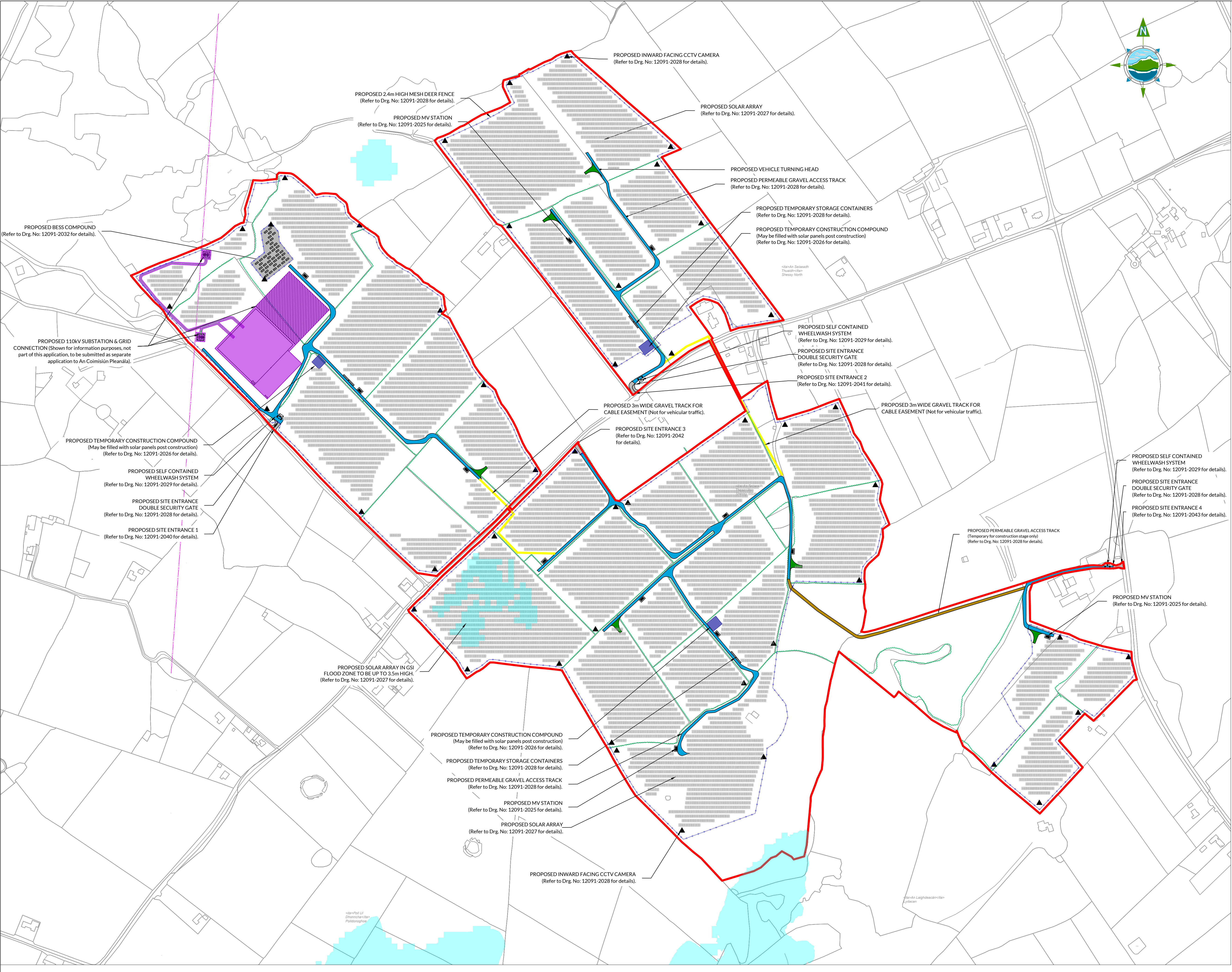
As mentioned, the projected lifetime of the proposed development is 40 years. At the end of the project lifetime, the solar panels and their supports will be completely dismantled (including underground electrical interconnection and distribution cables) and the site will be restored to its pre-construction state. It is anticipated that the entire decommissioning phase will be completed within six months.

The main activities involved with the decommissioning phase will comprise of the following:

- The PV facility will be disconnected from the power grid;
- Individual PV modules will be disconnected and removed to recycling facilities for recycling and material re-use;
- Site and underground electrical interconnection and distribution cables shall be removed and recycled off-site by an approved recycling facility;
- PV module support steel shall be removed and recycled off-site by an approved metals recycler. The support legs will be removed by vertical extraction and recycled off-site;
- Electrical and electronic devices including inverters, transformers, switchgear, and metering equipment will be removed and recycled off-site by an approved Waste Electrical and Electronic Equipment (WEEE) recycler;
- Concrete bases will be broken up and removed off site. The ground will then be re-levelled to original contours using imported soil where necessary;
- Security systems, CCTV, associated supports and wiring will be dismantled and removed off-site for recycling by an approved recycling facility;
- Fencing shall be dismantled and removed off site for recycling by an approved recycler.

The above activities will be carried out in accordance with timescales conditioned within the planning permission.





GENERAL LEGEND	
PLANNING APPLICATION BOUNDARY	PROPOSED PERIMETER DEER FENCE
CONSTRUCTION COMPOUND	PROPOSED ON-SITE STORAGE UNIT
PROPOSED SOLAR ARRAYS	PROPOSED PERMEABLE GRAVEL ACCESS TRACK
EXISTING HEDGEROW	PROPOSED MV STATION
PROPOSED INWARD LOOKING CCTV SECURITY CAMERA	EXISTING OVERHEAD POWERLINE
GSI FLOOD RISK ZONE	PROPOSED 3m WIDE GRAVEL ACCESS TRACK (Cable Easement)

- NOTES:
- DRAWINGS FOR PLANNING PURPOSES ONLY.
 - FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING.
 - GRID REFERENCES TO ITM.
 - ALL LEVELS SHOWN RELATE TO ORDNANCE SURVEY DATUM AT MALIN HEAD

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Rev	Date	Description	By	Chkd.

Client:

Project:
**SHESSY SOLAR FARM
PLANNING APPLICATION**

Title:
**Figure 6-2
Proposed Development
Site Layout**

Scale @ A1: **1:3,000**

Prepared by: M. Nolan Checked by: L. Shinkwin Date: August 2025

Drawing Status: **Planning**

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Drawing No.: **12091-2005** Revision: **A**

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7. DESCRIPTION OF THE EXISTING ENVIRONMENT

7.1 DESKTOP REVIEW

A description of the existing environment which was informed by a comprehensive desk assessment of available data (NPWS, NBDC and other data listed in Section 4.2.) within the 2km grid squares containing and adjoining the proposed development site (M40P and M40J) is provided hereunder. This includes records of rare and/or protected habitats, flora and fauna species and Third Schedule invasive species within the vicinity of the proposed development. A full description of the ecological field surveys results is also provided in Section 7.2.

7.1.1 European Sites

European Sites in proximity to the proposed development site are as follows: (* indicates priority)

- The Coole-Garryland Complex SAC (000252) is situated adjacent to the southern boundary of the proposed development site. The SAC is designated for seven Annex I habitats including natural eutrophic lakes with Magnopotamion or Hydrocharition-type vegetation [3150]; turloughs* [3180]; rivers with muddy banks with *Chenopodium rubri* p.p and *Bidenton* p.p [3270]; *Juniperus communis* formations on heaths or calcareous grasslands [5130]; semi-natural dry grasslands and scrublands facies on calcareous substrates (*Festuco brometalia*) (*important orchid sites) [6210]; Limestone pavements* [8240]; *Taxus baccata* woods of the British Isles* [91J0] and one Annex II species, namely the lesser horseshoe bat (*Rhinolophus hipposideros*) [1303]
- The Coole-Garryland SPA (004107) is located 1.6km south of the proposed development site. This site is designated for whooper swan (*Cygnus cygnus*).
- The Cahermore Turlough SAC is situated 1.1km southwest of the proposed development site and is designated for turloughs *[3180].
- The Ballinaduff Turlough SAC (002295) is located 1.4km southeast of the proposed development site and is designated for turloughs *[3180].
- The Ardrahan Grassland SAC (02244) is located 1.7km north of the proposed development site and is designated for four Annex I habitats including Alpine and Boreal heaths [4060]; *Juniperus communis* formations on heaths or calcareous grasslands [5130]; semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (* important orchid sites) [6210]; and limestone pavements [8240].
- The Caherglassaun Turlough SAC (000238) is situated 2.1km southwest of the proposed development and is designated for two Annex I habitats- turloughs* [3180] and rivers with muddy banks with *Chenopodium rubri* p.p and *Bidenton* p.p vegetation [3270] one Annex II species, the lesser horseshoe bat (*Rhinolophus hipposideros*) [1303].
- The Kiltartan Cave (Coole) SAC (000286) is situated 2.8km south of the proposed development site and is designated for caves not open to the public [8310] and lesser horseshoe bat (*Rhinolophus hipposideros*) [1303].
- The Lough Fingall Complex SAC (000606) is situated 2.9km north of the proposed development site and is designated for five terrestrial habitats including: turloughs* [3180]; Alpine and Boreal heaths [4060]; *Juniperus communis* formations on heaths or



calcareous grassland [5130]; Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*)(*important orchid sites) [6210]; Calcareous fens with *Cladium mariscus* and species of the Caricion davallianae* [7210]; Limestone pavements* [8240], and one Annex II species, the lesser Horseshoe Bat (*Rhinolophus hipposideros*) [1303]

- The Galway Bay Complex SAC (000268) is situated 3.1km west of the proposed development site and is designated for 9 marine habitats including mudflats and sandflats not covered by seawater at low tide [1140]; coastal lagoons* [1150]; large shallow inlets and bays [1160]; reefs [1170]; perennial vegetation of stony banks [1220]; salicornia and other annuals colonising mud and sand [1310]; Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330]; Mediterranean salt meadows (*Juncetalia maritimi*) [1410]; turloughs*[3180]; *Juniperus communis* formations on heaths or calcareous grasslands [5130]; semi-natural dry grasslands and scrubland facies on calcareous substrates [6210] (*Festuco Brometalia*)(*important orchid sites) [6210]; calcareous fens with *Cladium mariscus* and species of the Caricion davallianae*[7210]; alkaline fens [7230] and two Annex II species, including otter (*Lutra lutra*) [1355] and harbour seal (*Phoca vitulina*) [1365].
- The Carrowbaun, Newhall and Ballylee Turloughs SAC (002293) is situated 3.3km east of the proposed development site and is designated for turloughs*[3180].
- The Kiltieman Turlough SAC (001285) is situated 3.8km north of the proposed development site and designated for turloughs*[3180].
- The Lough Coy SAC (002117) is situated 4.3km east of the proposed development site and is designated for turloughs*[3180].
- The Castletaylor Complex SAC (000242) is situated 5.3km north of the proposed development site and is designated for five Annex I habitats including turloughs [3180]; Alpine and Boreal heaths [4060]; *Juniperus communis* formations on heaths or calcareous grasslands [5130]; semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (*important orchid sites) [6210] and limestone pavements [8240]

7.1.2 Surface Water Features

There are no surface water features located within the proposed development site. The closest river is the Kilchreest 29 (EPA Code: 29K02) located 1.8km south and 4km west of the proposed development site. Additionally, there are no continuous drainage ditches connecting the proposed development site to the Kilchreest 29 river. Therefore, there is no hydrological connectivity to any European sites via watercourses.

The proposed development site is situated within the Galway Bay Southeast Catchment (Catchment ID: 29) and the Kilchreest_SC_010 Subcatchment (Subcatchment: ID: 29_8).

7.1.2.1 Flooding

A review of flood mapping¹⁵ revealed some flooding within the proposed development site. The recurring flooding to the south of the site is likely due to the turlough within the Coole-Garryland Complex SAC (000252) that is situated directly adjacent to the southern boundary

¹⁵ [Flood Maps - Floodinfo.ie](#) (Accessed August 2025)



of the proposed development site. The very southern area of the proposed development site shows low, medium and high probability of groundwater flooding.

Flooding is also evident within the proposed development site, to the southwest of the site for GSI Maximum Historic Groundwater, however no additional information is available for this flooding location on the Flood Maps website¹⁵.

The extents of the flooding areas are included in the Site Layout Map Figure 6-2.

7.1.3 Groundwater Features

The Geological Survey of Ireland (GSI)¹⁶ and Environmental Protection Agency (EPA)¹⁷ online databases were consulted for available geological and hydrogeological information of the proposed development site and its environs.

The northern and eastern areas of the proposed development site overlay the Kinvara-Gort GWB (IE_WE_G_0002), while generally, the south-western of the proposed development site overlays the GWDTE-Cahermore Turlough GWB (SAC002294) (IE_WE_G_0092).

The Kinvara-Gort GWB is assessed as being of 'Good' overall status for the Ground Waterbody WFD Status 2016-2021 and 'Not at risk' for the 3rd Cycle of the Water Framework Directive.

The GWDTE-Cahermore Turlough GWB is assessed as being of 'Poor' overall water quality for the WFD Status 2026-2021. This 'Poor' status is a result of total phosphorus levels and subsequent failure for chemical status and therefore 'At risk.'

The proposed development entirely overlays a Regionally Important Aquifer-Karsified (conduit), which is a good aquifer, capable of supplying regionally important supplies (e.g., large public water supplies).

There are a number of turloughs in the surrounding hinterlands, the closest record is the Lydacan turlough which is ca. 50m south of the proposed development site, in the Coole-Garryland Complex SAC. No turloughs were recorded within the boundary of the proposed development site.

The RFI refers to a karst spring (GSI reference 1419NWK133) mapped as present within the proposed development site. The spring was mapped by GSI based on aerial mapping; however, it was confirmed during surveys undertaken in 2025 and again in July 2026 that the location does not correspond to any likely karst feature. The spring was mapped by GSI towards the top of a drumlin (hill) which could not be a feasible spring location. Additionally, there are no drainage ditches or water features within 200m of the GSI mapped feature. Refer to Plate 7-1 below. The findings of the hydrogeological surveys suggest that the karst spring (GSI reference 1419NWK133) may be as a result of mapping error. GSI have been informed that the karst spring does not occur at this location but have not responded back at the time of writing this NIS (July 2026).

¹⁶ [IE GSI Data Ireland ITM Map](#) (Accessed July 2026)

¹⁷ [EPA Maps](#) (Accessed July 2026)





Plate 7-1: Photo of mapped 'spring' within proposed development site, July 2026

7.1.4 Habitats and Flora

7.1.4.1 Habitats

The NPWS Article 17 Map Viewer¹⁸ shows records of 20 Annex I habitats with the grid squares encompassing the proposed development site. These include:

- Limestone Pavement* (8240)
- Yew Woodland* (91J0)
- Mixed *Najas Flexilis* Lake Habitat (3130)
- Hard Water Lakes (3140)
- Rich Pondweed Lake Habitat (3150)
- Turloughs* (3180)
- Vegetation of Flowing Waters (3260)
- Chenopodion Rubri (3270)
- Wet Heaths (4010)
- Dry Heaths (4030)
- Alpine and Subalpine Heath (4060)
- Juniper Scrub (5130)
- Orchid-rich Calcareous grassland* (6210)
- Molinia Meadows (6410)
- Blanket Bog (active)* (7130)
- Transition Mires (7140)
- Cladium Fens* (7210)
- Alkaline Fens (7230)
- Caves (8310)
- Alluvial Woodland* (91E0)

¹⁸ [The Status of EU Protected Habitats and Species in Ireland](#) (Accessed August 2025)



The presence or absence of these Annex I habitats was confirmed during the field surveys.

7.1.4.1.1 Protected Flora

A review of the NPWS Flora Protection Order (FPO) Map Viewer- Bryophytes¹⁹ and the NPWS Flora (Protection) Order 2022 Map Viewer Vascular Plants²⁰, Charophytes and Lichens did not reveal any QI flora species records overlaying the proposed development site.

7.1.4.1.2 Invasive Flora and Fauna Species

A search of the NBDC database¹¹ for protected and invasive flora within the 2km Irish grid squares M40J and M40P encompassing the proposed development was conducted. No protected flora or species listed under the Third Schedule of the Natural Habitats Regulations (2011) were noted.

7.1.4.2 Fauna

NPWS Article 17 Data

A search of NPWS Article 17 data (NPWS, 2019) revealed a total of 13 species records overlay the proposed development site, including : common Frog (*Rana Temporaria*) [Annex V]; **Lesser Horseshoe Bat (*Rhinolophus hipposideros*)** [Annex II, IV]; Common Pipistrelle (*Pipistrelle pipistrellus*) [Annex IV]; Daubenton's Bat (*Myotis daubentonii*) [Annex IV]; Nathusius' Pipistrelle (*Pipistrellus nathusii*) [Annex IV]; Natterer's Bat (*Myotis nattereri*) [Annex IV]; Brown long-eared bat (*Plecotus auritus*) [Annex IV]; Whiskered bat (*Myotis mystacinus*) [Annex IV]; Leisler's Bat (*Nyctalus leisleri*) [Annex IV]; Soprano Pipistrelle (*Pipistrellus pygmaeus*) [Annex IV], Mountain Hare (*Lepus timidus*) [Annex V]; **1355 Otter (*Lutra lutra*)** [Annex II, Annex IV] and Pine Marten (*Martes martes*) [Annex V].

National Biodiversity Data Centre Data

A search of the NBDC database (2025) was also carried out for protected fauna within the 2km grid squares encompassing the study area.

The following Annex species have records within the 2km grid squares (M40P and M40J) encompassing the proposed development site boundary: Brown long-eared bat (*Plecotus auritus*) [Annex IV]; Common Pipistrelle (*Pipistrelle pipistrellus*) [Annex IV]; Leisler's Bat (*Nyctalus leisleri*) [Annex IV]; Natterer's Bat (*Myotis nattereri*) [Annex IV]; Soprano pipistrelle (*Pipistrellus pygmaeus*) [Annex IV]; **Coot (*Fulica atra*)** [EU Birds Directive: Annex II, Annex III]; Daubenton's Bat (*Myotis daubentonii*) [Annex IV]; ; Leisler's Bat (*Nyctalus leisleri*) [Annex IV]; and **Lesser Horseshoe Bat (*Rhinolophus hipposideros*)** [Annex II, IV].

Annex II species are animals and plant species of community interest whose conservation requires the designation of species areas of conservation. Only two of the above-mentioned species are Annex II and will be discussed in further detail hereunder.

7.1.4.2.1 Otter (*Lutra lutra*)

As discussed above, Article 17 records of the Annex II species otter overlay the proposed development and records of this species exist within the 2km grid squares encompassing the

¹⁹ [FPO Bryophytes](#) (Accessed July 2026)

²⁰ [Flora \(Protection\) Order 2022 Map Viewer](#) (Accessed July 2026)



proposed development site. However, as previously mentioned in Section 7.1.2, there are no watercourses within the proposed development site, the closest river is the Kilchreest 29 (EPA Code: 29K02), located 1.8km south and 4km west of the proposed development, with no hydrological connection to the project.

There is no suitable habitat (e.g. lakes, rivers, streams or drainage ditches) within the proposed development site to support otter. Lydacan Castle Turlough located to the south of the proposed development site, within Coole-Garryland Complex SAC, is unsuitable for otter considering the lack of connectivity to other surface water features and the lack of available feeding resources such as fish.

Galway Bay Complex SAC (000268), which is located 4.7km northwest from the proposed development site, is designated for otter, however, there is no surface water connectivity between the proposed development site and the SAC. Considering the lack of surface water connectivity and the separation distance between the site and the SAC, it is considered unlikely that the proposed development supports the otter population designated within Galway Bay SAC.

7.1.4.2.2 Lesser Horseshoe Bat (*Rhinolophus hipposideros*)

Records of the lesser horseshoe bat were noted both within the Article 17 data and NDBC 2km grid squares encompassing the proposed development site. The conservation objectives supporting document for lesser horseshoe bat (NPWS, 2018b), states that for each lesser horseshoe bat roost, a 2.5km zone is considered an appropriate distance for foraging area. The Lesser Horseshoe Bat Species Action Plan 2022-2026 (NPWS, & VWT, 2022) also states that the retention of existing linear landscape features within at least 2.5km but preferably 5km of lesser horseshoe bat roosts with 20 bats or more is essential to counteract the documented genetic differentiation that has already occurred within the species throughout its Irish distribution. The following European sites designated for lesser horseshoe bat within 2.5km of the proposed development site are as follows: the Coole-Garryland Complex SAC (000252) situated at the southern boundary of the proposed development site; the Caherglassaun Turlough SAC (000238) located 2.1km southwest. The following European sites designated for lesser horseshoe bat occur just outside of the 2.5km radius of the proposed development site: Kiltartan Cave (Coole) SAC (000286) located 2.8km south; The Lough Fingall Complex SAC (000606) located 2.9km north. Considering that these European sites are all designated for lesser horseshoe bat and the proposed development site lies within and just outside of the foraging range for lesser horseshoe bat, it is likely that this species is present within the proposed development site.

7.1.4.2.3 Coot (*Fulica atra*)

Records of coot exist within the 2km grid squares encompassing the proposed development site. The closest European site designated for this species is the Lough Corrib SPA (004042), located 24km northwest of the proposed development site. No suitable habitat within the site exists for this species as it is a wader, requiring waterbodies to forage and roost (NPWS, 2023b).

7.2 ECOLOGICAL FIELD SURVEY RESULTS

The findings of the field surveys of the receiving environment are summarised hereunder.

7.2.1 Habitats and Flora

No Annex I habitats were identified within the proposed development site during the habitat surveys. In general, the proposed development site consists of low species diversity improved agricultural grassland (GA1). All fields are bordered by hedgerows (WL1), treelines (WL2) and stone walls (BL2). A large mixed broadleaved woodland (WD1) was recorded to the southeast of the proposed development site and smaller areas of scattered trees and parkland (WD5), immature woodland (WS2) and scrub (WS1) were also noted to the south, east and north of the proposed development site. No watercourses (rivers, drainage ditches etc) were recorded during the site visit.

7.2.1.1 Protected Flora Species

No QI plant species listed under the Flora Protection Order 2022 (FPO) were recorded within the proposed development site.

7.2.1.2 Invasive Flora Species

Three immature stands of Japanese knotweed (*Reynoutria japonica*) were recorded toward the eastern boundary of the proposed development site during the ecological field surveys. Japanese knotweed is listed under the Third Schedule of the Natural Habitats Regulations (2011), it is therefore illegal to disturb or cause the spread of this plant.

7.2.2 Fauna

7.2.2.1 Bats

A summary of the results of the bat surveys carried out within the proposed development site by Eire Ecology and discussions of the data included in the Shessy Bat Report (Appendix A) site are outlined below.

7.2.2.1.1 Tree Roost Assessment Results

Trees within the proposed development were assessed for bat roost potential. Of the 263 trees identified on site, 39 of these were assessed as having Potential Roost Features (PRFs) while a further 55 are rated Further Assessment Required (FAR). 169 trees had no bat roost potential (see Figure 7-1 for the locations of all trees assessed as PRF and FAR within the proposed development site).

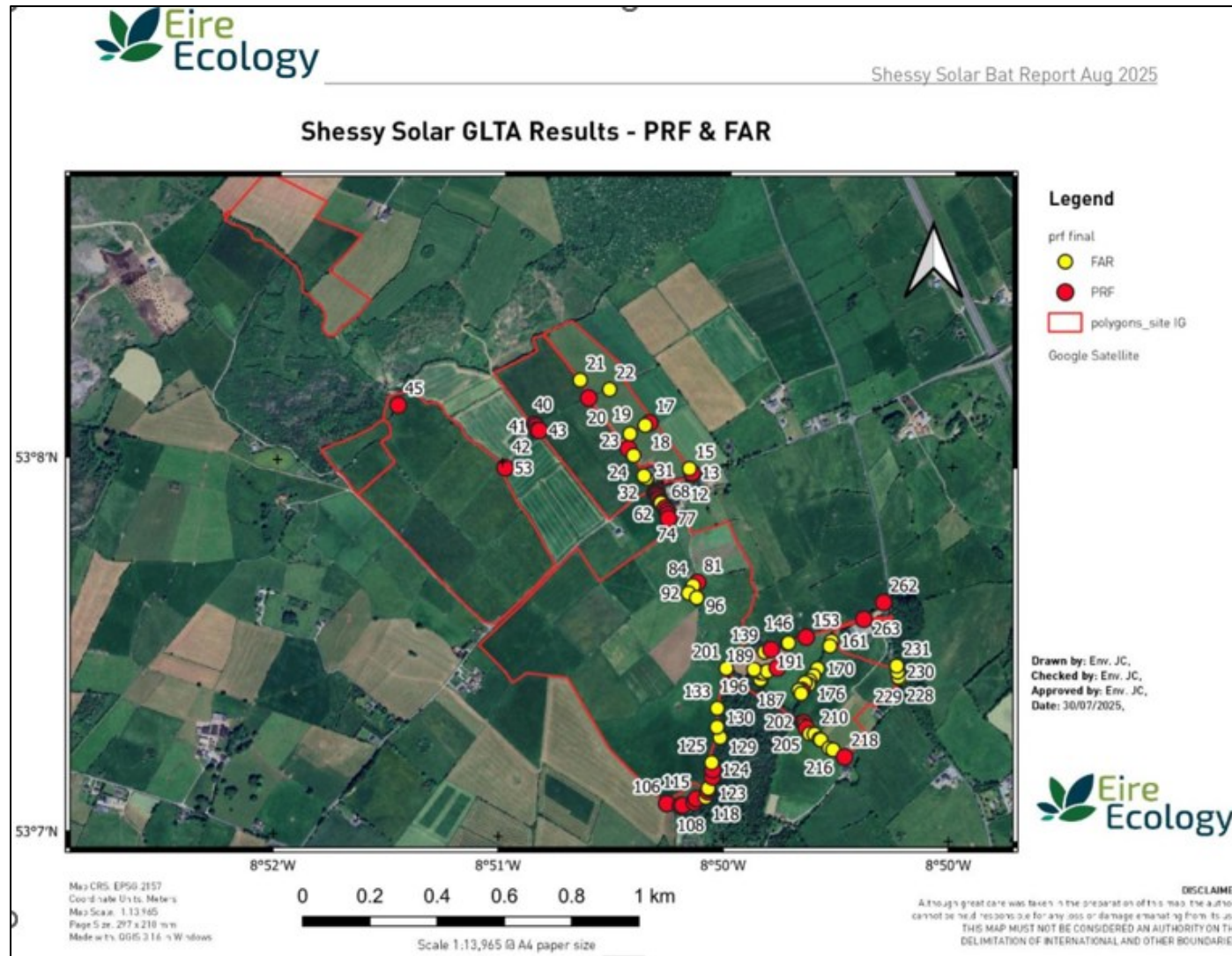


Figure 7-1: Shessy Solar GLTA Results- PRF & FAR

7.2.2.1.2 Night-time Emergence Surveys on Shed

On the 24th of June, surveys were undertaken at sheds located adjacent to the access track to the very east of the proposed development site (see Figure 7-2). Of the eight clustered sheds at this location, three have potential for bat roosts and were the focus of the emergence survey. One shed was found to contain a satellite roost of eight soprano pipistrelle and two common pipistrelle. It is also possible that a natterer's bat also emerged from here. Building two was not found to contain a day roost however natterer's bat are possibly using it as a feeding perch. Building eight had a night roost with one soprano pipistrelle while up to three common pipistrelle were noted circling inside later in the survey. No lesser horseshoe bats were recorded within the buildings during the survey. None of the buildings were noted to have high suitability for lesser horseshoe bat.

Full details of the survey and building numbering can be found in Eire Ecology's Bat Report included in Appendix A of this report.

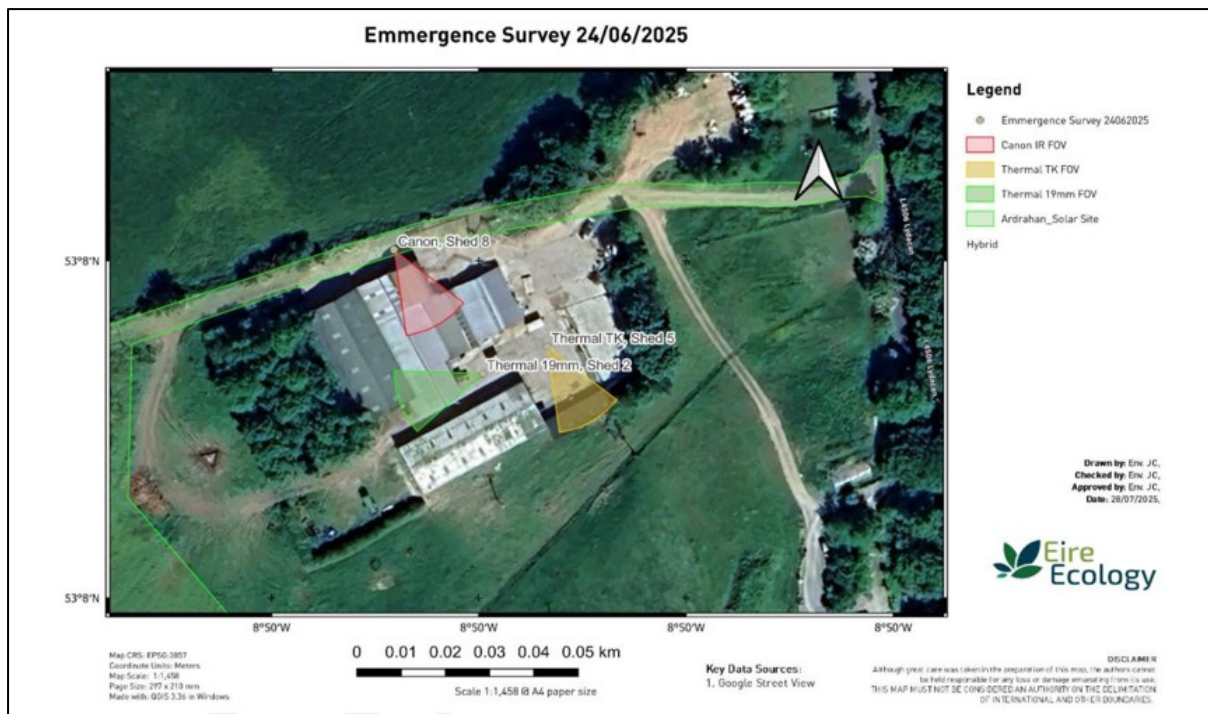


Figure 7-2: 24th of June 2025 Emergence Surveys on Sheds to the East of the Proposed Development Site

On the 22nd of July, night-time emergence surveys were undertaken in clusters of sheds, also towards the eastern boundary of the site (see Figure 7-3). Three sheds were surveyed at this location. Five common pipistrelle were found to have emerged from shed one while a single whiskered bat emerged from shed three. No lesser horseshoe were recorded within the buildings during the survey. None of the buildings were noted to have high suitability for lesser horseshoe bat.



Figure 7-3: 22nd of July Emergence Surveys on Sheds to the East of the Proposed development Site

7.2.2.1.3 Static Survey Results

7.2.2.1.3.1 All Bats

A total of 11 bat detectors were deployed across the proposed development site at nine locations, the areas in which detectors no 10 and 11 were located in have since been excluded due to redline boundary changes of the project (see Figure 7-4 for the locations of all bat detectors). Static detectors were placed not only in suitable bat habitat (such as the edge of a woodland) but also in open habitats, thus obtaining representative data from all types of habitats within the site. This was used by Eire Ecology to obtain accurate activity levels as detectors are in place for longer periods at each location.

A total of seven bat species were recorded during the static bat detector's deployment, including common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, Leisler's bat, brown long-eared bat, Natterer's bat and lesser horseshoe. In total, 65,622 registrations were recorded, with detector 2 (see Figure 7-4) located adjacent to the woodlands to the south of the proposed development site recording the highest overall activity. Other areas with highest comparative activity include detector 8 to the north-west of the site, situated by hazel scrub and detector 7. For a more detailed summary of all bat species data recorded within the proposed development site see Table 4-6 of the Bat Report in Appendix A.

7.2.2.1.3.2 Lesser Horseshoe Bat

Due to the presence of the Coole-Garryland Complex SAC (Site Code: 000252) at the southern boundary of the proposed development site (which is designated for lesser horseshoe bat) this species' results will be discussed in detail below.

During the static surveys, 97 lesser horseshoe bat registrations were recorded at 8 of the 11 deployed detectors, with statics 2, 5 and 7 recording the most passes of lesser horseshoe bat.

See the locations and frequencies of recordings of lesser horseshoe bat within the proposed development in Figure 7-5. A summary of recordings of lesser horseshoe bat is presented in Table 7-1 while Table 7-2 presents the difference in lesser horseshoe bat activity between open and edge habitats. For a summary of assigned activity levels for all species of open compared to edge habitats, see the Bat Survey Report included in Appendix A.

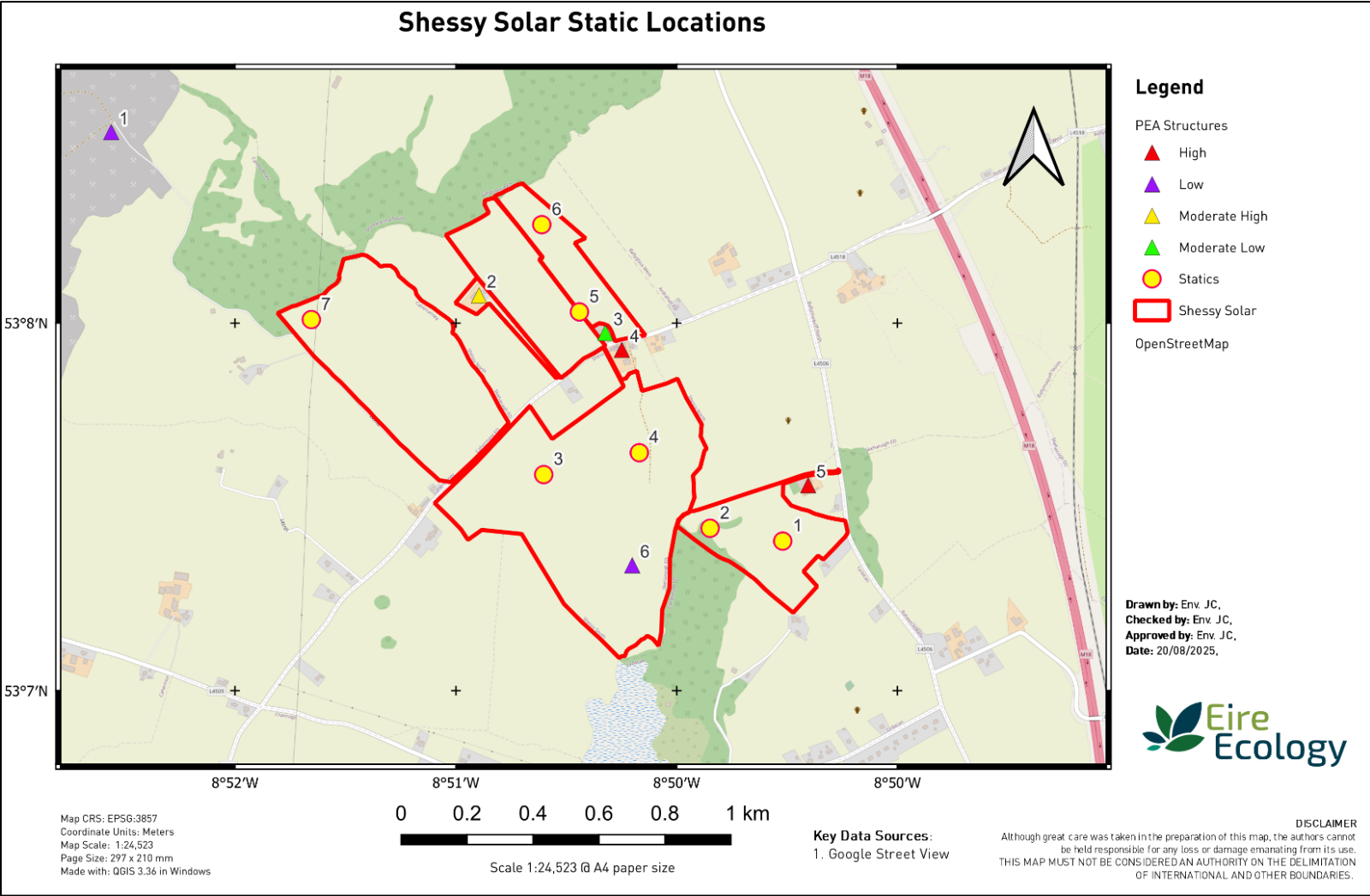


Figure 7-4: Shessy Solar Static Locations



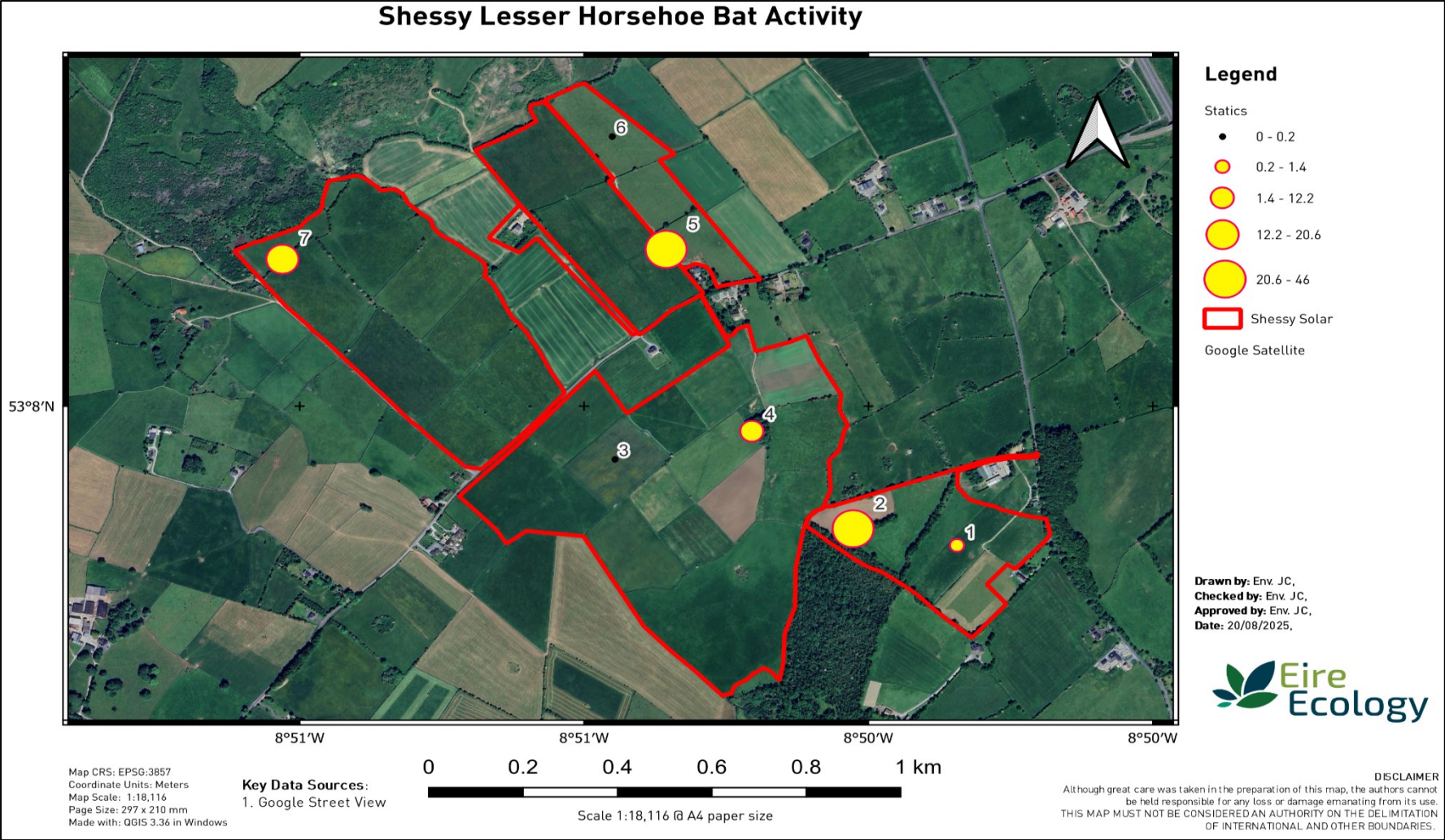


Figure 7-5: Shessy Statics Lesser Horseshoe Recordings



Table 7-1: Lesser Horseshoe Bat Static Recording Results

Detector	Habitat	Lesser Horseshoe Total Recordings
1	Open	1
2	Edge	46
3	Open	0
4	Edge	2
5	Edge	21
6	Open	0
7	Edge	19
8	Edge	0
9	Open	1
Total Registrations		90
Bat passes per hour (Bp/Hr)		0.07

Table 7-2: Lesser Horseshoe Bat Differences Between Open and Edge Habitats

Habitat	Activity	Total
Edge	Registrations	88
	BpHr	0.07
Open	Registrations	2
	BpHr	0.002



7.2.2.2 Birds

As previously discussed in Section 4.3, transect walkover bird surveys were conducted monthly between January and August of 2025. Additional surveys were conducted after the original application submission between September and December 2025.

The survey results indicated that the proposed development site supports a bird assemblage typical of that expected within rural farmland and wetland habitats. While several species of conservation concern were recorded during the surveys, the majority were observed in relatively low numbers and were widely dispersed across the survey area (i.e. the proposed development site plus a 600m buffer) or associated with adjacent higher value habitats (i.e. Lydcan Castle Turlough 50m south of the site).

Special Conservation Interest (SCI) bird species which were recorded during the surveys are summarised in Section 7.2.2.2.1 below. Details of all other bird species recorded are included within the Breeding and Winter Bird Summary Report contained in Appendix D.

7.2.2.2.1 Special Conservation Interest Species

Whooper swan, an SCI species of Coole-Garryland SPA (located 1.6km south of the proposed development site), was recorded on two occasions during the winter surveys, with a total of four individuals observed. These records comprised a single bird flying over the proposed development site boundary, and three birds foraging in a grassland located approximately 55m south of the proposed development site boundary (approximately 150m from the proposed solar panels). Whooper swan were not recorded foraging or roosting within the proposed development site during the winter bird surveys.

Seven SCI species of the Inner Galway Bay SPA (located ca. 4.6km northwest of the proposed development site) were recorded during surveying. These included golden plover (*Pluvialis apricaria*), black-headed gull (*Larus ridibundus*), Eurasian teal (*Anas crecca*), Eurasian wigeon (*Mareca penelope*), grey heron (*Ardea cinerea*), northern shoveler (*Anas clypeata*) and northern lapwing (*Vanellus vanellus*). A summary of the results for each species is outlined below:

- Golden plover was recorded on four occasions during the winter surveys, with a total of 54 individuals observed. The majority of recordings comprised birds flying or commuting over the proposed development site, with one recording of a single golden plover landing within agricultural grassland within the proposed development site. Despite this, there was no indication of regular foraging or roosting within the proposed development site by this species during the winter season.
- Black-headed gull were recorded on four occasions during the breeding season on seven occasions during the winter season with a total of 167 individuals observed. Most records comprised birds flying over or foraging outside of the proposed development site boundary. No foraging, breeding or roosting was observed within the survey area (i.e. the proposed development site plus a 600m buffer).
- Eurasian teal was recorded on three occasions during the winter surveys, with a total of 55 individuals observed. All these records comprised birds foraging outside of the proposed development site boundary. There was no indication of regular foraging or roosting within the proposed development site.

- Eurasian wigeon was observed on four occasions between 200m and 300m outside of the proposed development site in flocks of between seven and 21 individuals foraging and swimming within Lydcan Castle Turlough 50m south of the site. There was no indication of regular foraging or roosting within the proposed development site.
- Grey heron was observed on two occasions (four individuals) between 40m and 750m outside of the proposed development site. There was no indication of regular foraging or roosting within the proposed development site
- Northern shoveler was observed on three occasions during the winter surveys, swimming and foraging on a turlough between 180m and 310m outside of the proposed development site. There was no indication of regular foraging or roosting within the proposed development site.
- Northern lapwing was recorded on two occasions during the winter bird surveys, with a total of 113 individuals observed. These records comprised birds foraging or roosting outside of the proposed development site boundary. There was no indication of regular foraging or roosting within the proposed development site by this species.

Eurasian coot was observed on one occasion during the breeding season and on five occasions during the winter season. All records comprised birds foraging or flying outside of the proposed development site boundary. There was no indication of regular foraging or roosting within the proposed development site. The closest SPA designated for coot is Lough Rea SPA (004064) which is located approximately 17km north-east of the proposed development site.

Little grebe (*Tachybaptus ruficollis*) was recorded on one occasion during the breeding season and on six occasions during the winter bird surveys, with a total of 22 individuals observed. All these records comprised birds foraging outside of the proposed development site boundary. There was no indication of regular foraging or roosting within the proposed development site. The closest SPA designated for little grebe is the Corofin Wetland SPA (004220) which is located approximately 20km south of the proposed development site. Little grebe typical have small core foraging ranges focused around sheltered waterbodies with available dense plant material (NPWS, 2025d).

Gadwall (*Mareca strepera*) was observed on one occasion, involving four individuals, which were observed foraging outside of the proposed development site boundary. There was no indication of regular foraging or roosting within the proposed development site by this species during the winter season. The closest SPA designated for gadwall is Lough Corrib SPA (004042) which is located approximately 25km northwest of the proposed development site. Gadwall have localized foraging habitat with foraging ranges predominantly less than 1km (McDuie et al., 2019). Considering the foraging ranges of gadwall, the distance of Lough Corrib SPA and the proposed development site and the availability of suitable habitat within the SPA, the gadwall recorded within the study area were not considered to be part of a population designated within a SPA.

Mallard was observed on three occasions, involving 26 individuals during the breeding season and on six occasions, involving 57 individuals, during the winter season. All records comprised the birds foraging outside the proposed development site. While this location indicated suitable breeding habitat for the species, there was no confirmed evidence of breeding within the study area. No regular foraging or roosting within the proposed development site was recorded. The closest SPA designated for mallard is Ballyallia Lough SPA (004041) which is located



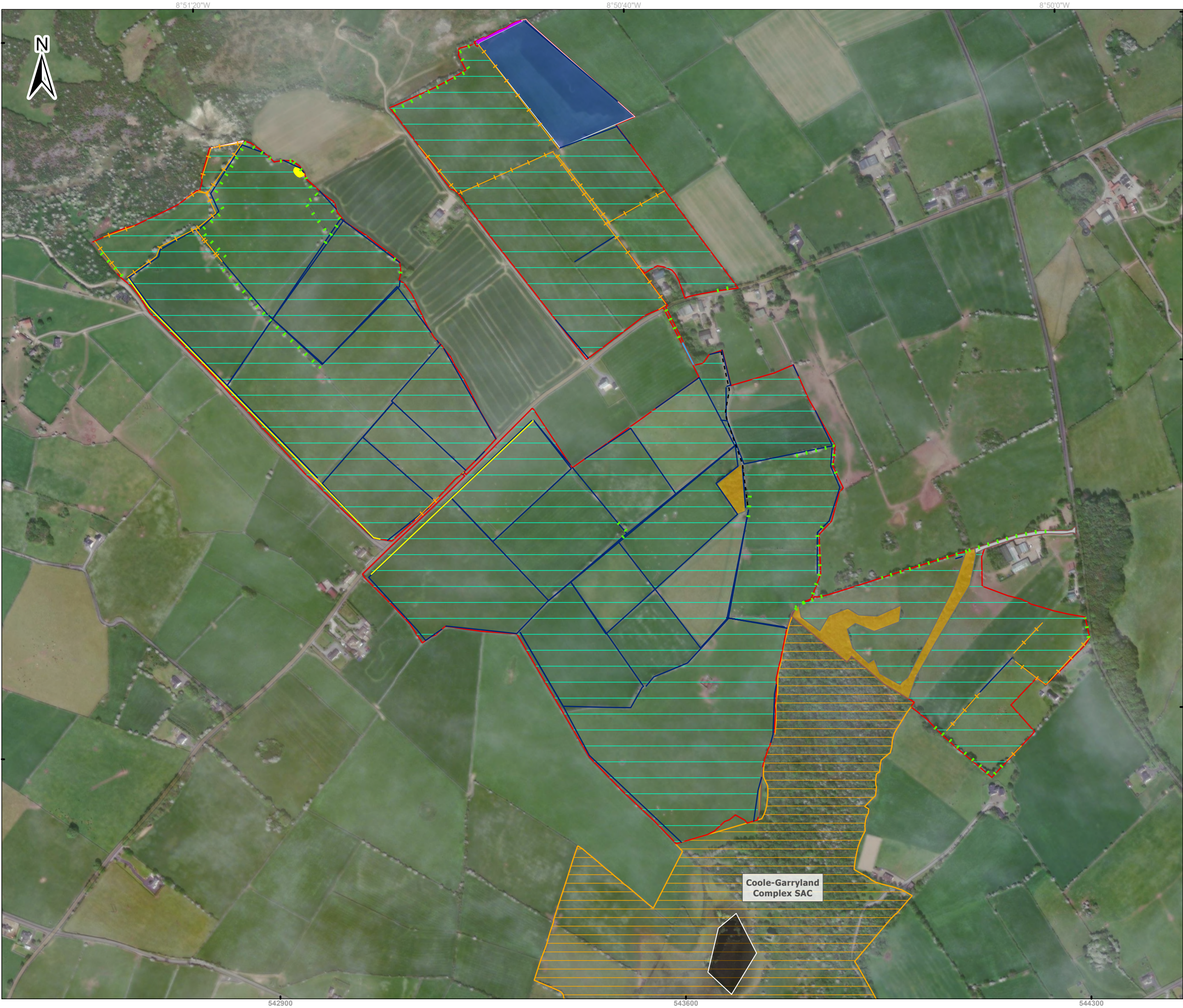
approximately 30km south of the proposed development site. Considering the considerable distance of Ballyallia Lough SPA and the proposed development site and the availability of suitable habitat within the SPA, the mallard recorded within the study area were not considered to be part of a population designated within a SPA.

Greylag goose was observed on one occasion, involving 16 individuals, which were observed flying outside of the proposed development site boundary. There was no indication of regular foraging or roosting within the proposed development site by this species during the winter season. The closest SPA designated for greylag goose is Poulaphouca Reservoir SPA (004063) which is located approximately 150km from the proposed development site. The core foraging range of greylag goose is 15-20km (SNH, 2016). Considering their core foraging range and the distance between Poulaphouca Reservoir SPA and the proposed development site, the geese recorded within the study area were not considered to be part of a population designated within a SPA.

Lesser black-backed gull (*Larus fucus*) was recorded twice within the proposed development site. One recording included three gulls foraging towards the northwestern boundary of the proposed development site. The second recording included four gulls flying over the proposed development site. The closest SPA designated for lesser black-backed gull is Lough Mask SPA which is located approximately 60km northwest of the proposed development site. All other SPAs designated for lesser black-backed gull are located an excess of 150km from the proposed development site. Lough Mask SPA is designated for a breeding population of lesser black-backed gull. Woodward et al. (2019) provide estimates of lesser Black-headed gull foraging ranges from the nest site during the breeding season and estimate a mean foraging range of 7km and a maximum foraging range of 19km for this species. Considering the considerable distance of Lough Mask SPA (ca. 70km) and the proposed development site and the availability of suitable habitat within the SPA, the gulls recorded within the study area were not considered to be part of a population designated within a SPA.

Figure 7-6: Habitats and Protected Species Map





Legend

Solar Farm Boundary

Special Areas of Conservation (SACs)

Habitats

- BL1 - Stone walls and other stonework; BL1 - Stone Walls and other stonework
- BL3 - Buildings and artificial surfaces
- GS2 - Dry meadows and grassy verges
- WL1 - Hedgerows
- WL2 - Treelines
- BL3 - Buildings and artificial surfaces
- ED1 - Exposed sand, gravel or till
- FL6 - Turloughs
- GA1 - Improved agricultural grassland
- WD1 - (Mixed) broadleaved woodland
- WD5 - Scattered trees and parkland
- WS1 - Scrub
- WS2 - Immature woodland

0 100 200 Metres

Spatial Reference Datum: IRENET95 EPSG: 2157		Copyrights: © OpenStreetMap (and) contributors, CC-BY-SA, Maxar, Microsoft, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, ©		
A	02/09/2025	First Issue	S.P	S.R
Rev	Date	Description	By	Chkd.

Client:

Project: **Shessy Solar Farm Project**

Title: **Figure 7-6
Habitat Map**

1:6,000

Scale @ A3:

Prepared by:	Checked by:	Date:
S.Pezzetta	S.Ryan	September 2025

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Legend

Site Boundaries

Transect Points

- Black-headed Gull
- Eurasian Coot
- Eurasian Teal
- Eurasian Wigeon
- European Golden Plover
- Greylag Goose
- Lesser Black-backed Gull
- Little Grebe
- Mallard
- Northern Lapwing
- Northern Shoveler
- Gadwall
- Grey Heron
- Whooper Swan

0 250 500

Meters

NOTES

1. FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING!
2. ALL DRAWINGS TO BE CHECKED BY THE CONTRACTOR ON SITE!
3. ENGINEER TO BE INFORMED OF ANY DISCREPANCIES BEFORE ANY WORK COMMENCES!
4. ALL LEVELS RELATE TO ORDNANCE SURVEY DATUM AT MALIN HEAD

A	30/07/2026	First issue	K.K	J.F
Rev	Date	Description	By	Chkd.

Client:

Project:

Shessy
Solar Farm Project

Title:

Figure 7-6:
Transect Survey January-December 2025
SCI Species Observations

Scale @ A3: 1:10,000

Prepared by: K.Kale

Checked by: A.Sands

Date: July 2026

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12091-020-TR.S.Jan.Dec..25-SCI-TOB-A

Draft:

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8. OVERVIEW OF POTENTIAL IMPACTS

There are several elements associated with the proposed development that may give rise to direct impacts and indirect impacts that have the potential to result in likely significant effects on European sites. The significance of these impacts depends on the scale of the impact as well as the ecological condition and the sensitivities of the qualifying interests/special conservation interests. Elements of the proposed development that may give rise to impacts which have been considered with regards to potential effects on European sites are discussed hereunder.

8.1 CONSTRUCTION PHASE

Potential construction phase impacts associated with the proposed development are discussed hereunder

8.1.1 Habitat Loss and Fragmentation

No Annex I habitats were identified within the footprint of the proposed development site, and no construction works will occur outside the proposed development site, therefore no Annex I habitat will be impacted.

A total of 26.3 ha of low ecological value agricultural grassland (GA1) will be lost as a result of the proposed development; this habitat loss is associated with the installation of: solar PC modules; MV inverters; internal cabling; and BESS. Additionally, a total of 1ha of low ecological value habitat in the form of exposed sand, gravel or till (ED1) will be lost as a result of the solar PV modules and internal cabling and 162m² of high ecological value mixed broadleaved woodland will also be lost as a result of internal cabling associated with the proposed development planning application

The proposed development will also result in the removal of 118m of hedgerows and treelines at ~~seven~~ **6** locations within the proposed development site, with gaps ranging from 6-26m in length (**refer to Figure 8-1**). This will potentially result in the loss of foraging habitat and habitat fragmentation for all bats within the proposed development site.

As outlined in Section 7.2.2.1, lesser horseshoe bat was recorded within the proposed development site. This is of particular relevance as this species is a QI of the Coole-Garryland Complex SAC (located directly south of the proposed development site) and also a number of European sites designated for this QI situated in close proximity to the proposed development site. As previously mentioned in Section 7.2.2.2, a number of SCI bird species were recorded during the monthly transect surveys within and surrounding the proposed development site.

8.1.2 Excavation and Earthworks

The proposed development will require moderate shallow excavation works with regards to site clearance and installation of the solar panels and laying of cabling connecting the northern and southern sections of the proposed development site as depicted in Figure 6-2.

8.1.3 Runoff of Sediment and/or Construction Pollution

Site clearance, excavation activities and the stockpiling of material have the potential to result in sediment laden runoff if not appropriately managed, however as previously stated, there are



no watercourses within the proposed development site. Therefore, no potential for runoff of sediment and/or construction pollution exists.

A temporary sealed below ground wastewater storage tank will be constructed on site to hold wastewater generated by toilets in the temporary staff building during the construction phase.

8.1.4 Dust

The temporary generation of dust in the locality of the works area is likely to arise due to general construction phase activities (i.e., movement of construction vehicles and machinery, road upgrade works, removal of vegetation, excavation activities). Plant communities may be affected by dust deposition (effects on photosynthesis, respiration, transpiration) which could in turn, alter community structure. Dust deposits on vegetation can stunt growth and indirectly impact local fauna who utilise vegetation for roosting and/or foraging purposes.

The Institute of Air Quality Management provide guidelines which prescribes potential dust emission risk classes to ecological receptors (Holman et al., 2014). The guidelines specify that receptor sensitivity is 'High' up to 20m from the source and reduces to 'Medium' at 50m. The spatial limit of dust is therefore considered as 50m from the proposed development site.

The Coole-Garryland Complex SAC is situated at the southern boundary of the proposed development site and is therefore within the 50m distance for dust impacts, however as evident in the Site Layout Map (Figure 6-2), no solar panels or any other elements of the proposed development will be constructed within 100m of the southern boundary of the site. The access track briefly enters the 100m buffer, for a distance of ca. 130m, therefore, dust impacts on European sites as a result of the proposed development are considered short-term and minimal.

8.1.5 Noise and Disturbance

Normal working hours during the construction period are expected to be Monday to Friday 08.00 to 18.00 hours (inclusive) and Saturdays (excluding Bank/Public Holidays) 08.00 to 14.00 (inclusive). The proposed construction works will result in an increase in noise levels during the works due to the presence of construction vehicles and machinery mentioned above.

~~There is potential that rock breaking will be required during the construction works. However,~~
No rock breaking nor blasting will be undertaken during the construction phase.

The construction phase of the proposed development is anticipated to generate relatively low levels of noise. As mentioned in Section 6.2, both techniques involved in the installation of the solar arrays require a small track machine with a ram/screw attached. This machine tracks up and down in rows and piles the solar panels (modules) into the ground. The noise impacts are typical of the existing agricultural use of the lands. The short-term nature of the works is also a mitigating factor. In general, plant machinery will be designed to ensure that the maximum noise level 10m outside the site boundary do not exceed an equivalent continuous sound level beyond the recommended limits of BSI British Standards (BS5228-1:2009+A1:2014). Additionally, no night work is anticipated.

As described in Section 6.1.4, there is no proposal to include any permanent artificial lighting on the site during any phase of the proposed development. There will however be temporary security lighting installed which will only be switched on in the event of an emergency.

The temporary increase in noise levels and disturbance within the site during the proposed development period may result in disturbance to wildlife within the immediate vicinity of the site.

8.1.6 Invasive Alien Plant Species (IAPS)

As previously stated in Section 7.2.1.2, Japanese knotweed was recorded at the eastern section of the proposed development site. Considering the increase of large vehicles delivering materials to the proposed development site, it is possible that this could result in the spread of Japanese knotweed both within and outside of the proposed development site via the tyres of these vehicles and to nearby SACs. This species is a threat in open and riparian habitats where it spreads aggressively to form dense stands, excluding native vegetation and prohibiting their regeneration. This reduces plant species diversity and alters habitats for wildlife²¹. Its spread would negatively impact terrestrial habitats within European sites.

8.2 OPERATIONAL PHASE

8.2.1 Lighting

Bat species are sensitive to the effects of strong lighting and, therefore, artificial lighting projecting outward from the BESS and substation could have an adverse impact on bat populations. However, as the proposed security system only includes lighting which will be switched on in the event of an emergency only, with no permeant lighting required for the operational phase, no negative impacts on local bat populations are anticipated.

8.2.2 Noise and Disturbance

There is potential for slight noise emissions from the MV substations due to the cooling system requiring internal fans which emit some localised noise perceptible immediately adjacent to the MV substation. Additionally, the BESS will result in some noise localised to the proposed development site, however as mentioned in Section 6.1.10, the security fencing will include a noise acoustic barrier.

The operational phase activities will include occasional site visits and intermittent maintenance works which may result in some disturbance and habitat clearance as a result of grassland and hedgerow maintenance. During the operational phase, the level of operational traffic and ongoing maintenance is expected to be low.

8.2.3 Habitat Fragmentation

The proposed permanent fencing surrounding the solar farm will include small mammal gates fitted to enable free access every 100m and will have ground clearance of all fencing installed to a minimum height of 0.1m above ground level. This will allow the movement of small mammals, such as badger, through the site and avoids the fragmentation of habitat. No additional habitat fragmentation is anticipated as a result of the proposed development.

²¹ [Invasive Species Northern Ireland](#) (Accessed: July 2026).



8.2.4 Water Source

Water is required as part of the operational phase of the proposed development for the washing of the solar panels when required. This activity is only expected to be carried out occasionally (panels typically need to be washed 1-3 times per year depending on the soiling condition on the panels) and require approximately 1500 litres per MW. It is proposed to provide water via a mobile tanker rather than drill a borehole well in each land parcel or to use water from the local public water supply. The water will percolate to the ground immediately after washing. The washing will only require water and will not require the use of any chemicals.

8.2.5 Collision and Reflection Risk

Photovoltaic solar panels present a collision risk (albeit low) with bat and bird species due to the species mistaking it for a waterbody as a result of the reflection of polarised lighting.

However, the solar panels which will be used in the Shessy Solar Farm development will include an anti-glare coating which will prevent reflection and glare from the panels. Therefore, considering the anti-reflection coating there is no potential for bat or bird species to mistake the panels for water. Collision risk is not considered further within this assessment.

8.2.6 Fire Risk

BESS developments pose a rare but severe fire risk largely due to self-heating reaction in lithium-ion cells (thermal runaway) or manufacturing defaults. Fires within the proposed development site could result in the disturbance of ex-situ species which may be foraging within the vicinity.

8.3 DECOMMISSIONING AND RESTORING

Decommissioning phase is expected to last for approximately six months and will include disconnecting the BESS facility from the power grid, shipping electrical equipment to recycling facilities for recycling and material re-use, waste management company removing batteries, removal of concrete bases, re-levelling the ground to original contours using imported soil where necessary and reseeded with grass, dismantle and recycle security systems, CCTV, associated supports, wiring and fencing. Decommissioning impacts are expected to be of a similar type and magnitude to those anticipated during the construction phase, but generally of a shorter duration and scale. Activities associated with decommissioning are not predicted to exceed those assessed for the construction phase.



Legend

- Solar Farm Boundary
- Hedgerow Removal
- proposed Natural Heritage Areas

0 100 200
Metres

Spatial Reference Datum: IRENET95 EPSG: 2157		Copyrights: © OpenStreetMap (and) contributors, CC-BY-SA, Maxar, Microsoft, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, ©		
A	11/09/2025	First issue	S.P	S.R
Rev	Date	Description	By	Chkd.

Client:

Project:

Shessy Solar Farm Project

Title:

Figure 8-1
Hedgerow Removal Associated with the Proposed Development

Scale @ A3: 1:6,000

Prepared by:	Checked by:	Date:
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Map Ref:	Draft:
12091-009-HEDGE..Re-P.App.BO-TOB-A	A

8.4 DETERMINING THE LIKELY ZONE OF INFLUENCE

In order to inform the source-pathway-receptor model, the ZoI needs to be established. The Chartered Institute of Ecology and Environmental Management (CIEEM) defines the ZoI of a project as the area(s) over which ecological features may be affected by the biophysical changes caused by the proposed development and associated activities (CIEEM, 2018).

In order to establish the ZoI of the proposed development works, the likely key biophysical changes associated with the works were determined having regard to the project characteristics (Section 6), the impacts associated with the elements of the project (Section 8) and the receiving environment (Section 7).

The ZoI of the proposed development (in the absence of any mitigation measures) is described hereunder.

Habitat Loss Impacts - ZoI

Although the permanent and temporary loss of habitats will be confined to within the proposed development site boundary, the connectivity of the hedgerows within the proposed development site and their removal as a result of the proposed development extends the impacts to its surrounding environs. These impacts must be assessed in accordance with both individual European sites in proximity to the proposed development site and the foraging/commuting range of QIs/SCIs.

The conservation objectives supporting document for lesser horseshoe bat (NPWS, 2024), states that for each lesser horseshoe bat roost, a 2.5km zone is considered an appropriate distance for foraging area. The target of the conservation objectives for lesser horseshoe bat is that there is no significant decline in the extent of linear features or potential foraging habitat within 2.5km of qualifying roosts. Additionally, as discussed in Section 7.1.4.2.2, the Lesser Horseshoe Bat Species Action Plan 2022-2026 (NPWS, & VWT, 2022) also states that the retention of existing linear landscape features within at least 2.5km of lesser horseshoe bat roosts with 20 bats or more is essential to counteract the documented genetic differentiation that has already occurred within the species throughout its Irish distribution. Therefore, the ZoI for lesser horseshoe bat with regards to habitat loss is established as 2.5km.

Whooper swan have a core foraging of 5km from night roosting sites (SNH, 2022). Therefore, for whooper swan the ZoI for habitat loss was established at 5km.

Surface Water Impacts-ZoI

As previously mentioned, there are no surface water features within the proposed development site, closest river is the Kilchreest 29 (EPA Code: 29K02), located 1.8km south of the proposed development site and 4km west, with no hydrological connection to the project.

As previously discussed in Section 7.1.2.1, flooding occasionally extends ca. 50m inside the boundary of the proposed development site, likely from the turlough which is located in (and designated for) the Coole-Garryland Complex SAC. However, as no works will occur within 100m of the southern boundary and the Coole-Garryland Complex SAC, and no historic records exist of the flooding extending further north than 50m from the SAC boundary, no viable hydrological connection exists. Therefore, surface water impacts are extremely unlikely to occur during the construction phase.



Groundwater Impacts- Zol

There will be no drilling or deep excavation as a result of the proposed development and therefore, there will be no subsequent groundwater impacts.

Noise and Disturbance to Fauna Zol

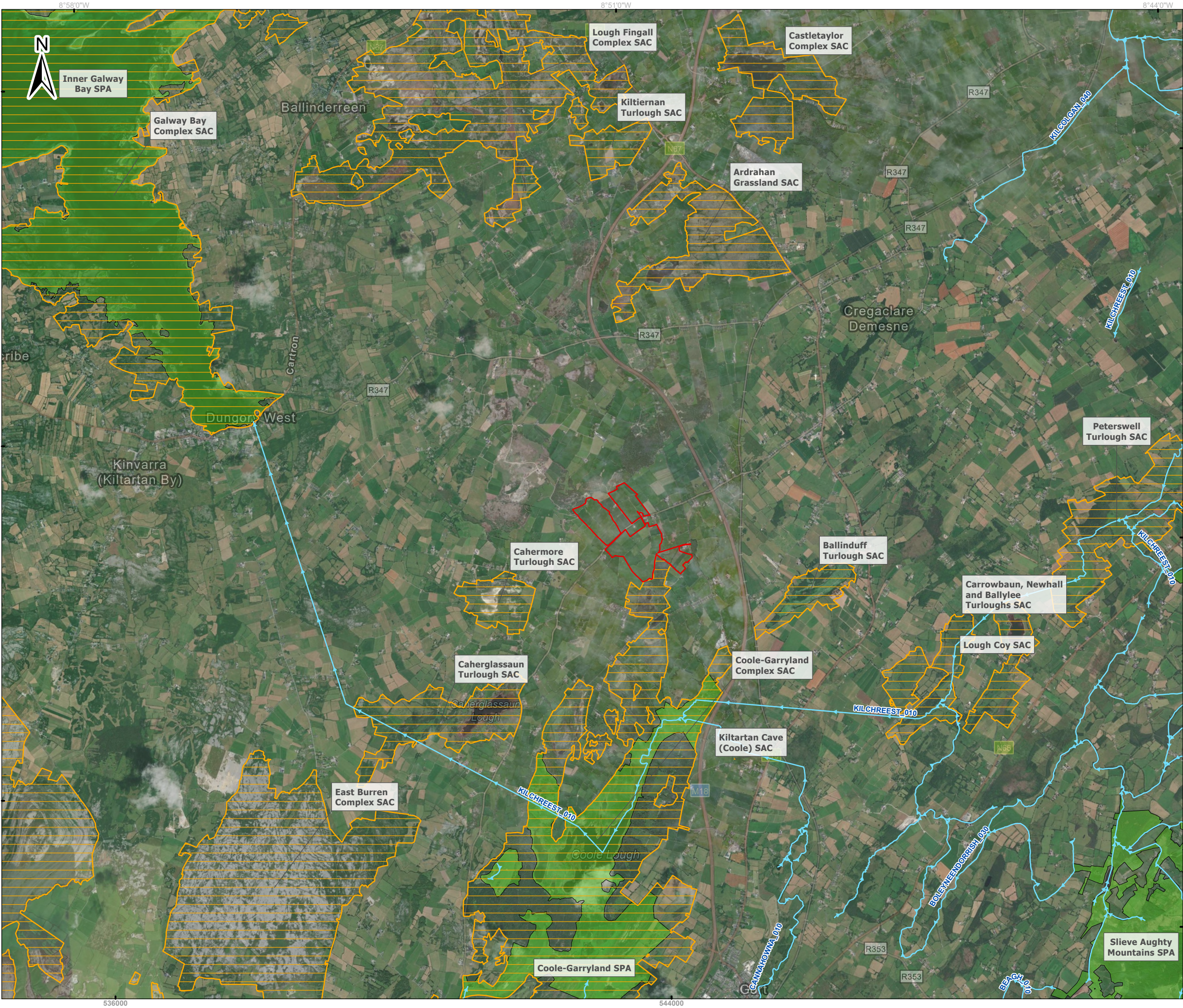
Disturbance to bird species will be considered individually where required with reference to Goodship and Furness (2022) and Cutts *et al.* (2013). Goodship and Furness (2022) reviewed the likely sensitivity to disturbance of 63 bird species. Of these 63 species the largest recommended buffer zone (breeding and non-breeding) was 1km. However, following the additional bird surveys that were undertaken and an assessment of the target species recorded, the Zol was reduced to 600 m to reflect the precautionary disturbance distance reported for whooper swan in relation to solar farm developments (Goodship and Furness, 2022).

The Zol for noise/distance was therefore established as the proposed development site plus a 600m ~~1km~~ buffer. In addition, to further establish any pathways to SPAs and SACs, the foraging/commuting ranges of special conservation interest and qualifying interest species will be considered.

As outlined in the Bat Report included in Appendix A, construction will only take place during daylight hours thus no impacts associated with artificial lighting are expected in this regard on bats. The report additionally states that operational phase noise will be limited and associated with occasional maintenance visits only and as such, will not have any impact on bats.

8.5 IDENTIFICATION OF RELEVANT EUROPEAN SITES

As mentioned, the source-pathway-receptor conceptual model was used to identify a list of 'relevant' European sites (i.e., those occurring within the Zol of the proposed development). European sites considered to have connectivity to the proposed development, were reviewed and are illustrated in Figure 8-2 and are listed in Table 8-1.



Galway
Loughrea
53°8'N
8°56'W

Legend

- Solar Farm Boundary
- WFD - River Water Bodies
- Special Areas of Conservation (SACs)
- Special Protection Areas (SPAs)

0 1 2
Kilometres

Spatial Reference Datum: IRENET95 EPSG: 2157		Copyrights: © OpenStreetMap (and) contributors, CC-BY-SA, Maxar, Microsoft, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, ©		
A	02/09/2025	First issue	S.P	S.R
Rev	Date	Description	By	Chkd.

Client:

Project:

Shessy Solar Farm Project

Title:

Figure: 8-2
European Sites Map

Scale @ A3: 1:50,000

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Map Ref: 12091-010..NIS-EU.S-P.App.BO-TOB-A

Draft: A

Table 8-1: European Sites Within the Zol of Project

European Site	Qualifying Interest/Special Conservation Interests	Source-Pathway-Receptor Link	Pathway for effect
Coole-Garryland Complex SAC (000252) - located directly adjacent to the southern boundary of the proposed development site (0m)	Conservation Objectives Document (NPWS, 2024): • Lesser Horseshoe Bat (<i>Rhinolophus hipposideros</i>) [1303] • Natural eutrophic lakes with Magnopotamion or Hydrocharition- type vegetation [3150] • Turloughs* [3180] • Rivers with muddy banks with <i>Chenopodium rubri</i> p.p and <i>Bidention</i> p.p [3270] • <i>Juniperus communis</i> formations on heaths or calcareous grasslands [5130] • Semi-natural dry grasslands and scrublands facies on calcareous substrates (<i>Festuco brometalia</i>) (*important orchid sites) [6210] • Limestone pavements* [8240] • <i>Taxus baccata</i> woods of the British Isles* [91J0]	Physical: The SAC is situated directly adjacent to the southern boundary of the proposed development site. Considering the presence of Japanese knotweed at the southeastern boundary of the proposed development site, potential risks exist in relation to the spreading of the Third Schedule invasive species from the proposed development to the SAC, which could alter the habitat and species composition of terrestrial and freshwater habitats within the SAC. Hydrological/Hydrogeological: There are no watercourses within the proposed development site (as discussed in Section 7.1.2). Additionally, no works will occur within 100m of the southern boundary of the Coole-Garryland Complex SAC (as previously mentioned in Section 8.4). A review of historical flood mapping shows that flooding from the Lydacan turlough does not extend to within the proposed development's southern boundary (see flood extents in Figure 6-2). There will be no drilling or deep excavation as a result of the proposed development (as stated in Section 8.4). Therefore, no viable hydrological or hydrogeological pathways exist, and no water quality impacts will occur as a result of the proposed development site. Ecological: It has been established that lesser horseshoe bats (a QI of the SAC) are commuting and foraging within the proposed development site (refer to Section 7.2.2.1). The proposed development site will result in the removal of 118m of hedgerows (refer to Figure 8-1 above and Figure 8-3 below) within 2.5km of the SAC, which has the ability to disrupt flight patterns of lesser horseshoe bat and cause disturbance to this species. A source-pathway receptor link (via physical and ecological impacts) exists between the proposed development site and this SAC.	Yes - Viable physical and ecological pathways for impacts on the SAC from the proposed development were identified.



European Site	Qualifying Interest/Special Conservation Interests	Source-Pathway-Receptor Link	Pathway for effect
The Coole-Garryland SPA (004107) - located 1.6km south of the proposed development site.	Conservation Objectives Document (NPWS, 2025a): Whooper Swan (<i>Cygnus cygnus</i>) [A038]	Physical: The Coole-Garryland SPA is located ca. 1.6km south of the proposed development site, there will be no direct impacts to the SPA designated for whooper swan. Hydrogeological: The proposed development site (the Cahermore and Kinvara-Gort GWB) and the SPA (Caherglassaun Turlough GWB) are located in separate groundwater bodies. There is therefore no hydrogeological connectivity between the SPA and the proposed development site. Hydrological: There are no watercourses within the proposed development site (as discussed in Section 7.1.2). No hydrological pathway therefore exists. Ecological: Whooper swan were recorded flying over the proposed development site and foraging within a field approximately 55m south of the site (refer to Section 7.2.2.2). The proposed development site contains suitable foraging habitat for whooper swan²² (ca. 61ha of agricultural grassland) (albeit not the preferred main foraging habitat) and also occurs within the core foraging range from night roosts during the winter season i.e. less than 5km (SNH, 2022). A source-pathway receptor link (via ecological impacts) therefore exists between the proposed development site and this SPA. no viable source-pathway-receptor link via habitat loss exists for whooper swan associated with the SPA.	No, no viable pathway for indirect effects via habitat loss for whooper swan exists between the proposed development site and the SPA. Yes - Viable ecological pathways for impacts on the SPA from the proposed development were identified.
The Caherglassaun Turlough SAC (000238) - located 2.1km southwest of the	Conservation Objectives Document (NPWS, 2018a):	Physical: The proposed development site is situated 2.1km northwest of the SAC and therefore lies outside of the Zol for direct and indirect physical effects. Considering this distance, and	Yes- Viable ecological pathways for ecological impacts on the SAC from the

²² [Whooper Swan - BirdWatch Ireland](#) (Accessed August 2025)



European Site	Qualifying Interest/Special Conservation Interests	Source-Pathway-Receptor Link	Pathway for effect
proposed development site.	• Lesser Horseshoe Bat (<i>Rhinolophus hipposideros</i>) [1303] • Turloughs* [3180] • Rivers with muddy banks with <i>Chenopodium rubri</i> p.p and <i>Bidention</i> p.p vegetation	lack of connectivity between the proposed development there is no potential for physical pathways for effect. Hydrological/Hydrogeological: Although the SAC and the eastern section of the proposed development site lie within the same GWB, the GWDTE-Cahermore Turlough GWB (SAC002294), there are no watercourses within the project site (as stated in 7.1.2) and there will be no drilling or deep excavation as a result of the proposed development (as stated in Section 8.4) and therefore no hydrological/hydrogeological pathways for effect therefore exists. Ecological: As previously mentioned, the conservation objectives supporting document for lesser horseshoe bat (NPWS, 2018), states that for each lesser horseshoe bat roost, a 2.5km zone is considered an appropriate distance for foraging area. Both the conservation objectives supporting document and Lesser Horseshoe Bat Action Plan (NPWS & VWT, 2022) states the target that there is no significant decline in potential foraging habitat whin 2.5km of qualifying roosts. As the proposed development will result in the loss of hedgerows within 2.5km of the SAC (refer to Figure 8-1 above and Figure 8-3 below) a viable pathway via ecological effects exists. Therefore, a source-pathway receptor link via foraging and commuting habitat loss for lesser horseshoe bat of the SAC exists.	proposed development were identified.
Kiltartan Cave (Coole) SAC (000286) - located 3.4km south of the proposed development site.	Conservation Objectives Document (NPWS, 2018c): • Lesser Horseshoe Bat (<i>Rhinolophus hipposideros</i>) [1303] • Caves not open to the public [8310]	Physical: The proposed development site is situated 3.4km north of the SAC and therefore lies outside of the Zol for direct physical impacts to the qualifying interest habitat caves not open to the public [8310]. Ecological: As previously mentioned, the proposed development is situated 3.4km north of the SAC and lies outside of the commuting and foraging range for lesser horseshoe bat (2.5km) as defined by the conservation objectives supporting document for lesser horseshoe bat (NPWS, 2018c), the location of the designated	No- no viable link exists for direct physical impacts for caves not open to the public or indirect impacts related to commuting and foraging habitat loss from vegetation removal for lesser horseshoe exists.



European Site	Qualifying Interest/Special Conservation Interests	Source-Pathway-Receptor Link	Pathway for effect
		lesser horseshoe bat roost (Roost ID 219) is also located 3.1km south of the closest hedgerows to the roost being removed as a result of the proposed development. Therefore, impacts of loss of commuting and foraging habitat relating to the removal of hedgerow as a result of the proposed development site are not anticipated for lesser horseshoe bat associated with the Kiltartan Cave (Coole) SAC. No source-pathway receptor link via the proposed development site and the SAC exists.	
The Lough Fingall Complex SAC (000606) - located 2.9km north of the proposed development site.	Conservation Objectives Document (NPWS, 2019): • Lesser Horseshoe Bat (<i>Rhinolophus hipposideros</i>) [1303] • Turloughs* [3180] • Alpine and Boreal heaths [4060] • <i>Juniperus communis</i> formations on heaths or calcareous grassland [5130] • Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>)(*important orchid sites) [6210]	Physical: the Lough Fingall Complex SAC is situated 2.9km north of the proposed development site and is designated for four terrestrial habitats. Considering this distance, the SAC lies outside of the Zol for direct physical impacts to terrestrial habitats and indirect effects related to the spread of Japanese knotweed. Hydrogeological: Although the SAC and the eastern section of the proposed development site lie within the same GWB, the GWDTE-Cahermore Turlough GWB (SAC002294), there will be no drilling or deep excavation as a result of the proposed development (as outlined in Section 8.4)and therefore likelihood of groundwater impacts on the GWDTE turloughs* and calcareous fens with <i>Cladium mariscus</i> and species of the Caricion davalianae*. Ecological: As previously stated, the SAC is situated 2.9km north of the proposed development site lies outside of the commuting and foraging range for lesser horseshoe bat (2.5km) as defined by the conservation objectives supporting document for lesser horseshoe bat (NPWS, 2018b). Therefore, impacts of loss of commuting and foraging habitat relating to the removal of hedgerow are not anticipated for lesser horseshoe bat associated with the Lough Fingall Complex SAC.	No- no viable link exists for direct physical impacts to terrestrial habitats; indirect groundwater impacts related to turloughs or indirect impacts to lesser horseshoe bats associated with the Lough Fingall Complex SAC, resulting from commuting and foraging habitat loss.



European Site	Qualifying Interest/Special Conservation Interests	Source-Pathway-Receptor Link	Pathway for effect
	- Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i>* [7210] - Limestone pavements* [8240]	No source-pathway receptor link via the proposed development site and the SAC exists.	
The Galway Bay Complex (000268)- located 3.1km west of the proposed development site.	Conservation Objectives Document (NPWS, 2026): - Mudflats and sandflats not covered by seawater at low tide [1140] - Coastal lagoons* [1150] - Large shallow inlets and bays [1160] - Reefs [1170] - Perennial vegetation of stony banks [1220] <i>Salicornia</i> and other annuals colonising mud and sand [1310] - Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) [1330] - Otter (<i>Lutra lutra</i>) [1355] - Harbour seal <i>Phoca vitulina</i> [1365] - Mediterranean salt meadows (<i>Juncetalia maritima</i>) [1410] - Turloughs* [3180]	Physical: the Galway Bay Complex SAC is situated 3.1km west of the proposed development site and is designated for two terrestrial habitats (<i>Juniperus communis</i> formations on heaths or calcareous grasslands [5130] and semi-natural dry grasslands and scrubland facies on calcareous substrates [6210] (<i>Festuco Brometalia</i>)(*)important orchid sites) [6210]). Considering this distance, the SAC lies outside of the ZoI for direct physical impacts to terrestrial habitats for which the SAC is designated. Considering this distance, and lack of connectivity between the proposed development site and the SAC, the SAC also lies out of the ZoI for indirect effects related to the spread of Japanese knotweed from the proposed development site. Hydrological: the Galway Bay Complex is SAC is designated for seven marine habitat and one marine mammal, as previously stated there are no rivers hydrological connected to the proposed development site. Therefore, no hydrological source-pathway-receptor link exists between the proposed development site and the GWDTE QIs of the SAC Hydrogeological: Although the SAC and the eastern section of the proposed development site lie within the same GWB, the GWDTE-Cahermore Turlough GWB (002294), there will be no drilling or deep excavation as a result of the proposed development and therefore likelihood of groundwater impacts on the GWDTE turloughs* and calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davaliane</i>* or alkaline fens.	No , no viable link exists for direct physical impacts to marine, freshwater and terrestrial habitats, indirect impacts on mammal QIs of European Site



European Site	Qualifying Interest/Special Conservation Interests	Source-Pathway-Receptor Link	Pathway for effect
	<i>Juniperus communis</i> formations on heaths or calcareous grasslands [5130] - Semi-natural dry grasslands and scrubland facies on calcareous substrates [6210] (Festuco Brometalia)(*important orchid sites) [6210] - Calcareous fens with <i>Cladium mariscus</i> and species of the Caricion davallianae*[7210] - Alkaline fens [7230]	Ecological: As previously stated, there are no watercourses within the proposed development site, the closest river is the Kilchreest 29 (EPA Code: 29K02), located 1.8km south and 4km west of the proposed development. Therefore, no foraging or commuting habitat for otter exists within or in proximity to the proposed development site, no direct or indirect impacts relating to this QI of this SAC resulting from the proposed development exist. No source-pathway receptor link via the proposed development site and the SAC exists.	
Inner Galway Bay SPA (004031)- located 4.6km northwest of the proposed development site.	Conservation Objectives Document (NPWS, 2013a): - Great Northern Diver (<i>Gavia immer</i>) [A003] - Cormorant (<i>Phalacrocorax carbo</i>) [A017] - Grey Heron (<i>Ardea cinerea</i>) [A028] - Brent Goose (<i>Branta bernicla hrota</i>) [A046] - Wigeon (<i>Mareca penelope</i>) [A050] - Teal (<i>Anas crecca</i>) [A052]	Physical: the SPA is situated 4.6km northwest of the proposed development site and is not designated for any terrestrial habitats. Therefore, no potential for direct impacts on the SPA exists as a result of the proposed development. Hydrological: There are no watercourses (rivers, lakes, drains etc) situated within the proposed development site (as stated in Section 7.1.2), therefore no hydrological source-pathway-receptor link exists between the SPA and the proposed development site. Ecological: <u>Results</u> The SCIs of the SPA recorded during surveying included golden plover, black-headed gull, teal, wigeon, grey heron, northern shoveler and northern lapwing (refer to Section 7.2.2.2). Black-headed gull and golden plover were the only two species recorded foraging within the proposed development site, (refer to	No, no viable link for direct or indirect habitat loss for the SCIs of the Galway Bay SPA, therefore no potential for impacts on the European Site resulting from the proposed development exist.



European Site	Qualifying Interest/Special Conservation Interests	Source-Pathway-Receptor Link	Pathway for effect
	- Shoveler (<i>Anas clypeata</i>) [A056] - Red-breasted Merganser (<i>Mergus serrator</i>) [A069] - Ringed Plover (<i>Charadrius hiaticula</i>) [A137] - Golden Plover (<i>Pluvialis apricaria</i>) [A140] - Lapwing (<i>Vanellus vanellus</i>) [A142] - Dunlin (<i>Calidris alpina</i>) [A149] - Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] - Curlew (<i>Numenius arquata</i>) [A160] - Redshank (<i>Tringa totanus</i>) [A162] - Turnstone (<i>Arenaria interpres</i>) [A169] - Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179] - Common Gull (<i>Larus canus</i>) [A182] - Sandwich Tern (<i>Thalasseus sandvicensis</i>) [A191]	Section 7.2.2.2). The other SCI species were recorded between 40m and 1.3km from the proposed development site foraging and loafing within the surrounding waterbodies. <u>Habitat suitability</u> The Birdwatch Ireland²³ website was consulted for suitable habitats associated with the SCIs of the Inner Galway Bay SPA. The findings are as follows: No suitable habitat exists within the proposed development site for the following SCI's: great northern diver, cormorant, grey heron, red-breasted merganser, ringed plover, dunlin, wigeon, teal, shoveler, bar-tailed godwit, redshank, turnstone, sandwich tern, and common tern as they all show preference for coastal, salt marshes, estuaries, freshwater, wetlands or sandy beach habitats. Curlew is known to forage inland within grassland habitats similar to what occurs within the proposed development; however, this species was not recorded over the survey period and there was no indication that the area supports large concentrations of the species. No watercourses are present within the proposed development site as stated in Section 7.1.2 Four SCI species (grey heron, Eurasian teal, Eurasian wigeon and shoveler) were recorded during baseline surveys, outside of the proposed development site, confined to adjacent waterbodies and other suitable wetland habitats. Consequently, no habitat utilised by these species will be lost or modified as a result of the proposed development. While temporary disturbance during the construction phase has the potential to extend beyond the proposed development site boundary, any such disturbance would be localised and temporary in nature and would affect birds using adjacent habitats only. Given the absence of habitat loss, the	

²³ [Home Page - BirdWatch Ireland](#) (Accessed August 2025)



European Site	Qualifying Interest/Special Conservation Interests	Source-Pathway-Receptor Link	Pathway for effect
	- Common Tern (<i>Sterna hirundo</i>) [A193] - Wetlands [A999]	limited spatial extent and duration of construction activities, and the availability of suitable habitat within the surrounding area, the proposed development is not expected to result in impacts on these SCI species. Suitable foraging habitat exists within the proposed development site for both black-headed gull and common gull, as both species are generalist feeders capable of exploiting a wide range of habitats, including agricultural grassland. Black-headed gulls were recorded foraging within and in the vicinity of the proposed development site during baseline surveys, whereas common gull was not recorded despite surveys being undertaken during the appropriate wintering period. The low level of usage by black-headed gull and the absence of common gull indicate that the proposed development site does not constitute an important supporting habitat for the SCI populations of Inner Galway Bay SPA. Furthermore, the proposed development site represents only a small area of widely available foraging habitat within the surrounding landscape. Consequently, any temporary disturbance during construction or permanent habitat loss would be negligible in the context of the availability of alternative foraging habitat, and no likely significant effects on the conservation objectives of the Inner Galway Bay SPA are predicted. Limited suitable foraging habitat exists within the proposed development site for golden plover. Although the species typically favours moorland, bog and acidic grassland during the breeding season, wintering birds are known to utilise improved agricultural grassland for foraging and roosting. Golden plover were recorded foraging within the proposed development site during baseline surveys; however, only low numbers were recorded, and no evidence of regular or concentrated use was observed. The proposed development site comprises a small area of widely available agricultural grassland within a landscape containing	



European Site	Qualifying Interest/Special Conservation Interests	Source-Pathway-Receptor Link	Pathway for effect
		extensive similar habitat. Consequently, the site is not considered to represent an important supporting habitat resource for the SCI population associated with Inner Galway Bay SPA. Any disturbance during construction or permanent habitat loss would therefore be limited in extent and would not be expected to adversely affect the conservation objectives of the SPA. Suitable habitat for Brent goose and lapwing exists within the proposed development site as both can be found in grasslands and farmland habitat. The SPA Conservation Objective Supporting Documents for the SPA (NPWS, 2013b) indicates that Brent geese and lapwing have a High and Moderate site fidelity respectively and are reliant on the SPA site utilising alternative habitats at certain times. Considering the suitability of habitat within the SPA, the distance to the proposed development site, the extent of alternative suitable foraging habitat in the vicinity of the SPA, coupled with the lack of sightings during the surveys, the proposed development site is not considered to function as supporting habitat for these SCI species. Therefore, it is considered that no viable source pathway receptor link exists between the SPA and the proposed development.	
East Burren Complex SAC (001926) - located 4.7km southeast of the proposed development site.	Conservation Objectives Document (NPWS, 2022b): - Marsh Fritillary (<i>Euphydryas aurinia</i>) - Lesser Horseshoe Bat (<i>Rhinolophus hipposideros</i>) [1303] - Otter (<i>Lutra lutra</i>) 91355) - Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. (3140)	Physical: The East Burren Complex SAC is situated 4.7km southeast of the proposed development site and is designated for six terrestrial habitats. Considering this distance, the SAC lies outside of the Zol for direct physical impacts to terrestrial habitats for which the SAC is designated. Considering this distance, and lack of connectivity between the proposed development site and the SAC. The SAC also lies out of the Zol for indirect effects related to the spread of Japanese knotweed from the proposed development site. Hydrological: the SAC is designated for two aquatic habitats, as previously mentioned, there are no watercourses (rivers, lakes etc)	No, no viable physical, hydrological, hydrogeological or ecological pathway between the proposed development site and the SAC exists. Therefore, both direct and indirect effects are ruled out.



European Site	Qualifying Interest/Special Conservation Interests	Source-Pathway-Receptor Link	Pathway for effect
	• Turloughs*(3180) • Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation [3260] • Juniperus communis formations on heaths or calcareous grasslands [5130] • Calaminarian grasslands of the Violetalia calaminariae [6130] • Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (*important orchid sites) [6210] • Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis) [6510] • Calcareous fens with Cladium mariscus and species of the Caricion davallianae* [7210] • Petrifying springs with tufa formation (Cratoneurion)* [7220] • Alkaline fens [7230] • Limestone pavements* [8240] • Caves not open to the public [8310] • Alluvial forests with Alnus glutinosa and Fraxinus	situated within the proposed development site (as stated in Section 7.1.2), therefore no hydrological source-pathway-receptor link exists between the SAC and the proposed development site. Hydrogeological: Although the SAC and the eastern section of the proposed development site lie within the same GWB, the GWDTE-Cahermore Turlough GWB (SAC002294), there will be no drilling or deep excavation as a result of the proposed development (as discussed in Section 8.4) and therefore no likelihood of groundwater impacts on the GWDTE. Ecological: <u>Marsh Fritillary:</u> the SAC is situated 4.7km southeast of the proposed development site and will therefore not result in any direct impacts to marsh fritillary within the SAC. Furthermore, no suitable habitat for marsh fritillary exists within the proposed development site as no devil's bit scabious (<i>Succisa pratensis</i>) was recorded during the ecological walkover surveys. Devil's bit scabious is the sole larval foodplant of the marsh fritillary, which is a critical factor in the species distribution. <u>Lesser Horseshoe Bat:</u> As previously stated, the foraging and commuting range of the lesser horseshoe bat is 2.5km) as defined by the conservation objectives supporting document for lesser horseshoe bat (NPWS, 2018b). The SAC is situated 4.7km southeast of the proposed development site. Therefore, impacts of loss of commuting and foraging habitat relating to the removal of hedgerow as a result of the proposed development site are not anticipated for lesser horseshoe bat associated with the East Burren Complex SAC. <u>Otter:</u> As previously stated, there are no watercourses within the proposed development site, the closest river is the Kilchreest 29 (EPA Code: 29K02), located 1.8km south and 4km west of the proposed development. Therefore, no foraging or commuting habitat exists	



European Site	Qualifying Interest/Special Conservation Interests	Source-Pathway-Receptor Link	Pathway for effect
	excelsior (Alno-Padion, Alnion incanae, Salicion albae)* [91E0]	within or in proximity to the proposed development site. Therefore, no direct or indirect impacts relating to this QI of this SAC resulting from the proposed development exist. No source-pathway receptor link via the proposed development site and the SAC exists.	
Slieve Mountains (004168)- located 7.3km east of the proposed development site.	Aughty SPA Conservation Objectives Document (NPWS, 2022c): - Hen Harrier (<i>Circus cyaneus</i>) [A082] - Merlin (<i>Falco columbarius</i>) [A098]	Physical: the SPA is situated 7.3km east of the proposed development site and is not designated for any terrestrial habitats. Therefore, no potential for direct impacts on the SPA exists as a result of the proposed development. Hydrogeological: The proposed development site (the Cahermore and Kinvara-Gort GWB) and the SPA are located in separate groundwater bodies. There is therefore no hydrogeological connectivity between the SPA and the proposed development site. Hydrological: There are no watercourses (rivers, lakes, drains etc) situated within the proposed development site (as stated in Section 7.1.2), therefore no hydrological south-pathway-receptor link exists between the SPA and the proposed development site. Ecological: the SPA is designated for two breeding raptor species (hen harrier and merlin). No merlin or hen harrier were recorded within the proposed development site during surveying (refer to Section 7.2.2.2). During the breeding season merlin hunt in uplands and lowland heaths and bogs and roost and nest mostly in mature conifer forestry (Lusby et al., 2018) moorland, mountain and blanket bog²⁴. During the breeding season hen harrier typically nest and forage in heather dominated and/or grass moorland, other open habitats with extensive scrub or bramble cover and developing pre-thicket	No, no physical or ecological pathway exists between the proposed development site and the QIs of the SPA. Therefore, both direct and indirect effects are ruled out.

²⁴ [Merlin - BirdWatch Ireland](#) (Accessed: August 2025)



European Site	Qualifying Interest/Special Conservation Interests	Source-Pathway-Receptor Link	Pathway for effect
		forest (first and second rotation crops) (Wilson et al., 2010; Ruddock <i>et al.</i>, 2024). No suitable habitat for either of these species exist within the proposed development site or the immediate surrounding area. In relation to hen harrier, the intensively managed agricultural grassland within the proposed development site provides unsuitable foraging or nesting habitat for the species. Hen harrier in Ireland, will strongly avoid agricultural grassland due to the lack of cover, feeding resources and low altitudes (Wilson et al., 2006). Hen harriers are known to forage along hedgerows field boundaries (NPWS, 2015) but show the greatest preference for boundaries between 3m and 4m wide, avoiding very narrow and very wide boundaries (Irwin et al., 2012). All hedgerows within the proposed project site were between 1 and 2m wide and therefore were considered unsuitable for hen harrier. No source-pathway receptor link via the proposed development site and the SPA exists.	
Rahasane Turlough SPA (004089)- located 8.6km north of the proposed development site.	Conservation Objectives Document (NPWS, 2023c): - Whooper Swan (<i>Cygnus cygnus</i>) [A038] - Wigeon (<i>Anas Penelope</i>) [A050] - Golden Plover (<i>Pluvialis apricaria</i>) [A140] - Black-tailed Godwit (<i>Limosa limosa</i>) [A156] - Greenland White-fronted Goose (<i>Anser albifrons flavirostris</i>) [A395] - Wetlands [A999]	Physical: The Rahasane Turlough SPA is situated 8.6km north of the proposed development site and therefore lies outside of the Zol for direct physical habitat impacts. The SAC is also well outside of the Zol for indirect impacts related to the Spread of Japanese knotweed. Hydrological: There are no watercourses (rivers, lakes, drains etc) situated within the proposed development site (as stated in Section 7.1.2), therefore no hydrological south-pathway-receptor link exists between the SPA and the proposed development site. Hydrogeological: The proposed development site (the Cahermore and Kinvara-Gort GWB) and the SPA (Rahasane Turlough GWB) are located in separate groundwater bodies. There is therefore no hydrogeological connectivity between the SPA and proposed development site. Ecological: The SCIs of the SPA recorded during	No, no physical or ecological pathway exists between the proposed development site and the QIs of the SPA or their habitat. Therefore, both direct and indirect effects are ruled out.



European Site	Qualifying Interest/Special Conservation Interests	Source-Pathway-Receptor Link	Pathway for effect
		surveying included whooper swan, wigeon and golden plover. Whooper swan (one individual) was recorded commuting over the proposed development site and golden plover (one individual) was recorded landing within the proposed development site. Wigeon was recorded 310m from the proposed development site foraging and loafing within a turlough, 40m from the southern boundary of the proposed site. Whooper swan and golden plover were recorded foraging between 55m and 1.3km from the proposed development site. Suitable grassland habitat occurs within the proposed development site and surrounding landscape and could potentially be utilised by whooper swan, golden plover, black-tailed godwit and Greenland white-fronted goose. However, baseline surveys recorded only very limited use of the proposed development site, with no evidence of regular foraging, roosting or congregation by these species. Black-tailed godwit and Greenland white-fronted goose were not recorded. Furthermore, solar panels will cover only 25.92% of the site, with grassland retained beneath and between panel rows, thereby maintaining the majority of the site's foraging function. Extensive similar agricultural grassland also occurs within the surrounding landscape. Accordingly, the proposed development would not result in a meaningful reduction in suitable foraging habitat for SPA bird populations. Construction disturbance to birds using the wider landscape has also been considered. However, the SPA is located approximately 8.6km from the proposed development site, beyond the typical core foraging range for species such as whooper swan (5km) and Greenland white-fronted goose (5 – 8km) (SNH, 2016). Although suitable habitat occurs in the wider landscape for other SCI species, survey results demonstrate that use of the proposed development site and the wider area was limited. Consequently, any construction-related disturbance would be temporary,	



European Site	Qualifying Interest/Special Conservation Interests	Source-Pathway-Receptor Link	Pathway for effect
		localised and not of a scale likely to affect the SPA populations or undermine the conservation objectives of the SPA. Therefore, no likely significant effects are predicted through either habitat loss or disturbance pathways.	
Lough Cutra SPA (004056) - located 9.3km southeast of the proposed development site.	Conservation Objectives Document (NPWS, 2025b): Cormorant (<i>Phalacrocorax carbo</i>) [A017]	Physical: The Lough Cutra SPA is situated 9.3km southeast of the proposed development site and therefore lies outside of the Zol for direct physical habitat impacts. Hydrological: There are no watercourses (rivers, lakes, drains etc) situated within the proposed development site (as stated in Section 7.1.2), therefore no hydrological south-pathway-receptor link exists between the SPA and the proposed development site. Hydrogeological: The proposed development site (the Cahermore and Kinvara-Gort GWB) and the SPA (Caherglassaun Turlough GWB) are located in separate groundwater bodies. There is therefore no hydrogeological connectivity between the SPA and proposed development site. Ecological: the cormorant is a coastal and inland waterways bird, no suitable breeding habitat for this SCI exists within or surrounding the proposed development site. Although cormorant will nest in trees near freshwater bodies, the turlough located to the south of the proposed development does not contain fish, due their temporary nature, and therefore does not provide a suitable forging site for the species. No cormorant were recorded within the study area during field surveys (refer to Section 7.2.2.2). The Conservation Objectives Document (NPWS, 2025b) states that during surveys undertaken in 2010/2011 and 2017 no breeding cormorant were recorded, which indicates a complete population collapse. Considering the lack of suitable habitat present within or adjacent to the proposed development site, and the collapse of the	No, no physical or ecological pathway exists between the proposed development site and the QIs of the SPA or their habitat. Therefore, both direct and indirect effects are ruled out.



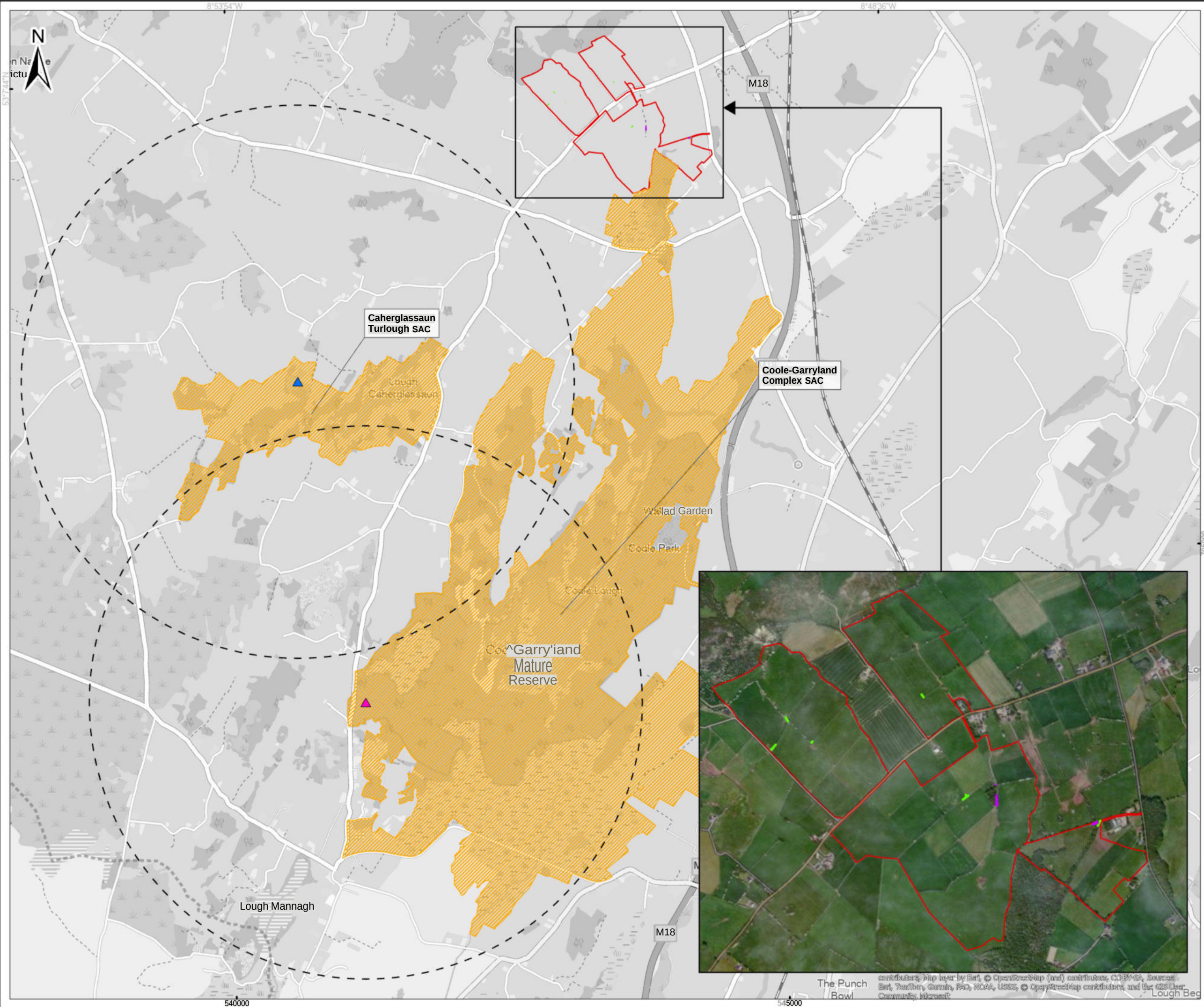
European Site	Qualifying Interest/Special Conservation Interests	Source-Pathway-Receptor Link	Pathway for effect
		population within the SPA, it was concluded that cormorant are unlikely to occur with the study area. No source-pathway receptor link via the proposed development site and the SPA exists.	
Creganna Marsh SPA (004142)- located 13.3km north of the proposed development site.	Conservation Objectives Document (NPWS, 2023a): Greenland white-fronted goose (<i>Anser albifrons flavirostris</i>) [A395]	Physical: The Creganna Marsh SPA is situated 13.3km north of the proposed development site and therefore lies outside of the ZoI for direct physical habitat impacts. Hydrological: There are no watercourses (rivers, lakes, drains etc) situated within the proposed development site (as stated in Section 7.1.2), therefore no hydrological south-pathway-receptor link exists between the SPA and the proposed development site. Hydrogeological: The proposed development site (the Cahermore and Kinvara-Gort GWB) and the SPA (Clarinbridge GWB) are located in separate groundwater bodies. There is therefore no hydrogeological connectivity between the SPA and proposed development site. Ecological: Greenland white-fronted geese forage increasingly in agricultural grassland (Birdwatch Ireland²⁵). Agricultural grassland exists within the proposed development site and wider area; however, no Greenland white-fronted geese were recorded within or surrounding the proposed development site during surveying. A review of I-WEBS count data²⁵ indicates that Greenland white-fronted geese have not been recorded within several IWEB sites located in proximity to the proposed development site which include; Lydacan Castle Turlough [Adjacent to site], Cahermore Turlough [located 1.3km southwest], Caherglassaun Lough	No, no physical, hydrological or ecological pathway exists between the proposed development site and the QIs of the SPA or their habitat. Therefore, both direct and indirect effects are ruled out.

²⁵ <https://birdwatchireland.ie/our-work/surveys-research/research-surveys/irish-wetland-bird-survey/i-webs-data-requests/> (Accessed July 2026)



European Site	Qualifying Interest/Special Conservation Interests	Source-Pathway-Receptor Link	Pathway for effect
		[located 2.5km southwest] or Coole Lough/ Newtown Turlough [located 2.5km south]]. The core foraging range of Greenland white-fronted goose from a night roost is 5-8km (SNH, 2016). The proposed development occurs outside this range for geese designated within this SPA. No source-pathway receptor link via the proposed development site and the SPA exists.	
Lough Rea SPA (004134) Located 17km north-east of the proposed development site.	Conservation Objectives Document (NPWS, 2025c): • Coot (<i>Fulica atra</i>) [A125] • Shoveler (<i>Spatula clypeata</i>) [A857] • Wetland and Waterbirds [A999]	Physical: The Lough Rea SPA is situated 17km northeast of the proposed development site and therefore lies outside of the Zol for direct physical habitat impacts. Hydrological: There are no watercourses (rivers, lakes, drains etc) situated within the proposed development site (as stated in Section 7.1.2), therefore no hydrological south-pathway-receptor link exists between the SPA and the proposed development site. Hydrogeological: Lough Rea is a lake fed by springs and a stream (NPWS, 2010). The proposed development site (the Cahermore and Kinvara-Gort GWB) and the SPA (Rahasane Turlough GWB) are located in separate groundwater bodies. There is therefore no hydrogeological connectivity between the SPA and proposed development site. Ecological: The SPA is designated for wintering populations of shoveler and coot. Considering the separation distance between the proposed development site and the SPA (ca. 17km), there is no potential for the proposed development to result in disturbance to the species. Coot forages primarily in waterbodies, rarely foraging far from them (NPWS, 2025c). Similarly, shoveler are filter feeders, predominantly foraging at the surface of waterbodies (NPWS, 2025c). Considering there are no waterbodies within the proposed	No, no physical, hydrological, hydrogeological or ecological pathway exists between the proposed development site and the QIs of the SPA or their habitat. Therefore, both direct and indirect effects are ruled out

European Site	Qualifying Interest/Special Conservation Interests	Source-Pathway-Receptor Link	Pathway for effect
		development site and considering the distance from the SPA (ca. 17km), it's unlikely that the SCI species would forage within the proposed development site. No source-pathway receptor link via the proposed development site and the SPA exists.	



Legend

- Red Line Boundary
- 2.5km Buffer
- LHSB roost - ID 226
- LHSR roost - ID 246
- Hedgerow Loss
- Mixed Broadleaved Woodland Loss
- Special Areas of Conservation (SACs)

0 1 2
Kilometers

NOTES

1. FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING.
2. ALL DRAWINGS TO BE CHECKED BY THE CONTRACTOR ON SITE.
3. ENGINEER TO BE INFORMED OF ANY DISCREPANCIES BEFORE ANY WORK COMMENCES.
4. ALL LEVELS RELATE TO ORDNANCE SURVEY DATUM AT MALIN HEAD.

A	30/07/2026	First Issue	K.K	A.S
Rev.	Date	Descriptio	By	Chkd.

Client:

bnrg

Project:

Shessy
Solar Farm Project

Title:

Figure 8-3
Bat Roosts and Hedgerow
and Woodland Removal

Scale @ A3: 1:32,000

Prepared by: K.Kale

Checked by: A.Sands

Date: July 2026

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Map Ref: 12091-016-BAT.R-S.BO-TOB-A

Draft: A

9. ASSESSMENT OF LIKELY SIGNIFICANT EFFECTS

As noted in Table 12-1, a viable source-pathway receptor link for effects was identified between the proposed development site and the **Coole-Garryland Complex SAC (000252)**, **Caherglassaun Turlough SAC (000238)** and **Coole-Garryland SPA (004107)**. An assessment of the potential for the proposed development to result in Likely Significant Effects is discussed hereunder.

Coole-Garryland Complex SAC (000252)

The Coole-Garryland Complex SAC is located on the southern boundary of the proposed development site. The movement of vehicles throughout the proposed development site could result in the spread of Japanese knotweed beyond its current location and into the Coole-Garryland Complex SAC, which could result in the outcompeting of native plants and the alteration of the habitat species composition within the SAC, indirectly impacting both terrestrial and aquatic habitats that the SAC is designated for. This would result in likely significant effects to the plant diversity within the habitat, the habitat functioning and possibly result in a reduction to the habitat area. Additionally, the removal of 118m of hedgerow could result in likely significant effects for the lesser horseshoe bats associated with the SAC in relation to the loss of linear/foraging and commuting habitat.

The Caherglassaun Turlough SAC (000238)

The Caherglassaun Turlough SAC is situated 2.1km south of the proposed development site and is designated for lesser horseshoe bat. Considering the 2.5km foraging and commuting range of lesser horseshoe as defined by the conservation objectives supporting document for lesser horseshoe bat (NPWS, 2018a), the removal of 118m of hedgerow could result in likely significant effects for the lesser horseshoe bats associated with the SAC in relation to the loss of foraging and commuting habitat.

Coole-Garryland SPA (000238)

The Coole-Garryland SPA is located 1.6km south of the proposed development and is designated for whooper swan. During baseline surveys whooper swan was recorded flying over and foraging within 55m of the proposed development site (refer to Section 7.2.2.2).

The proposed development site contains suitable foraging habitat for whooper swan²⁶ (ca. 61ha of agricultural grassland) and occurs within the core foraging range from night roosts during the winter season i.e. less than 5km (SNH, 2016). In addition, I-WeBS data indicates that whooper swan regularly occur within wetlands immediately surrounding the proposed development, with Lydacan Castle Turlough (OG315), located adjacent to the site, supporting peak winter flocks of between two and 44 birds between 2013 and 2023²⁷. Given the proximity of the SPA, the presence of suitable foraging habitat, records of whooper swan within and adjacent to the proposed development site, and the potential for birds associated with the SPA to utilise the surrounding landscape, the proposed development has the potential to result in habitat loss and

²⁶ [Whooper Swan - BirdWatch Ireland](#) (Accessed August 2026)

²⁷ I-WeBS data available from: [Irish Wetland Bird Survey \(I-WeBS\) - BirdWatch Ireland](#) (Accessed July 2026)



construction-related disturbance to functionally linked habitat. Consequently, in the absence of mitigation, likely significant effects on the Coole-Garryland SPA cannot be ruled out.

10. IN-COMBINATION EFFECTS

Article 6(3) of the Habitats Directive requires that:

“ 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.”

It is therefore required that the potential effects of the activities associated with the proposed development are considered in-combination with any other relevant plans or projects.

However, considering that the potential for likely significant effects on the Coole-Garryland Complex SAC (000252), Caherglassaun Turlough SAC (000238) and Coole-Garryland SPA (004107) have been identified, the potential for in-combination impacts with other plans and project cannot be ruled out, and will therefore be assessed in Stage Two of this assessment (refer to Section 15).

11. SCREENING ASSESSMENT CONCLUSION

TOBIN has prepared this Appropriate Assessment Screening Report to appraise the potential for likely significant effect of activities associated with the proposed development at the townlands of Cahercarney, Shessy North, Shessy South, and Lydacan, County Galway in isolation and in-combination with other plans or projects, on European sites.

Following a detailed examination, analysis and evaluation of the relevant information including the nature of the proposed development and any potential connectivity with the Coole-Garryland Complex SAC (000252), Caherglassaun Turlough SAC (000238) and Coole-Garryland SPA (004107), the conservation objectives, as well as applying the precautionary principle, it is possible that the proposed development, alone or in-combination with other plans or projects could have likely significant effects on the aforementioned European Sites.

Therefore, it is considered the opinion of TOBIN that the proposed development does require an Appropriate Assessment and the preparation of a NIS (Sections 12 - 16).

12. NATURA IMPACT STATEMENT

The Appropriate Assessment Screening (Sections 3 to 9) concluded that the proposed development has the potential to result in likely significant effects on the Coole-Garryland Complex SAC (000252), Caherglassaun Turlough SAC (000238) and Coole-Garryland SPA (004107) in the absence of mitigation, either alone or in-combination with other plans or projects, and thus a Stage 2 (Appropriate Assessment [NIS]) is therefore required.

This NIS was therefore prepared, in accordance with the provisions of Article 6(3) of the Habitats Directive and Part XAB of the Planning and Development Act 2000, as amended, providing information to enable the competent authority to perform its statutory function to undertake an AA in respect of the proposed development.

This NIS includes an examination and analysis of the best available scientific knowledge and field data to identify and assess the implications of the proposed development on the European site in view of its conservation objectives. It considers whether the proposed development, by itself or in-combination with other plans or projects, could adversely affect the integrity of the European sites. In reaching a conclusion in this regard, consideration has been given to any mitigation measures necessary to avoid or reduce any potential adverse effects.

12.1 DESCRIPTION OF EUROPEAN SITES AND ASSESSMENT OF POTENTIAL ADVERSE EFFECTS.

12.1.1 The Coole-Garryland Complex SAC (000252)

The Coole-Garryland Complex SAC is located directly adjacent to the most southern boundary of the proposed development site. It is situated in low-lying karstic limestone area and is comprised of a series of turloughs fed by springs and partly submerged river, surrounded by woodland, pasture and limestone heath. The turlough system at Coole-Garryland is considered to be the most diverse in the country, for both its physiography and vegetation, it is unique in that several of the turloughs are surrounded by woodland. The woodland is extremely diverse in both habitat and species composition and was assessed as having the highest conservation rating in Ireland among the sites surveyed for the National Survey of Native Woodlands (NPWS, 2022a).

The QIs for the Coole-Garryland Complex SAC are listed below (*indicates priority habitat)

- Lesser Horseshoe Bat (*Rhinolophus hipposideros*) [1303]
- Natural eutrophic lakes with *Magnopotamion* or *Hydrocharition*- type vegetation [3150]
- Turloughs* [3180]
- Rivers with muddy banks with *Chenopodion rubri p.p* and *Bidention p.p* [3270]
- *Juniperus communis* formations on heaths or calcareous grasslands [5130]
- Semi-natural dry grasslands and scrublands facies on calcareous substrates (*Festuco brometalia*) (*important orchid sites) [6210]
- Limestone pavements* [8240]
- *Taxus baccata* woods of the British Isles* [91J0]

The above QIs and their conservation objectives are further assessed in Table 12-1 below.



Table 12-1 Qualifying Interests, Extent of Habitat and Conservation Objectives for the Coole-Garryland Complex SAC and Potential for Effect

Qualifying Interests (*indicates a priority habitat)	Extent of Habitat & Closest Proximity	Conservation Objective	Pathway & Potential for Effects
Lesser Horseshoe Bat (<i>Rhinolophus hipposideros</i>) [1303]	The Site-Specific Conservation Objectives (SSCO) document (NPWS, 2024) indicates the location of the only qualifying roost (Roost ID 226) of lesser horseshoe bat for the SAC which is ca. 2.8km south of the most southernly boundary of the proposed development site, while the 'potential foraging grounds' extent to 2.7km south of the proposed development site in the SCCO document map.	The Conservation Objectives Supporting Documents for the lesser horseshoe bat (NPWS, 2024) states the following relevant conservation targets: no significant decline in the extent and potential foraging habitat within and 2.5km of qualifying roosts; and no significant loss of linear features within 2.5km of qualifying roosts.	Yes , although the proposed development site is 2.8km north of the SAC's qualifying roost (Roost ID 226); 2.8km north of the potential foraging grounds for lesser horseshoe bat associated with the SAC; and the closest hedgerow to be removed as a result of the proposed development site is located 5.4km north of the qualifying bat roost for the SAC (see Figure 8-1), taking a precautionary approach, and considering the distance between the proposed development site and SAC (0m), the removal of hedgerow within 2.5km of the SAC could result in impacts to unrecorded roosts (satellite or auxiliary) within the SAC or prevent the establishment of new roosts within this area of the SAC due to the lack of linear features. Therefore, a potential pathway for effect exists.
Natural eutrophic lakes with <i>Magnopotamion</i> or	The distributions of this qualifying interest habitat are not included in the SSCO	To maintain the favourable conservation condition.	Yes , although there are no surface or groundwater impacts anticipated as



Qualifying Interests (*indicates a priority habitat)	Extent of Habitat & Closest Proximity	Conservation Objective	Pathway & Potential for Effects
<i>Hydrocharition</i> -type vegetation [3150]	document as it is not certain that the habitat occurs within the SAC, which has turloughs rather than lakes. However, areas of permanent water that contain notable macrophyte communities may correspond to this habitat. Therefore, this habitat could be located within turloughs within the SAC. The closest turlough to the proposed development site boundary is the Lydacan (further discussed below) which is ca. 50m south of the site.		a result of the proposed development, considering this distance between the proposed development site and habitat (ca. 50m) and the presence of Japanese knotweed within the project site, it is possible for the Japanese knotweed to spread throughout the proposed development site (via machinery wheels) and spread to natural eutrophic lakes with <i>Magnopotamion</i> or <i>Hydrocharition</i>-type vegetation [3150] within the SAC. Therefore, there is a potential pathway for effects to occur.
Turloughs* [3180]	The SSCO document (NPWS 2024) and NPWS Article 17 online web viewer ¹⁸ illustrate the extents of the closest turlough to the proposed development site boundary (the Lydacan) to be ca. 50m south from the proposed development site boundary.	To restore the favourable conservation condition.	Yes, although there are no surface or groundwater impacts anticipated as a result of the proposed development, considering this distance between the proposed development site and habitat (ca. 50m), it is possible for the Japanese knotweed to spread throughout the proposed development site (via machinery wheels) and to turloughs* [3180] habitats associated with the SAC.



Qualifying Interests (*indicates a priority habitat)	Extent of Habitat & Closest Proximity	Conservation Objective	Pathway & Potential for Effects
			Therefore, there is a potential pathway for effects to occur.
Rivers with muddy banks with <i>Chenopodium rubri</i> p.p and <i>Bidention</i> p.p [3270]	The distributions of this qualifying interest habitat are not present in the SSCO document (NPWS, 2024). However, the document states that habitat 3270 is a constituent vegetation community with the turlough habitat in Coole-Garryland Complex SAC, therefore, it could possibly be located within the closest turlough to the proposed development site, the Lydacan (North) turlough, as described above, situated 50m from the proposed development boundary.	To maintain the favourable conservation condition.	Yes , the rivers with muddy banks with <i>Chenopodium rubri</i> p.p and <i>Bidention</i> p.p [3270] habitat is a constituent vegetation community with the turlough habitat in Coole-Garryland Complex SAC and therefore could be present within 50m of the most southernly boundary of the proposed development site. It is possible for the Japanese knotweed to spread throughout the proposed development site (via machinery wheels) and subsequently spread to this habitat. Therefore, there is a potential pathway for effects to occur.
<i>Juniperus communis</i> formations on heaths or calcareous grasslands [5130]	The SSCO document (NPWS, 2024) shows the distribution range of <i>Juniperus communis</i> formations on heaths or calcareous grassland [5130] is situated at the very southern boundary of the SAC, which is ca. 6km south of the proposed development site.	To restore the favourable conservation condition.	Yes , despite the distance between the mapped areas of <i>Juniperus communis</i> formations on heaths or calcareous grassland [5130] habitat and the proposed development site (ca. 6km) it is possible that the Japanese knotweed is spread



Qualifying Interests (*indicates a priority habitat)	Extent of Habitat & Closest Proximity	Conservation Objective	Pathway & Potential for Effects
			throughout the proposed development site (via machinery wheels) and potentially into <i>Juniperus communis</i> formations on heaths or calcareous grasslands [5130] within the SAC. Therefore, there is a potential pathway for effects to occur.
Semi-natural dry grasslands and scrublands facies on calcareous substrates (<i>Festuco brometalia</i>) (*important orchid sites) [6210]	The current distribution of this species is not recorded within the SSCO document, However, the Article 17 online map viewer¹⁸ indicates that the closest distribution of semi-natural dry grasslands and scrublands facies on calcareous substrates (<i>Festuco brometalia</i>) (*important orchid sites) [6210] are ca. 5km south of the proposed development site boundary.	To restore the favourable conservation condition.	Yes, despite the distance between the mapped areas of Semi-natural dry grasslands and scrublands facies on calcareous substrates (<i>Festuco brometalia</i>) (*important orchid sites) [6210] and the proposed development site (5km) it is possible for the Japanese knotweed to spread throughout the proposed development site (via machinery wheels) to the semi-natural dry grasslands and scrublands facies on calcareous substrates (<i>Festuco brometalia</i>) (*important orchid sites) [6210] habitat within the SAC. Therefore, there is a potential pathway for effects to occur.



Qualifying Interests (*indicates a priority habitat)	Extent of Habitat & Closest Proximity	Conservation Objective	Pathway & Potential for Effects
Limestone pavements* [8240]	The Site-Specific Conservation Objectives (SSCO) document indicates that the closest distribution of limestone pavements* [8240] associated with the SAC are situated 1.3km south of the proposed development site	To maintain the favourable conservation condition.	Yes, despite the distance between the mapped areas of limestone pavements and the proposed development site (1.3km), the possible spread of Japanese knotweed to the SAC could result in its spread to the unique and species rich plant communities associated with limestone pavements to colonise the habitat and outcompete the associated plants. Therefore, there is a potential pathway for effects to occur.
<i>Taxus baccata</i> woods of the British Isles* [91J0]	The SSCO document (NPWS, 2024) indicates that the closest distribution of this terrestrial habitat is ca. 4km south of the proposed development site.	To restore the favourable conservation condition.	Yes, despite the distance between the mapped areas of <i>Taxus baccata</i> woods of the British Isles* [91J0] within the SAC and the proposed development site (4km) it is possible for the Japanese knotweed to spread throughout the proposed development site (via machinery wheels) to the <i>Taxus baccata</i> woods of the British Isles* [91J0] habitat associated with the SAC. Therefore, there is a potential pathway for effects to occur.



12.1.2 Caherglassaun Turlough SAC (000238)

The Caherglassaun Turlough SAC is located 2.1km south of the proposed development site. The SAC is situated in a natural depression with a permanent lake at its centre, while the rest of the basin acts as a turlough with high water levels reaching 10-15cm, a series of collapsed features act as swallow holes. The turlough at Caherglassaun was rated as the sixth most important large turlough in the national turlough survey, based on the vegetation found there. The turlough hosts the most pronounced 'tidal' fluctuation of any large site and is remarkable for its assemblage of rare plants and animals. Areas of exposed limestone occur within the site and include pavement, low cliffs and caves, these rocky habitats provide roosting sites for bats. (NPWS, 2015).

The SAC is designated for the following Annex I habitats and Annex II species which are listed and discussed in relation to the proposed development below (* indicates priority habitat)

- Lesser Horseshoe Bat (*Rhinolophus hipposideros*) [1303]
- Turloughs* [3180]
- Rivers with muddy banks with *Chenopodium rubri p.p* and *Bidention p.p* vegetation [3270]

The above QIs and their conservation objectives are further assessed in Table 12-2.

Table 12-2: Qualifying Interests, Extent of Habitat and Conservation Objectives for the Caherglassaun Turlough SAC and Potential for Effect

Qualifying Interest	Habitat & Closest Proximity	Conservation Objective	Pathway & Potential for Effects
Lesser Horseshoe Bat (<i>Rhinolophus hipposideros</i>) [1303]	The SSCO document shows the location of the only roost designated for this SAC (Roost ID 246) is situated 3.2km southeast of the proposed development boundary while the potential foraging grounds for lesser horseshoe bat associated with the SAC are mapped within the Caherglassaun Turlough SAC, the locations of which are ca. 2.5km from the proposed development site boundary.	The Conservation Objectives Supporting Documents for the lesser horseshoe bat (NPWS, 2018a) states the following relevant conservation targets: no significant decline in the extent and potential foraging habitat within and 2.5km of qualifying roosts; and no significant loss of linear features within 2.5km of qualifying roosts.	No , Yes - although the SAC boundary is within 2.5km of the proposed development site, the SSCO document shows the location of the only roost designated for this SAC (Roost ID 246) is situated 3.2km southeast of the proposed development boundary; and the closest hedgerow removal (associated with the proposed development) to the designated roost is 3.4km north of the roost (see Figure 8-1), which lies well outside of the 2.5km radius for linear feature and foraging habitat retention. However, considering the proximity of the SAC (within 2.5km), a precautionary approach was taken, and the potential pathway was considered. Therefore, a potential pathway for effect exists.
Turloughs* [3180]	The SSCO document shows the location of the turloughs* habitat, which is fully contained within the SAC boundary, located 2.4km south of the proposed development site	To restore the favourable conservation condition.	No, a distance of 2.4km exists between the mapped turloughs* habitat within the SAC and the proposed development site boundary which lies outside of



Qualifying Interest	Habitat & Closest Proximity	Conservation Objective	Pathway & Potential for Effects
			the Zol for Japanese knotweed as there is no connectivity between the SAC and the proposed development site. Therefore, turloughs* associated with the Caherglassaun Turlough SAC are situated outside of the Zol for potential likely significant effects.
Rivers with muddy banks with <i>Chenopodium rubri</i> p.p and <i>Bidention</i> p.p vegetation [3270]	The SSCO document states that this habitat occurs on open muddy ground at the edge of permanent water at Caherglassaun (turlough), which is located confined to the turlough and SAC boundary, 2.4km south of the proposed development site.	To maintain the favourable conservation condition.	No, a distance of 2.4km exists between the proposed development site and Rivers with muddy banks with <i>Chenopodium rubri</i> p.p and <i>Bidention</i> p.p vegetation [3270]. This Annex I habitat associated lies outside of the Zol for Japanese knotweed as there is no connectivity between the SAC and the proposed development site, therefore no potential for likely significant effects exists.

12.1.3 Coole-Garryland SPA (004107)

The Coole-Garryland SPA is located 1.6km south of the proposed development site. The SPA is situated in a low-lying karstic limestone area west of Gort, Co. Galway and comprises a series of turloughs, which are fed by springs and a partly submerged river, surrounded by woodland, pasture and limestone heath (NPWS, 2014). The SPA is of international importance for whooper swan which utilise the SPA both for feeding and roosting. Overnight roosting habitat of whooper swan mainly consists of permanent waterbodies (NPWS, 2025a). The exact location of the winter roosting sites is not known; however, considering their roosting preference, the roosts are most likely to occur within proximity to the lake and turlough habitats within the SPA.

There is potential that the designated swan population forages within habitat outside the SPA. As mentioned in Section 7.2.2.2, three whooper swan were recorded foraging within agricultural grassland located approximately 55m south of the proposed development site. This was the only recording of whooper foraging within 600m of the proposed development site during the winter survey season. No swans were recorded within the proposed development site.

A review of IWeBS data²⁷ was undertaken of the whooper swan count data at the Lydcane Castle Turlough site (OG315) located south of the proposed development site. Counts recorded at Lydcane Castle Turlough were undertaken between 2013 to 2022 and are listed in Table 12-3 below. Peak counts of 44 swans were recorded in January in 2017/2018, and mean counts were established as 24.3.

Table 12-3: IWeBS Results

Species	2013/ 14	2014/ 15	2015/ 16	2016/ 17	2017/ 18	2018/ 19	2019/ 20	2020/ 21	2021/ 22	Mean	Peak
Whooper swan	11*	11	2	6	44	32	-	26	15	24.3	Jan

The SCI and its conservation objectives are further assessed in Table 12-4: Coole-Garryland SPA below.

Table 12-4: Coole-Garryland SPA

Qualifying Interest	Abundance and distribution in relation to the proposed development	Conservation Objective	Pathway & Potential for Effects
Whooper swan (<i>Cygnus cygnus</i>) [A038]	The SPA is located 1.6km south of the proposed development site. Whooper swan are known to use ex-situ grassland habitats for foraging. The TOBIN survey results only had one recording of whooper swan in proximity to the proposed development site and no whooper swans were recorded within the site boundary (although suitable habitat does occur). The IWeBS count data suggests that whooper swan population associated with this SPA are potentially foraging within Lydacan Castle Turlough, but also a number of other wetland and turlough sites and grassland in the surrounding area (see IWeBS results within Appendix D).	Restore the Favourable conservation condition of whooper swan	Yes – although the proposed development is set back (ca. 1.6km) from the SPA, there is potential that whooper swan may forage within supporting habitat located within proximity to the proposed development site. Thus, the construction phase may result in disturbance to whooper swan foraging within these areas of supporting habitat. Therefore, a potential pathway for effects exists.

13. ASSESSMENT OF ADVERSE EFFECTS ON SITE INTEGRITY

It has been determined, in the absence of appropriate mitigation, the proposed development has the potential for impacts on seven of the habitat QIs of the Coole-Garryland Complex SAC and one of the QI species, due to the spread of Third Schedule invasive species and habitat loss associated with the hedgerow removal as a result of the proposed development. Qualifying Interests of the Coole-Garryland Complex SAC assessed for adverse effects on site integrity are as follows:

- Lesser Horseshoe Bat (*Rhinolophus hipposideros*) [1303]
- Natural eutrophic lakes with Magnopotamion or Hydrocharition- type vegetation [3150]
- Turloughs* [3180]
- Rivers with muddy banks with *Chenopodium rubri p.p* and *Bidention p.p* [3270]
- *Juniperus communis* formations on heaths or calcareous grasslands [5130]
- Semi-natural dry grasslands and scrublands facies on calcareous substrates (*Festuco brometalia*) (*important orchid sites) [6210]
- *Taxus baccata* woods of the British Isles* [91J0]
- Limestone pavements* [8240]

13.1 CONSERVATION OBJECTIVES OF THE EUROPEAN SITES

European and national legislation places a collective obligation on Ireland and its citizens to maintain or restore habitats and species in the Natura 2000 Network to favourable conservation condition. Ireland has determined conservation objectives for European sites, which define favourable conservation condition for habitats and species protected under the Habitats Directive and Birds Directive.

13.1.1 Coole-Garryland Complex SAC

Site-specific conservation objectives have been set by the NPWS for each of the listed QIs of the Coole-Garryland Complex SAC (NPWS, 2024) states that:

'A site-specific conservation objective aims to define favourable conservation condition for a particular habitat or species at that site. The maintenance of habitats and species within the Natura 2000 network at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level.'

Favourable conservation status of a habitat is achieved when:

- its natural range, and area it covers within that range, are stable or increasing, and
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- the conservation status of its typical species is favourable.

Favourable conservation status of a species is achieved when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and

- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

An assessment of whether the potential impacts identified in Section 8 could adversely affect the integrity of the Coole-Garryland Complex SAC was undertaken in relation to the attributes, measures and targets that would be expected to define the favourable conservation condition of the QIs designated within the SAC. The assessment is presented in Table 13-1.

Table 13-1: Evaluation of Potential Adverse Effects on the Conservation Objectives of the Coole-Garryland Complex SAC as a Result of the Proposed Development

Attributes	Measures	Target	Potential for Adverse Effects
Lesser Horseshoe Bat (<i>Rhinolophus hipposideros</i>) [1303]			
Population per roost	Number	Minimum number of 218 bats for the summer roost with Roost ID. 226.	The SSCO document indicates that the SAC's only qualifying roost (Roost ID 226) of lesser horseshoe is 2.8km south of the most southernly boundary of the proposed development site. Considering this distance there is no potential for adverse effects on the population per roost; or number and condition of summer or auxiliary roosts of the recorded designated roost.
Summer roosts	Condition	No decline	
Auxiliary roosts	Number and condition	No decline	
Extent of potential foraging habitat	Hectares	No significant decline within 2.5km of qualifying roosts	As mentioned, although the SAC is situated directly adjacent to the southern boundary of the proposed development site, the only qualifying roost (Roost ID 226) of lesser horseshoe is 2.8km south of the most southernly boundary of the proposed development site, the 'potential foraging habitat' is 2.8km south of the proposed development site, and the closest hedgerow removal location to the roost is ca. 5.4km north of the roost (see hedgerow loss locations map in relation to the SAC boundary in Figure 8-1). However, considering the close proximity of the SAC to the proposed development (0m), the potential exists for another unrecorded lesser horseshoe roost to be present within the 2.5km of the proposed development site, additionally, another lesser horseshoe bat roost could occur in the future within this same radius. Therefore, the 118m of hedgerow loss could result in adverse effects to unrecorded roosts or future lesser horseshoe bat populations associated with the SAC, in the absence of mitigation.
Linear features	Kilometres	No significant loss within 2.5km of qualifying roosts	

Attributes	Measures	Target	Potential for Adverse Effects
Light pollution	Lux	No significant increase in artificial light intensity adjacent to named roosts or along commuting routes within 2.5km of those roosts.	As described in Section 8.1.5, normal working hours during the construction period are expected to be Monday to Friday 08.00 to 18.00 hours (inclusive) and Saturdays (excluding Bank/Public Holidays) 08.00 to 14.00 (inclusive). There will be no artificial light included within the proposed development site during construction or operation phases; therefore, this will not disrupt bat flight patterns
Turloughs* [3180]			
Habitat area	Hectares	Area of c.365.1 ha stable or increasing, subject to natural processes	The more well-known turloughs present within the SAC include Lydacan, Cahermore Crannagh North, Crannagh South, Coole, Garryland, Newtown and Hawkhill. The Lydacan is the closest turlough to the proposed development site boundary (50m) and is situated 150m from the construction area, due to the 100m works buffer established around the SAC. There will be no physical; surface; or groundwater impacts as a result of the proposed development site, therefore there is no potential for adverse effects on the habitat area or distribution of turloughs* as a result of the proposed development. Such impacts would constitute an adverse effect on the integrity of the site.
Habitat distribution	Occurrence	No decline, subject to natural processes	
Hydrological regime	Various	Maintain appropriate natural hydrological regime necessary to support the natural structure and functioning of the habitat	Should the Japanese knotweed recorded within the eastern boundary of the proposed development site, spread throughout the site and subsequently spread significantly to the nearest turlough (the Lydacan, located 50m from the project boundary), the dense, wide roots of the Japanese knotweed (5 to 100m) (Child and Wade, 2000), could choke the flood plains of the turlough habitat, covering bare soil and crowding out native plants specific to turloughs; alter the hydrological regime due to the vegetation overcrowding ; change the chemical composition of soil due to the chemicals it
Soil type	Hectares	Maintain variety, area and extent of soil types necessary to support turlough vegetation and other biota	



Attributes	Measures	Target	Potential for Adverse Effects
Soil nutrient status: nitrogen and phosphorus	N and P concentration in soil	Maintain nutrient status appropriate to soil types and vegetation communities	releases during growth; cause soil erosion once the thick stems die back in autumn, leaving the soil unprotected during winter and spring floods and also in-turn cause sedimentation of the surface water and groundwater of the turlough (Matte <i>et al.</i> , 2021). Such impacts would constitute an adverse effect on the integrity of the site.
Physical structure: bare ground	Presence	Maintain sufficient wet bare ground, as appropriate	
Chemical processes: calcium carbonate deposition and concentration	Calcium carbonate deposition rate/soil concentration	Maintain appropriate calcium carbonate deposition rate and concentration in soil	
Water quality	Various	Restore appropriate water quality to support the natural structure and functioning of the habitat	
Vegetation composition: area of vegetation communities	Hectares	Maintain area of sensitive and high conservation value vegetation communities/units	
Vegetation composition: vegetation zonation	Distribution	Maintain vegetation zonation/mosaic characteristic of the turlough	
Vegetation structure: sward height	Centimetres	Maintain sward heights appropriate to the vegetation unit and a variety of sward heights across the turlough	
Typical species	Presence	Maintain typical species within the turlough	



Attributes	Measures	Target	Potential for Adverse Effects
Fringing habitats: Area and condition	Hectares	Maintain marginal fringing habitats that support turlough vegetation, invertebrate, mammal and/or bird populations	
Vegetation structure: turlough woodland	Species diversity and woodland structure	Maintain appropriate turlough woodland diversity and structure	
Natural eutrophic lakes with Magnopotamion or Hydrocharition- type vegetation [3150]			
Habitat area	Hectares	Area stable or increasing, subject to natural processes	The SSCO document (NPWS, 2024) states that it is not certain that the habitat occurs in this SAC, which has turloughs rather than lakes, however areas of permanent water contain unusual macrophyte communities may correspond to turlough habitat. On a precautionary basis the habitat is assumed to be present within the SAC. There is potential for Japanese knotweed (which was recorded within the eastern boundary of the proposed development site), to spread to natural eutrophic lakes with Magnopotamion or Hydrocharition- type vegetation habitat within the SAC. The dense, wide roots of the Japanese knotweed (5 to 100m) (Child and Wade, 2000), could choke and out-compete the native species which form part of the vegetation composition of the habitat, thus altering the habitat area and distribution, vegetation composition and distribution and also alter the hydrological regime. Such impacts would constitute an adverse effect on the integrity of the site.
Habitat distribution	Occurrence	No decline, subject to natural processes	
Typical species	Occurrence	Typical species present, in good condition and demonstrating typical abundances and distribution	
Vegetation composition: characteristic zonation	Occurrence	All characteristic zones should be present, correctly distributed and in good condition	
Vegetation distribution: maximum depth	Metres	Maintain maximum depth of vegetation, subject to natural processes	



Attributes	Measures	Target	Potential for Adverse Effects
Hydrological regime: water level fluctuations	Metres	Maintain appropriate hydrological regime necessary to support the habitat	There is no potential for the proposed development to result in any changes or impacts to the water elements; quality; lake substratum; transparency; nutrients; phytoplankton biomass; attached algal biomass; acidification water colour; dissolved organic carbon or turbidity of Natural eutrophic lakes with Magnopotamion or Hydrocharition- type vegetation [3150]. Therefore, no impacts to constitute adverse effect on the integrity of the site will occur.
Lake substratum quality	Various	Maintain appropriate substratum type, extent and chemistry to support the vegetation	
Transparency	Metres	Maintain appropriate Secchi transparency. There should be no decline in Secchi depth/transparency	
Nutrients	µg/l P; mg/l N	Maintain/restore the concentration of nutrients in the water column to sufficiently low levels to support the habitat and its typical species	
Phytoplankton biomass	µg/l Chlorophyll a	Maintain/restore appropriate water quality to support the habitat, including high chlorophyll a status	
Attached algal biomass	Algal cover	Maintain/restore trace/absent attached algal biomass	

Attributes	Measures	Target	Potential for Adverse Effects
Acidification status	pH units, mg/	Maintain appropriate water and sediment pH, alkalinity and cation concentrations to support the habitat, subject to natural processes	
Water colour	mg/l PtCo	Maintain/restore appropriate water colour to support the habitat	
Dissolved organic carbon (DOC)	mg/l	Maintain/restore appropriate organic carbon levels to support the habitat	
Turbidity	Nephelometric turbidity units/ mg/l SS/ other appropriate units	Maintain appropriate turbidity to support the habitat	
Fringing habitat: area and condition	Hectares	Maintain the area and condition of fringing habitats necessary to support the natural structure and functioning of the habitat	As previously discussed, the spread of Japanese knotweed to the Natural eutrophic lakes with Magnopotamion or Hydrocharition-type vegetation would alter plant communities associated with the Annex I habitat, due to its ability to spread prolifically. The establishment of Japanese knotweed would result in significant adverse effects on fringing habitat area and condition of the habitat due to the reduction of the habitat area and condition necessary to support the natural structure and functioning of the habitat. Such impacts would constitute an adverse effect on the integrity of the site.
Rivers with muddy banks with <i>Chenopodium rubri</i> p.p and <i>Bidention</i> p.p [3270]			
Habitat area	Habitat area	Area stable, subject to natural fluctuations	There is potential for Japanese knotweed, which was recorded within the eastern boundary of the proposed development site, to



Attributes	Measures	Target	Potential for Adverse Effects
Habitat distribution	Occurrence	No decline, subject to natural processes	spread throughout the site and within the SAC and subsequently spread significantly within rivers with muddy banks with <i>Chenopodium rubri</i> p.p and <i>Bidention</i> p.p [3270] habitat. The dense, wide roots of the Japanese knotweed (5 to 100m) (Child and Wade, 2000), could choke the flood plains of the river habitat, covering bare soil and crowding out native plants specific to the habitat; alter the hydrological regime due to vegetation overcrowding; change the chemical composition of soil due to the chemicals it releases during growth; cause soil erosion of the banks once the thick stems die back in autumn, leaving the soil unprotected during winter and spring floods and in doing so, cause sedimentation of the water (Matte et al., 2021). Such impacts would constitute an adverse effect on the integrity of the site.
Hydrological regime	Various	Maintain appropriate natural hydrological regime necessary to support the natural structure and functioning of the habitat	
Soil type	Hectares	Maintain area and extent of soil types necessary to support the habitat	
Soil nutrient status: nitrogen and phosphorus	N and P concentration in soil	Maintain nutrient status appropriate to soil types and vegetation communities/units	
Physical structure: bare ground	Presence	Maintain sufficient wet bare ground, as appropriate	
Chemical processes; calcium carbonate deposition and concentration	Calcium carbonate deposition rate/soil concentration	Maintain appropriate calcium carbonate deposition rate and concentration in soil	
Water quality	Various	Restore appropriate water quality to support the natural structure and functioning of the habitat	
Vegetation composition: vegetation communities	Hectares	Maintain area of sensitive and high conservation value vegetation communities/units	



Attributes	Measures	Target	Potential for Adverse Effects
Vegetation composition: vegetation zonation	Presence	Maintain typical species	
Fringing habitats: area and condition	Hectares	Maintain the area and condition of fringing habitats necessary to support the natural structure and functioning of the habitat	
<i>Juniperus communis</i> formations on heaths or calcareous grasslands [5130]			
Habitat area	Hectares	Area stable or increasing, subject to natural processes	The SSCO document (NPWS, 2024) shows that the distribution range of <i>Juniperus communis</i> formations on heaths or calcareous grassland [5130] is situated at the very southern boundary of the SAC, ca. 6km south of the proposed development site. Despite the distance between the mapped areas of <i>Juniperus communis</i> formations on heaths or calcareous grassland [5130] habitat and the proposed development site (6km) it is possible for the movement of Japanese knotweed to be transported from the proposed development site (via machinery wheels) to <i>Juniperus communis</i> formations on heaths or calcareous grasslands [5130] habitat. Due to the ability of Japanese knotweed to spread prolifically, this could alter plant community composition of the habitat and in doing so: alter the habitat area, distribution, vegetation structure, seedling recruitment, reduce bare soil and in turn, cause the die-back of juniper plants. Such impacts would constitute an adverse effect on the integrity of the site.
Habitat distribution	Occurrence	No decline, subject to natural processes	
Juniper formation size	Number and proximity of juniper plants	At least 50 juniper plants present with each plant separated by no more than 20m	
Vegetation structure: female fruiting plants	Percentage in a representative number of 5m x 5m monitoring stops or in an ad hoc count of 50 plants	Fruiting females comprise at least 10% of juniper plants rooted in plot in at least 50% of stops or in an ad hoc count of 50 plants	
Vegetation structure: seedling recruitment	Presence in a representative number of 5m x 5m monitoring stops	At least one seedling recorded in at least one monitoring stop	



Attributes	Measures	Target	Potential for Adverse Effects
Vegetation structure: live juniper	Percentage in a representative number of 5m x 5m monitoring stops or across the site as a whole	At least 90% of juniper plants rooted in plot alive in at least 75% of stops or across the site as a whole	
Vegetation composition: negative indicator species	Percentage in a representative number of 5m x 5m monitoring stops	Total cover of negative indicator species to be less than 10% in at least 50% of stops	
Physical structure: germination niches	Percentage in a representative number of 5m x 5m monitoring stops	At least 5% bare soil and/or at least 5% bare rock in at least 25% of stops	
Formation structure: browning/die-back of plants	Percentage of juniper cover in a representative number of 5m x 5m monitoring stops	Browning or dead juniper branches (excluding fully dead plants) comprise no more than 20% of total juniper cover in plot in at least 75% of stops	
Indicators of local distinctiveness	Occurrence and population size	No decline in distribution or population sizes of rare, threatened or scarce species associated with the habitat	
Formation structure: evidence of browsing and bark stripping	Occurrence across a representative number of 5m x 5m monitoring stops	No browsing of juniper shoot tips, and trunk bark stripping evident in no more than 10% of juniper shrubs in at least 75% of stops	The proposed development will not result in any increase in browsing and bark stripping, therefore no adverse effects will occur as a result.
Semi-natural dry grasslands and scrublands facies on calcareous substrates (<i>Festuco brometalia</i>) (*important orchid sites) [6210]			



Attributes	Measures	Target	Potential for Adverse Effects
Habitat area	Hectares	Area stable or increasing, subject to natural processes	The current distribution of this species is not recorded within the SSCO document, however the Article 17 online map viewer¹⁸ indicates that the closest distribution of semi-natural dry grasslands and scrublands facies on calcareous substrates (<i>Festuco brometalia</i>) (*important orchid sites) [6210] are ca. 5km south of the proposed development site's most southern boundary. Despite the distance between the mapped areas of natural dry grasslands and scrublands facies on calcareous substrates (<i>Festuco brometalia</i>) (*important orchid sites) [6210] habitat and the proposed development site, it is possible for the movement of Japanese knotweed to be spread from the proposed development site (via machinery wheels) to natural dry grasslands and scrublands facies on calcareous substrates (<i>Festuco brometalia</i>) (*important orchid sites) [6210] habitat. Due to the ability of Japanese knotweed to spread prolifically, this could alter plant community composition of the habitat and in doing so: alter the habitat area, distribution, composition, vegetation structure and cover of bare soil. Such impacts would constitute an adverse effect on the integrity of the site.
Habitat distribution	Occurrence	No decline, subject to natural processes	
Vegetation composition: positive indicator species	Number at a representative number of 2m x 2m monitoring stops; within 20m surrounding area of monitoring stops	At least 7 positive indicator species present in monitoring stop or, if 5-6 present in stop, additional species within 20m of stop; this includes at least two 'high quality' positive indicator species present in stop or within 20m of stop	
Vegetation composition: negative indicator species	Percentage cover at a representative number of 2m x 2m monitoring stops	Negative indicator species collectively not more than 20% cover, with cover of an individual species not more than 10%	
Vegetation composition: non-native species	Percentage cover at a representative number of 2m x 2m monitoring stops	Cover of non-native species not more than 1%	
Vegetation composition: woody species and bracken	Percentage cover at a representative number of 2m x 2m monitoring stops	Cover of woody species (except certain listed species) and bracken (<i>Pteridium aquilinum</i>) not more than 5%	
Vegetation structure: broadleaf herb: grass ratio	Percentage at a representative number of 2m x 2m monitoring stops	Broadleaf herb component of vegetation between 40% and 90%	



Attributes	Measures	Target	Potential for Adverse Effects
Vegetation structure: sward height	Percentage at a representative number of 2m x 2m monitoring stops	At least 30% of sward between 5cm and 40cm tall	
Vegetation structure: litter	Percentage cover at a representative number of 2m x 2m monitoring stops	Litter cover not more than 25%	
Physical structure: bare soil	Percentage cover at a representative number of 2m x 2m monitoring stops	Not more than 10% bare soil	
Physical structure: grazing or disturbance	Area in local vicinity of a representative number of monitoring stops	Area of the habitat showing signs of serious grazing or disturbance less than 20m ²	There will be no grazing on Semi-natural dry grasslands and scrublands facies on calcareous substrates (<i>Festuco brometalia</i>) (*important orchid sites) [6210] habitat as a result of the proposed development, therefore there is no potential for adverse effects on the integrity of the site.
<i>Taxus baccata</i> woods of the British Isles* [91J0]			
Habitat area	Hectares	Area stable or increasing, subject to natural processes	The SSCO document (NPWS, 2024) indicates that the closest distribution of this terrestrial habitat is ca. 4km south of the proposed development site. Despite the distance between the mapped areas of <i>Taxus baccata</i> woods of the British Isles* [91J0] within the SAC and the proposed development site (4km) it is possible for the Japanese knotweed to be transported from the proposed development site (via machinery wheels) to within the SAC boundary and spread to the south of the SAC where the habitat
Habitat distribution	Occurrence	No decline	
Woodland size	Hectares	Area stable or increasing. Where topographically possible, "large" woods at least 25ha in size and "small" woods at least 3ha in size	



Attributes	Measures	Target	Potential for Adverse Effects
Woodland structure: cover and height	Percentage; centimetres metres;	Total canopy cover at least 30%; median canopy height at least 10m; native shrub layer cover 10-75%; native herb/dwarf shrub layer cover at least 20% and height at least 20cm; bryophyte cover at least 4%	is situated. Due to the ability of Japanese knotweed to spread prolifically, the spread of this Third Schedule invasive species <i>Taxus baccata</i> woods of the British Isles* [91J0] habitat could: alter the woodland habitat area, distribution and size. Additionally, the spread of Japanese knotweed could alter the structure of cover and height; community diversity and extent; and natural regeneration. Such impacts would constitute an adverse effect on the integrity of the site.
Woodland structure: community diversity and extent	Hectares	Maintain diversity and extent of community types	
Woodland structure: natural regeneration	Seedling: sapling: pole ratio	Seedlings, saplings and pole age-classes of yew (<i>Taxus baccata</i>) and other native tree species occur in adequate proportions to ensure survival of woodland canopy	
Woodland structure: dead wood	Number per hectare	At least 19 stems/ha of dead wood at least 20cm diameter	The spread of Japanese knotweed to the habitat will result in an increase in dead woody stems within the habitat, however this will not result in a benefit to the habitat due to the non-native composition of this dead vegetation. Therefore, there is no potential for adverse effects.
Woodland structure: veteran trees	Number per hectare	No decline	The spread of Japanese knotweed will not cause a decline of veteran trees within the woodland due to their size. Therefore, there is no potential for adverse effects.



Attributes	Measures	Target	Potential for Adverse Effects
Woodland structure: indicators of local distinctiveness	Occurrence; population size	No decline in distribution and, in the case of red listed and other rare or localised species, population size	The spread of Japanese knotweed to the woodland result in this species out-competing red-listed and other rare or localised species and population sizes. Such impacts would constitute an adverse effect on the integrity of the site.
Woodland structure: indicators of overgrazing	Occurrence	All four indicators of overgrazing absent	The proposed development will not result in an increase in grazing, therefore there is no potential for adverse effect on the integrity of the SAC.
Vegetation composition: native tree cover	Percentage	No decline. Native tree cover at least 90% of canopy; yew (<i>Taxus baccata</i>) cover at least 50% of canopy	Although the spread of Japanese knotweed will not impact the vegetation composition of mature native tree cover, it would likely impact the generation of new saplings due to overcrowding of the woodland ground floor and out-competition of yew saplings. The Japanese knotweed would also out-compete other native woodland flora, including positive indicator species associated with the habitat. Such impacts would constitute an adverse effect on the integrity of the site.
Vegetation composition: typical species	Occurrence	Yew (<i>Taxus baccata</i>) present; at least 6 positive indicator species for 91J0* woodlands present	
Vegetation composition: negative indicator species	Occurrence	Negative indicator species cover not greater than 10%; regeneration of negative indicator species absent	The spread of Japanese knotweed would result in an increase in negative indicator species. Negative indicator species for this habitat include any non-native species, including herbaceous plants (Daly <i>et al.</i> 2023). Such impacts would constitute an adverse effect on the integrity of the site.



13.1.2 Caherglassaun Turlough SAC

Site-specific conservation objectives have been set by the NPWS for each of the listed QI habitats and species of the Caherglassaun Turlough SAC. The Conservation Objectives document for this SAC (NPWS, 2018a) states that:

'A site-specific conservation objective aims to define favourable conservation condition for a particular habitat or species at that site. The maintenance of habitats and species within the Natura 2000 network at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level.'

Favourable conservation status of a habitat is achieved when:

- its natural range, and area it covers within that range, are stable or increasing, and
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- the conservation status of its typical species is favourable.

Favourable conservation status of a species is achieved when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

An assessment of whether the potential impacts identified in Section 8 could adversely affect the integrity of Caherglassaun Turlough SAC was undertaken in relation to the attributes, measures and targets that would be expected to define the favourable conservation condition of the QIs designated within the SAC. The assessment is presented in Table 13-2 below.

Table 13-2: Evaluation of Potential Adverse Effects on the Conservation Objectives of the Caherglassaun Turlough SAC as a Result of the Proposed Development

Attributes	Measures	Target	Potential for Adverse Effects
Lesser Horseshoe Bat (<i>Rhinolophus hipposideros</i>) [1303]			
Population per roost	Number	Minimum number of 20 bats for the winter roost (roost id. 246 in NPWS database).	The SSCO document (NPWS, 2018a) indicates that the SAC's only qualifying roost (Roost ID 246) is located approximately 3.2km southwest of the proposed development site. Considering the separation distance (i.e. greater than the 2.5km foraging area cited for lesser horseshoe bats (NPWS, 2018b)), there is no potential for direct effects to this roost. Similarly, the proposed development will not result in direct effects to the number and condition of any other winter or auxiliary roosts. There is therefore no potential for adverse effects.
Winter roosts	Condition	No decline	
Auxiliary roosts	Number and condition	No decline	
Extent of potential foraging habitat	Hectares	No significant decline within 2.5km of qualifying roosts	As mentioned, although the SAC is located within 2.5km of the proposed development site, the only qualifying roost (Roost ID 246) is located approximately 3.2km southeast of the proposed development boundary (i.e. greater than the 2.5km foraging area cited for lesser horseshoe bats (NPWS, 2018b)). The potential foraging grounds associated with Roost 246 are located 2.8km from the closest hedgerow being removed as a result of the proposed development site (refer to Figure 8-1). However, considering the SAC is located within 2.5km of the proposed development (ca. 2.1km), the potential exists for an undocumented roost or the establishment of a new roost to occur within 2.5km of the proposed development site. Therefore, the 118m of hedgerow loss could result in adverse effects to unrecorded roosts of future lesser horseshoe bat populations associated with the SAC, in the absence of mitigation.
Linear features	Kilometres	No significant loss within 2.5km of qualifying roosts	



Light pollution	Lux	No significant increase in artificial light intensity adjacent to named roosts or along commuting routes within 2.5km of those roosts.	As described in Section 8.1.5, normal working hours during the construction period are expected to be Monday to Friday 08.00 to 18.00 hours (inclusive) and Saturdays (excluding Bank/Public Holidays) 08.00 to 14.00 (inclusive). There will be no permanent artificial light included within the proposed development site during the construction or operational phases; with the exception of security lighting which will only be switched on in the event of an emergency. Considering the use of lighting only in an emergency event and the lack of any permanent lighting, there will be no disruption to bat flight patterns.
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13.1.3 Coole-Garryland SPA

Site-specific conservation objectives have been set by the NPWS for the listed SCI species of Coole-Garryland SPA (NPWS, 2025a). The Conservation Objectives document states that:

'A site-specific conservation objective aims to define favourable conservation condition for a particular habitat or species at that site. The maintenance of habitats and species within the Natura 2000 network at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level'.

Favourable conservation status of a habitat is achieved when:

- its natural range, and area it covers within that range, are stable or increasing, and
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- the conservation status of its typical species is favourable.

Favourable conservation status of a species is achieved when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

An assessment of whether the potential impacts identified in Section 8 could adversely affect the integrity of Coole-Garryland SPA was undertaken in relation to the attributes, measures and targets that would be expected to define the favourable conservation condition of the SCI designated within the SPA. The assessment is presented below in Table 13-3 below.

Table 13-3: Evaluation of Potential Adverse Effects on the Conservation Objectives of the Coole-Garryland SPA as a Result of the Proposed Development

Attributes	Measures	Target	Potential for Adverse Effects
Whooper swan (<i>Cygnus cygnus</i>)			
Winter population trend	Percentage change in number of individuals	Long term winter population trend is stable or increasing	Monitoring undertaken between 2016/17 to 2020/21 estimated that there was a population of 66 whooper swan using the SPA, which represents a population decrease of 69% since the baseline period (NPWS, 2025a).
Winter spatial distribution	Hectares, time and intensity of use	Sufficient number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population target	The proposed development site is set back 1.6km from the SPA. There will be no loss of habitat within the SPA. Furthermore, there is no potential for groundwater impacts with the groundwater body which encompass the SPA. There is no potential for likely adverse effects in relation to suitable habitat to support the population of whooper swan.
Disturbance at wintering site	Intensity, frequency, timing and duration	Disturbance occurs at levels that do not significantly impact the achievement of targets for population trend and spatial distribution	A review of disturbance distances of selected bird species by Goodship and Furness (2022) states that whooper swan has a 'medium' sensitivity to human disturbance and suggests a 200-600m buffer to the species during the non-breeding season to avoid disturbance. Considering the SPA is located approximately 1.6km south of the proposed development site, there is no potential for disturbance to the SCI species present within the SPA. There is therefore no potential for likely adverse effects in relation to the disturbance at wintering sites.
Barriers to connectivity and site use	Number, location, shape and hectares	Barriers do not significantly impact the wintering population's access to the SPA or other ecologically important sites outside the SPA	The proposed development will not result in a barrier to connectivity. The proposed solar panels will include an anti-glare coating which will prevent reflection and glare from the panels, eliminating the risk of collision. Furthermore, the proposed development will not include any tall structures such as overhead lines or turbines.

Attributes	Measures	Target	Potential for Adverse Effects
Forage spatial distribution, extent and abundance	Location, hectares, and forage biomass	Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target	The proposed development site is set back approximately 1.6km from the SPA. Thus, there will be no loss of habitat within the SPA. Furthermore, there is no potential for groundwater impacts with the groundwater body which encompass the SPA. There is potential that the designated population of whooper swan may forage outside the SPA site boundary. IWeBS count data, as well as the ecological survey result (refer to Section 7.2.2.2) indicate that the designated population use Lydcan Castle Turlough and the surrounding grassland as supporting foraging habitat. Although Whooper Swan are known to forage within agricultural landscapes surrounding wetland roost sites, only limited use of the proposed development site was recorded during the surveys. Considering the limited area covered by solar panels within the proposed development site (25.92%) and considering the abundance of agricultural grassland available throughout the wider environs as well as higher value habitats such as the turloughs, the loss of grassland within the solar farm is not considered likely to result in adverse effects on the whooper swan population. There is no potential for likely adverse effects in relation to the extent, distribution, extent and abundance of foraging habitat.
Roost spatial distribution and extent	Location and hectares of roosting habitat	Sufficient number of locations, area and availability of suitable roosting habitat to support the population target	Whooper swan mainly roost at permanent waterbodies (NPWS, 2025a). The proposed development will not result in the loss or change of any permanent waterbodies within the SPA or within important supporting habitats for the swans. There is therefore no potential for adverse effects in relation to roost distribution and extent.



Attributes	Measures	Target	Potential for Adverse Effects
Supporting habitat: area and quality	Hectares and quality	Sufficient area of utilisable habitat available in ecologically important sites outside the SPA	IWeBS count data, as well as the ecological survey result (refer to Section 7.2.2.2) indicate that the designated population use Lydcan Castle Turlough and the surrounding grassland as supporting foraging habitat. The turlough is located approximately 160m south of the proposed development site boundary and approximately 250m south of the closest proposed solar panel. Goodship and Furness (2022) suggests that whooper swan has the potential to be disturbed from foraging grounds within a range of 200-600m during the nonbreeding season. Considering the proximity of the turlough to the proposed development site there is potential that the construction works may result in the disturbance of supporting habitat used by the designated population. Additionally, there is a rare but sever risk of fire associated with BESS development. In the extreme event a fire was to occur during the whooper swans wintering season, there is potential that disturbance associated with the fire and management of same would temporarily disturb the supporting habitat used by the designated population. The change of the availability of supporting habitat used by the designated population would constitute a likely adverse effect in the absence of mitigation.



14. MITIGATION MEASURES

The assessment concluded that the proposed development, in the absence of appropriate mitigation measures, could result in likely adverse effects on the Coole-Garryland Complex SAC, Caherglassaun Turlough SAC and Coole-Garryland SPA.

For the purpose of Article 6(3) of the Habitats Directive, the mitigation measures prescribed hereunder will avoid and/or reduce the significance of the potential impacts from the proposed development (Section 8) and prevent the occurrence of significant adverse effects on European sites (Section 13).

The mitigation measures are prescribed with regards to the EC Guidance (EC 2021a) which requires mitigation by avoidance as a first approach, the guidelines state that:

‘The hierarchy of mitigation measures suggests first avoidance (i.e. preventing significant impacts from happening in the first place) and then reduction of impact (i.e. reducing the magnitude and/or likelihood of an impact).’

In addition, the guidelines further states that:

‘Each mitigation measure must be described in detail, specifying how it will eliminate or reduce the adverse impacts identified, and how, when and by whom it will be implemented. The following aspects must be indicated:

- *The impacts concerned that the mitigation measures aim to address, including information on relevant parameters (e.g. the area of the habitats of Community interest subject to deterioration and their conservation degree in the site, the species population subject to disturbance).*
- *The expected results from implementing the proposed mitigation measures, with reference to each parameter (e.g. habitat area, species population numbers or structure and functions).*
- *Technical-scientific feasibility and degree of effectiveness expected of the proposed measures.*
- *The person or body in charge of implementation.*
- *The management of the area where the mitigation measures will be implemented (methods, duration).*
- *The location and timing of the measures with relation to the plan or project.*
- *The methods for checking implementation of the measures.*
- *The financing of the measures.*
- *The monitoring programme to verify the effectiveness of the measures and adapt them if necessary.’*

The above guideline recommendations have been considered within the proposed mitigation measures, which are outlined hereunder.

14.1 BIOSECURITY MEASURES

Japanese knotweed was recorded within the proposed development site. This species features on the Third Schedule Part 1 of the European Communities Regulations (S.I. 477/2011). An

Invasive Species Management Plan (ISMP) has been prepared in order to treat the Japanese knotweed and eradicate it from the proposed development site. In doing so, its spread to the Coole-Garryland Complex SAC and Annex I habitats will be prevented. The ISMP concluded that stem injection method is desirable as it limits effects on surrounding vegetation communities and is thought to be more effective. However, if stems have not reached a feasible size for stem injection before treatment commences, foliar treatment can be utilised. It will likely require a number of years of treatment to achieve complete eradication. A buffer of 7m will be established around the plant within the proposed development site until the plant is completely eradicated. All chemical treatments must be carried out by a suitably qualified professional and be subject to appropriate health and safety procedures. The ISMP is included in Appendix B of this report.

The spread and introduction of any additional alien invasive species and noxious weeds will be avoided by adopting appropriate mitigation measures as per guidance issued by the NRA (2010).

The following measures to reduce the risk of the spread of new IAPS alien species will be implemented during the construction phase of the proposed development:

- Prior to arrival on site the contractor's vehicles and equipment must be thoroughly cleaned at the entrance to the site. High-pressure steam cleaning, with water > 60 °C, is recommended for vehicles and equipment where reasonably feasible. If it is not possible to steam clean the equipment, a normal power hose must be used. After cleaning, the operator should visually inspect the equipment to ensure that all adherent material and debris have been removed;
- Each individual entering/leaving the site should visually inspect all equipment (including footwear) that has come into contact with water or soils for evidence of attached plant or animal material, or adherent mud or debris. This should be done before entering and leaving the site. Remove any attached or adherent material before entering or leaving the site of operation;
- All Contractors will be required to sign a prepared form detailing the nature of the cleaning process carried out and the date on which this was conducted; and
- The ECoW will be responsible for keeping a logbook with records of all the inspections and all relevant information.

14.2 MITIGATION FOR HEDGEROW LOSS AND IMPACTS TO LESSER HORSESHOE BAT

The proposed development will result in the removal of 118m of hedgerow at seven locations within the proposed development site. As stated, the bat roosts designated within the **Coole-Garryland Complex SAC's (Roost ID 226) and Caherglassaun Turlough SAC (Roost ID 246)** are located outside of the 2.5km radius for mandatory hedgerow retention for the species as outlined in the Conservation Objectives Supporting Document for the species (NPWS, 2018a & NPWS, 2024). However, considering the close proximity of the **two SACs** to the proposed development site (**0m and 2.1km respectively**) and the possibility of additional unrecorded roosts being present within the 2.5km radius of the proposed development site currently or in the future, mitigation must be proposed.

The Bat Report (included in Appendix A) has proposed a range of recommended mitigation measures which have been taken into consideration by TOBIN ecologists. The below mitigation measures have been designed based on best practice and are considered sufficient to

avoid/reduce potential impacts on bat species as a result of the proposed development, to eliminate any potential impacts related to unrecorded and future roosts.

14.2.1 Construction Phase Mitigation for Hedgerow Loss and Impacts to Lesser Horseshoe Bats

Fencing

During the construction phase, fencing (minimum 2m high) will be placed at every section of hedgerow removed throughout the proposed development site, which will only be temporarily removed during the day where construction works are being carried out and access is required. From sunrise to sunset, all fencing will be replaced to reinstate the linear features and commuting corridors for commuting bats at night. An ECoW will be required to document compliance to this measure in a logbook.

14.2.2 Operational Phase Mitigation for Hedgerow Loss and Impacts to Lesser Horseshoe Bats

Buffer Around Hedgerows

A buffer of 5m has been established around all hedgerows, no solar panels or other elements of the project will be constructed in this area in order to retrain the full commuting potential of the hedgerows for bats.

Bolstering of Current Hedgerows, Replanting of Removed Hedgerows and Creation of New Hedgerows

A Biodiversity Management Plan (BMP) has been prepared which details the bolstering of current hedgerows; replacement all hedgerow removed as a result of the proposed development and creation of 6.5km of new hedgerows (see Figure 5-2 of the BMP in Appendix C). All of these measures will greatly increase foraging resources and commuting lesser horseshoe bats.

Fencing

The fencing (mentioned above in Section 14.2.1) will remain in place post-construction until replanted hedgerows mature to act as viable corridors for commuting bats. An ECoW will visit the site annually to assess the hedgerow growth progress to eventually decommission and remove the hoarding.

Woodland Planting

An additional plot of land (0.194ha) to the north of the site will be planted to create a woodland, which will increase foraging resources for future populations of lesser horseshoe bat within the proposed development site.

has been set aside to naturally rewild naturally (see Figure 5-2 of the BMP). This will increase foraging resources for lesser horseshoe bat within the proposed development site.

Buffer Zones for Important Features

- Given the importance of the southern woodland strip by Lydacan and this habitat being a component of the Coole-Garryland Complex SAC with the highest recorded lesser



horseshoe bat activity, a 100m buffer has been created where no solar panels will be installed.

Important woodland, treeline and scrub habitats situated within the site have been given a 20m buffer where no solar panels will be installed (see all buffer areas in the BMP included in Appendix C).

14.3 MITIGATION FOR NOISE DISTURBANCE

As part of the initial design of the solar farm layout, the solar panels were set back a minimum of 100m from the southern boundary of the proposed development site to reduce noise disturbance to Lydcan Castle Turlough.

In the first instance, all construction works undertaken within 600m of Lydcan Castle Turlough will be undertaken outside of the whooper swan wintering season (October to April). In the event that construction works cannot be avoided during this period, hoarding will be erected around the southern boundary of the proposed development site (as shown in Figure 14-1) which will reduce both noise and visual disturbance to the swans. Noisier works such as the track machine and panel mounting will be restricted to outside the wintering season (October to April) without an exception. Construction works will only commence once the hoarding is fully installed.

Additionally, temporary noise monitoring at Lydcan Castle Turlough will be set up to monitor noise levels from the construction phase at the turlough from October to April (whooper swan wintering season). Where noise monitoring detects noise levels over 55dB²⁸ at the turlough, construction works will be halted and noise suppression amendments made. Noise monitoring will be supervised by the ECoW.

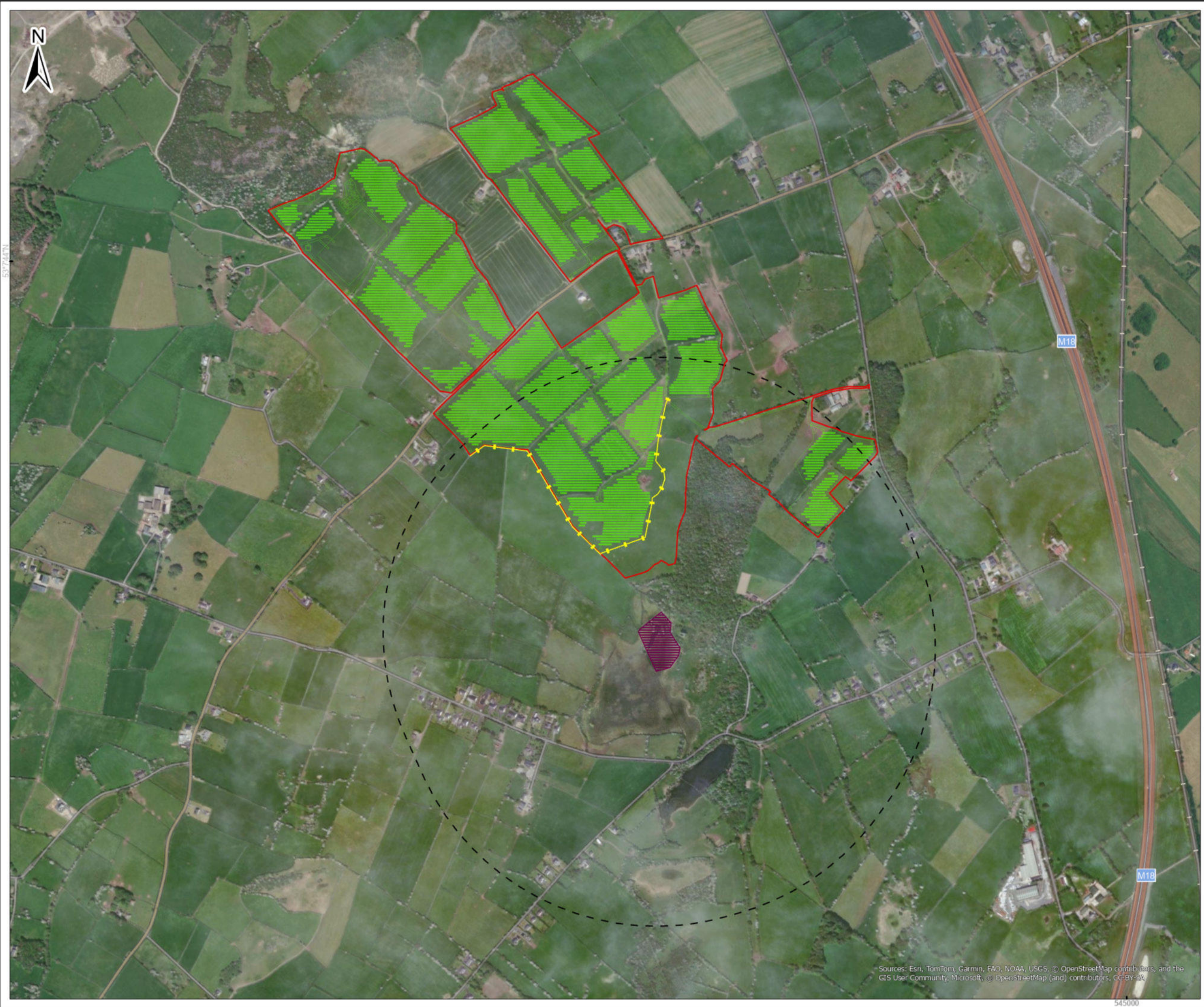
14.4 MITIGATION FOR DISTURBANCE ASSOCIATED WITH FIRE RISK

A Fire Risk Management Plan and Compliance Report and an Emergency Response Plan have been prepared for the proposed development and are included in Appendix E of this report. Both plans outline the measures which will be implemented in the event a fire occurs.

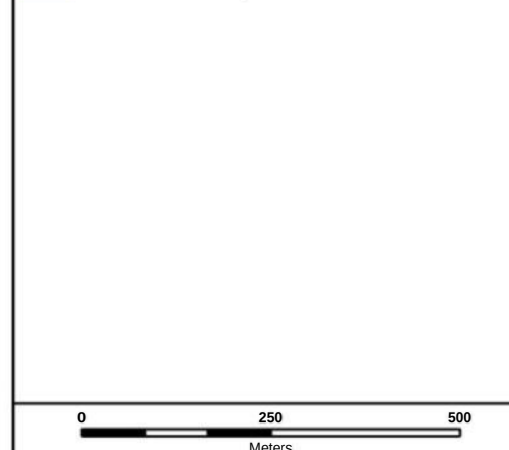
Water generated during the damping down will flow to the drainage network. Water generated can be reused repeatedly to reduce overall water demand. The water collected will be tested at the collection sump following the cessation of the fire event. Based on the testing, water will either be reused in the tanks on site or sent for disposal. All water will be contained on site. A Drainage Site Layout Plan associated with the BESS is included in Appendix F.

²⁸ This volume is the threshold for the onset of potential behavioural disturbance of noise to waterbirds. Noise levels below 55dB are considered unlikely to cause a response in birds (Cutts *et al.*, 2013)





- Legend**
- Red Line Boundary
 - Lydacan Castle Turlough 600m Buffer
 - Hoarding
 - Lydacan Castle Turlough
 - Solar Panel Layout



NOTES

1. FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING.
2. ALL DRAWINGS TO BE CHECKED BY THE CONTRACTOR ON SITE.
3. ENGINEER TO BE INFORMED OF ANY DISCREPANCIES BEFORE ANY WORK COMMENCES.
4. ALL LEVELS RELATE TO ORDNANCE SURVEY DATUM AT MALIN HEAD

A	21/07/2026	First issue	K.K	AS
Rev	Date	Description	By	Cl'd.

Client: **bnrg**

Project: **Shessy Solar Farm Project**

Title: **Figure 14-1: Whooper Swan Mitigation**

Scale @ A3: 1:10,000

Prepared by: K.Kale Checked by: A.Sands Date: July 2026

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Map Ref: 12091-017-W.S-S.BO-TOB-A Draft: A

Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community, Microsoft, © OpenStreetMap (and) contributors, CC-BY-SA

14.5 MITIGATION EFFECTIVENESS

The appointed Contractor will be responsible for ensuring all mitigation measures listed above, including any additional planning conditions, are fully implemented during the entirety of the proposed development works.

The above listed mitigation measures will be implemented prior to the proposed development commencing and undertaken throughout the duration of the works.

The above outlined mitigation measures are best practice and are proven technologies/methods. The mitigation measures, once correctly applied, will avoid or reduce the magnitude of potential impacts on the receiving environment, therefore ensuring avoidance of significant adverse effects on the integrity of the Coole-Garryland Complex SAC, Caherglassaun Turlough SAC and Coole-Garryland SPA.

15. ANALYSIS OF POTENTIAL IN-COMBINATION EFFECTS

Article 6(3) of the Habitats Directive requires that:

“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.”

It is therefore required that the potential effects of the activities associated with the proposed development are considered in-combination with any other relevant plans or projects. Projects which have been completed, approved or which are proposed, as well as proposals within county development plans, located within the Zol of the proposed development, have been considered in the in-combination assessment, and are discussed hereunder.

A review of the EIA portal²⁹, National Planning Application Database³⁰ and the Galway County Council planning portal³¹ was carried out. A summary of the projects is presented in Section 15.1 and a summary of relevant plans is provided in Section 15.2.

15.1 PROJECTS

Shessy Grid Connection and Substation

As previously mentioned in Section 2.1, a separate planning application will be submitted to An Coimisiún Pleanála for the grid connection and loop-in substation, which will be subject to a separate Appropriate Assessment screening. The locations of the proposed grid connection and substation are included in the Proposed Site Layout Map (Figure 6-2) of this report.

The construction of the substation and grid-connection will result in ca. 2ha of agricultural grassland habitat loss which is discussed in Section 8.1.1, while 46.7m² of mixed broadleaved woodland will be lost as a result of the grid connection (and associated 4m corridor) for the separate planning application.

Although the grid connection and substation will be constructed within and to the northeast of the Shessy Solar Farm site, the construction phase will not overlap with that of Shessy Solar Farm. The operation phase of the substation will result in some minor noise immediately adjacent to the substation due to cooling requiring internal fans. However, there will be no noise emitted from the panels (or any other elements of Shessy Solar Farm) during the operation of the solar farm.

Considering the construction timelines and the abundance of grassland habitat available within the surrounding environs of both the Shessy Solar Farm and Shessy Grid Connection and Substation projects, **there is no potential for in-combination impacts with the proposed development and the proposed Shessy grid connection and substation.**

South Galway Solar Farm

²⁹ [Environmental Impact Assessment \(EIA\) Portal - Information](#) (Accessed August 2025)

³⁰ <https://www.myplan.ie/national-planning-application-map-viewer/> (Accessed August 2025)

³¹ [ePlan: Find a planning application](#) (Accessed August 2025)



A planning application was submitted to Galway County Council by in September 2023 for South Galway Solar Farm (Planning Ref. No: **2361143**) by Harmony Solar Galway Limited, located in the townlands of Cloghboley and Carrowgarriiff North, ca. 2.5km north of the Shessy Solar Farm boundary. The application consisted of permission for 10-years for the development of a solar farm on a site of 125 hectares.

The application was refused on the grounds of archaeology and absence of summer surveys for lesser horseshoe bat, a qualifying interest of the Lough Fingall Complex SAC. ~~and is currently being appealed.~~ **An appeal was later submitted, and the project NIS was updated in response to the Request for Information.**

A review of the updated NIS (AECOM, 2024) indicated that the assessment did not screen-in the Coole-Garryland Complex SAC, **Caherglassaun Turlough SAC or the Coole-Garryland SPA** for assessment of impacts, therefore there is **no potential for in-combination impacts with the South Galway Solar Farm and the proposed Shessy Solar Farm project for impacts on the two SACs.**

Ballymoneen Solar Farm and Extension

A planning application was submitted to Galway County Council by in December 2020 by Renewable Energy Systems Ltd for Ballymoneen Solar Farm (Planning application number: **20961**) for permission for development at this site at Ballymoneen and Grange East, Co Galway. The Ballymoneen Solar Farm is approximately 12km northeast of the proposed Shessy Solar Farm site. The application consisted of a planning permission for a period of 5 years to construct and complete a Solar PV Energy and Battery Storage development with a total site area of circa 140.9 hectares. The decision by Galway County Council is granted with 15 conditions attached

An application for an extension to the Ballymoneen Solar Farm was submitted to Galway County Council in August 2023 (Planning Application No. **2261105**) to construct and complete a Solar PV Energy development with a total site area of circa 25 hectares, The solar farm would be operational for 35 years. Gross floor space of proposed works: 768 sqm.

An application was submitted to Galway County Council for a development that will consist of grid connection for Ballymoneen Solar Farm and Extension infrastructure to connect the approved solar photovoltaic ("PV") The grid connection application was refused due to road safety concerns.

Considering the distance between the Ballymoneen Solar Farm, Extension (and refused Grid Connection) projects and both the Shessy Solar Farm and Coole-Garryland Complex SAC (ca. 12km) **and Caherglassaun Turlough SAC (ca. 14km) there is no potential for in-combination impacts on the two SACs.**

Belville Solar Farm

A number of newspaper articles discussed a 700-900 acre solar farm planning application in Monivea and Abbeyknockmoy County Galway (approximately 20km north of the proposed Shessy Solar Farm) which will be Ireland's largest solar farm (Smith, E.F. and Murray, J. (2025) (Farragher, F. 2025). The applicant is Power Capital Renewable Energy. An Coimisiún Pleanála have refused the request for information on the planning application. Should this application be granted, **there will be no in-combination impacts to the Coole-Garryland Complex SAC and Caherglassaun Turlough SAC.**



Other Smaller Developments

There are a number of small projects and applications in the area surrounding the proposed development site that involve the construction or extension/modification of small residential properties and associated structures, including new connections to the public wastewater network or associated septic tanks or other on-site treatment. Considering the small scale and temporary nature of these proposed developments, plus the lack of connectivity to European sites **there is no risk of in-combination effects with the proposed development on European sites.**

15.2 PLANS

The Galway County Development Plan 2022-2028 outlines a number of policy objectives that relate to the protection of European sites and biodiversity (relevant policies and objectives include: NHB3- Protection of European sites, NHB9 -Protection of Bats and Bat Habitats, NHB9 -Protection of Bats and Bat Habitats, IS2 Invasive Species Management Plan, TWHS1- Trees, Hedgerows, Natural Boundaries and Stone Walls).

All new plans and projects proposed within the county must adhere to the above-mentioned policies and objectives, which ensures that all plans and projects proposed will not result in adverse effects on biodiversity and European sites, and includes the requirement that any future proposed plans or projects to be subject to Appropriate Assessment to examine and assess their effects on European sites, alone and in-combination with other plans and projects.

16. CONCLUSION

This NIS has been prepared following the Department of the Environment, Heritage and Local Government guidance '*Appropriate Assessment of Plans and Projects in Ireland; Guidance for Planning Authorities*.' The function of this report is to assist and provide sufficient objective scientific information to the competent authority with undertaking an Appropriate Assessment in accordance with the Habitats Directive, Part XAB of the Planning and Development Act 2000 and case law.

The assessment considers whether the proposed development, alone or in-combination with other projects or plans, will result in likely adverse effects on the integrity of any European site within the ZOI of the proposed development and includes any mitigation measures necessary to avoid or reduce the risk of such adverse effects.

In absence of mitigation, the potential risk to the Coole-Garryland Complex SAC, Caherglassaun Turlough SAC and Coole-Garryland SPA is the potential for the spread of invasive alien plant species, loss of linear features for unrecorded or future lesser horseshoe bat roosts and disturbance of whooper swan at supporting feeding grounds. However, following the application of the detailed mitigation measures, potential likely adverse effects will be avoided or reduced. Consequently, it is determined that there will be no risk of adverse effects on the qualifying interest habitats and species, or on overall site integrity, nor in the attainment of the specific conservation objectives of the European Sites.

In line with the provisions of Article 6 of the Habitats Directive 92/43/EEC, an analysis and evaluation of the relevant information including, in particular, the nature of the proposed development, including mitigation measures, characteristics of the qualifying interests, the potential link between the proposed development and the European Sites, no adverse effects on the integrity of any European sites during the proposed development at Shessy Solar Farm, in County Galway is anticipated, either alone or in-combination with any other plans or projects, and there is no scientific doubt in relation to this conclusion.

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