FuturEnergy Ireland

Cummeennabuddoge Wind Farm, Co. Kerry

Kerry Slug Derogation Licence Application 2026

Supporting Information

APEM Group Woodrow

Authors: Leona McSharry and Sophie Papczyk

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Project Director:	Rory Canavan
Project Manager:	Sophie Papczyk
Authors:	Leona McSharry and Sophie Papczyk

APEM Group Woodrow
Upper Offices
Ballisodare Centre
Station Road
Ballisodare
Co. Sligo
F91 PE04
Ireland

Tel: +353 71 9140542
Web: www.woodrow.ie

Registered in Ireland No. 493496

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V02	23/03/2026	4.7	12-15	Finalising	SP

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1. INTRODUCTION

1.1. Objective of the Proposed Works

As part of the construction of a wind farm, the objective of the proposed works ("works footprint") is to safely capture and translocate Kerry Slug (*Geomalacus maculosus*) individuals from areas that will be directly affected by ground preparation and construction activities. This translocation effort is required in order to prevent harm to the species during essential project works and to ensure compliance with strict protection requirements. The works form part of the wider construction programme for the wind farm and are intended to facilitate necessary site preparation while ensuring that any Kerry Slugs encountered are relocated to suitable, ecologically appropriate habitat where their conservation status can be maintained.

1.2. Statement of Authority

As detailed in the application form, we have nominated the following ecologists as authorised supervisors for the derogation, namely Sophie Papczyk, Patrick Power, Damien McAndrew, Bruno Mels, Emmi Virkki, and Leona McSharry whose specific expertise and professional qualifications are outlined below.

Sophie Papczyk is an Ecologist with APEM Group Woodrow and holds a BSc in Environmental Sciences from the University of Oldenburg, Germany. Her academic research has focused on Orthoptera, and she has professional survey experience for marsh fritillary and Irish damselfly. Sophie's consultancy work has primarily centred on habitats and botany, with additional experience across a range of terrestrial taxa. She has previously conducted Kerry Slug surveys under National Parks and Wildlife Services (NPWS) licence DER-KERRY SLUG-2026-02.

Patrick Power is an Ecologist with APEM Group Woodrow. He holds a BSc in Forestry, BSc (Hons) in Land Management in Forestry from Waterford Institute of Technology, and a Post Graduate Certificate in Wildlife Biology and Conservation from Edinburgh Napier University. Patrick's work focuses on bat data analysis and conducting bat roost and habitat-suitability surveys. He also has experience in reptile, mammal, and woodland tree surveys. He has previously undertaken Kerry Slug surveys under NPWS licence DER-KERRY SLUG-2026-02.

Damien McAndrew is an Ecologist with APEM Group Woodrow. and holds a BSc (Hons.) in Environmental Science from Atlantic Technological University (ATU), Sligo. He has over four years' experience in ecological consultancy, with a strong background in terrestrial fieldwork, protected species surveys, and ecological site appraisal. Damien has completed specialist surveys for protected terrestrial molluscs, including Desmoulin's Whorl Snail, and has experience in upland, woodland and peatland habitats relevant to Kerry Slug. He has also provided Ecological Clerk of Works services and contributed to ecological assessments for infrastructure and renewable energy projects. Damien has previously undertaken Kerry Slug surveys under National Parks and Wildlife Services (NPWS) licence DER-KERRY SLUG-2026-02 and progressed from trainee to supervisor following structured training under Patrick Power.

Bruno Mels is an Ecologist with the Woodrow APEM Group and holds an MSc in Conservation Biology. His experience includes surveys on Odonata, alongside extensive professional work in statistical analysis and ecological modelling.

Emmi Virkki is a Principal Ecologist with APEM Group Woodrow. Emmi holds a BSc (Hons) in Environmental Biology, and a MSc in Environmental Science. Emmi has specialist experience in *Vertigo* snail surveys and a broad ecological background spanning birds, mammals, habitats, and botany. She is a full member of the Chartered Institute of Ecology and Environmental Management (CIEEM).

Leona McSharry is an Ecologist and Biological Data Officer with APEM Group Woodrow. Leona holds a BSc (Hons) in Zoology from the National University of Ireland, Galway. Leona has a strong research background in arachnids and extensive experience delivering field surveys, species identification, and ecological assessments for invertebrates, reptiles, bats, and terrestrial mammals.

All ecologists named as supervisors have previously held a Kerry Slug licence (NPWS reference: DER-KERRY SLUG-2025-08 and DER-KERRY SLUG-2026-02. All ecologists named as trainees are working at consultant ecologist level or above and consistently demonstrate a high standard of professional competence. Any team members who are not yet familiar with Kerry Slug ecology will receive structured, supervised training from experienced ecologists to ensure full competency before undertaking any survey, handling, or translocation activities.

2. BACKGROUND

2.1. Site Description

The proposed development site (“the Site”) is centred at Irish Transverse Mercator (ITM) coordinates 520354, 583232, within the townlands of Cummeenavrick, Glashacormick, Clydaghroe and Cummeennabuddoge in County Kerry (Figure 1). The Site lies in the Derrynasaggart Mountains, approximately 4.5 km north of Ballyvourney Village, and covers *c*. 728.6 ha at elevations ranging from 270–580 m.

The landscape is dominated by commercially managed forestry, with only small, degraded pockets of heath and peatland remaining between plantation blocks. Several small tributaries of the River Clydagh flow through the Site, and two small lakes are situated near its southern boundary. Adjacent land uses include Clydaghroe, Caherdowney, and Gneeves Wind Farms.

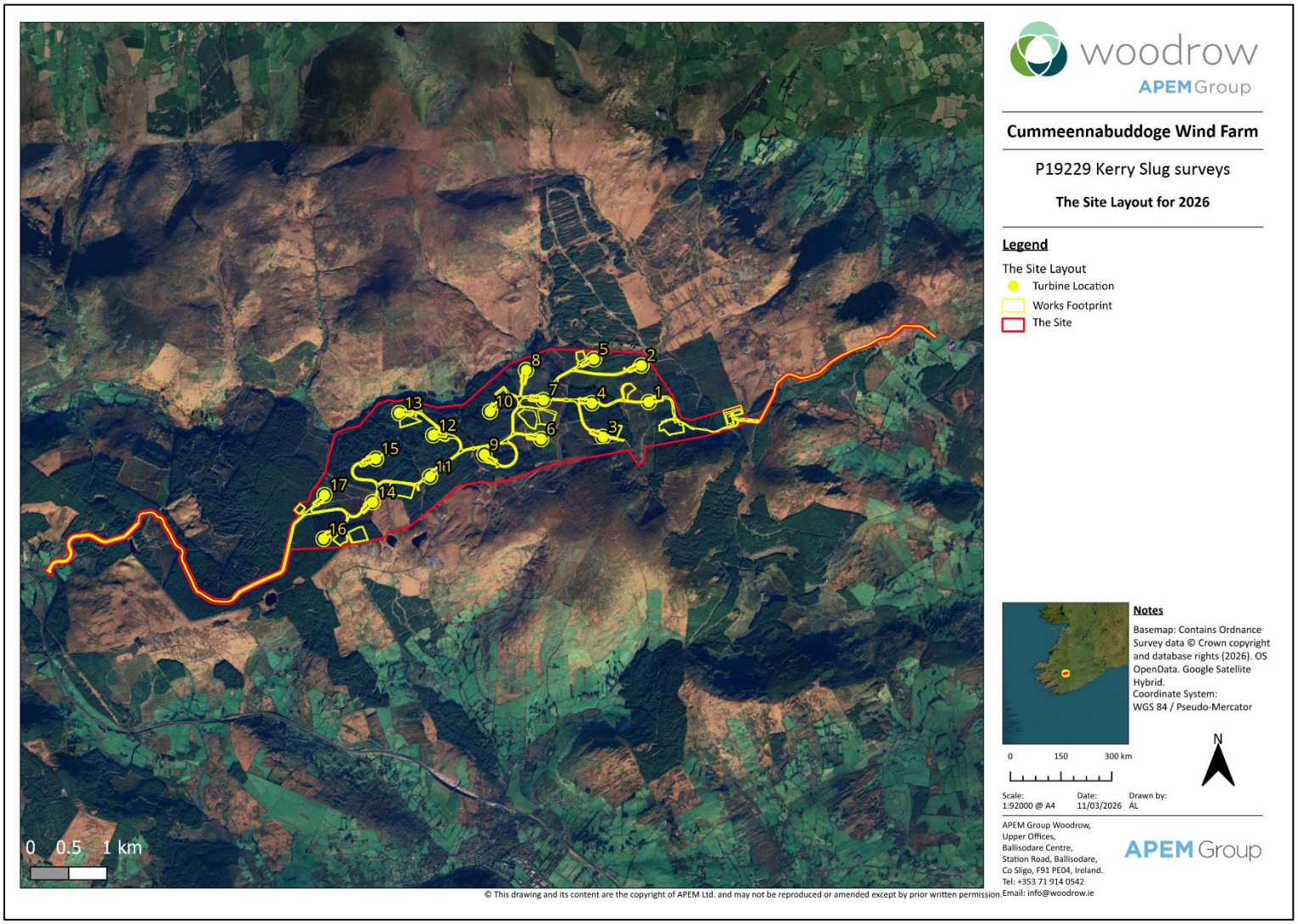

Figure 1: Site layout of the proposed Cummeennabuddoge Wind Farm, Co. Kerry

2.2. Ownership

The Site comprises land historically managed as commercial plantation forestry by Coillte who owns the lands. Coillte has consented to the development of the Cummeennabuddoge Wind Farm by FuturEnergy Ireland on its property (refer to letter of consent CLS_ABP_LTR_612, dated 26th July 2024[1]).

2.3. Type of Proposed Activity

The proposed activity relates to the construction and operation of a wind energy development, comprising:

- no. 17 wind turbines
- a permanent meteorological mast
- an on-site electrical substation and ancillary infrastructure
- an underground grid connection to Ballyvouskill, Co. Cork

Planning permission is being sought for a 35-year operational lifetime from commissioning of the full wind farm.

2.4. Need for the Proposed Activity

The need for this activity arises from the requirement to support Ireland's renewable energy and climate targets, using land already characterised by intensive commercial use and existing wind energy infrastructure. The Site occupies low-productivity upland soils of insignificant botanical interest (i.e. degraded non-Annex I habitats), long shaped by forestry, and is therefore not considered high-value agricultural land. Developing renewable energy infrastructure here aligns with established land use patterns and contributes to national energy security and decarbonisation objectives.

2.5. Planning History

The Clydagh Valley has a long and established planning history for wind energy, having been designated as suitable for such development in both the 2003-2009 and 2009-2015 Kerry County Development Plans (KCDP) (KCC, 2003; KCC, 2009). Subsequent landscape and renewable energy studies in 2012 also confirmed that the eastern end of the Upper Clydagh Valley - the location of the Proposed Development - had capacity for wind energy, with no change in site constraints since that time. Over the past two decades, six turbines have been permitted in the County Kerry portion of the valley, five of which are built and operational, alongside associated substations and grid infrastructure, all without any recorded deterioration in water quality.

1 Coillte letter of consent CLS_ABP_LTR_612. Available at: CLS_ABP_LTR_612-Letter-to-ABP-Cummeen-WF.pdf.

Numerous related permissions have also been granted nearby in both Counties Kerry and Cork, demonstrating a strong track record of wind energy development in the area and successful implementation of mitigation measures in similar upland, forestry-based settings.

This document considers the current planning application (Ref: PA08.321029) for the Cummeennabuddoge Wind Farm in Clydagh Valley.

2.6. Policy Context

The KCDP 2022-2028 (KCC, 2022) currently marks the Site as unsuitable for commercial wind energy, but An Coimisiún Pleanála (previously known as An Bord Pleanála), can still grant permission even where a proposal conflicts with the County Development Plan. The Board is also legally required to act in line with national climate policy, including the Climate Action Plan 2024, which gives strong priority to renewable energy. EU laws such as RED III and Regulation 2022/2577 go further by treating renewable energy projects as being in the overriding public interest. Given these obligations - and the Site's strong practical suitability, including good wind speeds, a nearby grid connection, limited environmental sensitivities, and a proven planning record - national and EU policy should carry more weight than the KCDP 2022-2028's restrictive wind zoning (KCC, 2022). When assessed on its own merits, the Site supports a grant of permission (Atmos Consulting Ltd., 2024).

2.7. Zoning in Relevant Development Plan

The Site is no longer designated for wind energy in the KCDP 2022-2028 (KCC, 2022), despite having been identified as suitable in previous plans. This change arose not from any environmental or site-specific concerns but from the application of a new Wind Zoning Methodology, which drastically reduced areas considered suitable for wind development across the county. The Applicant maintains that this methodology is flawed, and departing from national guidance, applying broad, non–evidence-based constraints, and excluding the Site due to high-level factors such as peat soils and catchment classifications that do not similarly restrict other forms of development. As a result, the entire Site was omitted from the 'Open to Consideration' category, even though its characteristics remain favourable for wind energy, and national policy strongly supports renewable energy development. (Atmos Consulting Ltd., 2024)

2.8. Derogation Surveys and Supporting Work

As part of the planning application (Ref: PA08.321029) for the Cummeennabuddoge Wind Farm, a Request for Further Information (RFI) was issued by the planning authority. The RFI stated that:

"*The assessment of the effects on Kerry Slug in particular is inadequate and likely significant effects underestimated.*

It is requested that the assessment is revisited and additionally, in view of the recent Guidance on applications for Regulation 54 Derogations for Annex IV species published by the Department of

Housing, Local Government and Heritage, you are requested to consider the need for a derogation for disturbance and relocation of Kerry slug to accompany the application." (An Coimisiún Pleanála, 22 July 2025).

This triggered the requirement to reassess potential impacts on Kerry Slug and to address the need for a Regulation 54 derogation in line with the recent NPWS guidance on Annex IV species derogation applications.

APEM Group Woodrow was commissioned by FuturEnergy Ireland on 2 October 2025 to undertake Kerry Slug surveys under NPWS derogation licence (DER-KERRY SLUG-2026-02), prepare the derogation application for disturbance and translocation of Kerry Slug, and provide ecological information to address the RFI.

Previous baseline surveys for Kerry Slug were conducted in 2021 by Malachy Walsh and Partners (MWP). These surveys involved live refuge (metric mat) trapping and hand searching under licence. According to Atmos Consulting Ltd. (2024), five traps were set at each of MWP's eight transect locations, all situated within conifer woodland. Kerry Slug was recorded at six of the eight transects by 17 August 2021 and at all eight transects by 24 August 2021. Atmos further reports that a total of 38 individuals were recorded in conifer woodland, with no individuals recorded along the western access track, despite suitable habitat. Additional plain-sight observations were made along a clear-fell firebreak near the T6 bat detector route, and one specimen was recorded near T8.

A summary table of the 2021 records, including dates and coordinates, is provided in Annex 1 of the Atmos report (reproduced in Appendix I of this report). The Annex table includes a mixture of exact counts, minimum counts (e.g. "≥1"), and aggregated totals (e.g. "38 individuals after 12:00 on 1 June and 12 July"). Because individuals were not marked, and because the table includes minimum and aggregated values rather than discrete individual counts, the 2021 dataset cannot be used to carry out a population size class assessment equivalent to that undertaken for the 2026 surveys. Nonetheless, the 2021 baseline confirms widespread occupancy of the Site by Kerry Slug under optimal survey conditions and provides important contextual evidence of long-term persistence within the same general habitat blocks surveyed in 2026.

3. PROPOSED ACTIVITY

The proposed derogation relates to the capture, handling, and translocation of Kerry Slug from the works footprint, or areas that will be directly impacted by construction activities. The derogation will cover all activities associated with the detection, collection, temporary holding, relocation, and monitoring of individuals, as well as any limited habitat modification required to facilitate safe searches.

3.1. Spatial Extent of Proposed Activity

The derogation applies only to the specific areas where ground disturbance or vegetation clearance is required, including:

- wind turbine foundations and crane hardstands
- new and upgraded access tracks
- cable trenches and the underground grid connection route
- substation and permanent meteorological mast location
- borrow pits, laydown areas, and temporary construction compounds

These areas coincide with forestry plantation blocks, access corridors, and small patches of degraded upland habitats where Kerry Slug is known, or likely, to occur.

3.2. Description of Proposed Works Affecting Kerry Slug

The derogation is required due to construction activities that will involve:

- Clearance of forestry plantation sections, including brash, stumps, and root plates
- Excavation works for turbine bases, cable trenches, drainage infrastructure, and compounds
- Temporary ground disturbance during track upgrades and machinery movement
- Localised removal of degraded peat, heath, or moss-rich understorey where Kerry Slugs may shelter
- Increased human presence, vibration, noise and machinery activity, which may cause disturbance to individuals within or near works footprint

These activities present a risk of injury, mortality, or disturbance to Kerry Slug unless individuals are proactively identified and moved.

3.3. Proposed Activities Under the Derogation

The following Kerry-slug-specific activities will be carried out under derogation:

- Systematic searches of works footprint for vegetation clearance or soil disturbance
- Capture and handling of any Kerry Slug individuals encountered
- Temporary containment, using approved ventilated storage containers, with wet moss or material to ensure the Kerry Slugs do not dry out, where needed
- Translocation of individuals to designated suitable receptor habitat within the Site
- Pre- and post-works monitoring, including checks of receptor areas for Kerry Slug activity
- Recording of all captures, including location, habitat, weather, and condition of individuals
- Submission of reporting to NPWS following completion of works

All methods, timings, and supervision arrangements will follow the accompanying Method Statement, ensuring compliance with NPWS Regulation 54 requirements.

3.4. Supervision and Competency

All activities will be carried out by competent APEM Group Woodrow ecologists experienced in Kerry Slug survey and handling. Supervisors will hold valid NPWS derogation licences, and any trainees will work strictly under supervision until deemed competent. Supervisors include APEM Group Woodrow ecologists who have previously completed surveys under licences DER-KERRY SLUG-2025-08 and DER-KERRY SLUG-2026-02.

3.5. Site Plan

A site plan is provided (Figure 1) showing:

- all turbine, track, and infrastructure locations
- impacted search areas
- receptor habitat locations
- previous and current Kerry Slug survey locations

The plan will allow NPWS representatives to directly compare the layout and disturbance footprint with the measures described in this application.

4. ECOLOGICAL SURVEY AND SITE ASSESSMENT

4.1. Pre-existing Information on Species at Location and Environs

A desk-based review was undertaken to compile all available information relating to the occurrence and habitat suitability of Kerry Slug within the Site. This review incorporated historical species records, geological datasets, remote sensing outputs, and previous ecological assessments completed for the Site. Findings from the 2021 and 2026 NPWS-licensed surveys were also included to provide an up-to-date baseline.

Species data obtained from the National Biodiversity Data Centre (NBDC) on the 5 March 2026 for the two 10 km grid squares encompassing the Site (W18 and W28) recorded eight occurrences of Kerry Slug, confirming the species' presence in the wider landscape. Additional data provided by NPWS (requested on 18 November 2025 and received on 24 November 2025), including Article 17 reporting material and internal records within approximately 2 km of the Site, further verified that the species has been documented in close proximity to the Site.

The Site's underlying green sandstone and purple siltstone geology is consistent with substrates known to support Kerry Slug. Although the species in Ireland shows a strong association with Devonian Old Red Sandstone, more recent verified records have also been documented on granite formations, indicating a broader geological tolerance within suitable humid microhabitats.

Previous ecological assessments for the Site, including the first version of the Biodiversity Chapter of the EIAR (Atmos Consulting Ltd., 2022) submitted for planning, identified several habitat types within the Site that are suitable or potentially suitable for Kerry Slug. These include conifer plantation, recently felled forestry, wet heath, bog and scrub habitats. Earlier survey efforts undertaken at the Site documented Kerry Slug across multiple transects using refuge mats and structured hand searches, confirming the species' use of habitats within the development disturbance areas ("works footprint").

Collectively, the pre-existing information demonstrates that the Site contains habitat features characteristic of Kerry Slug ecology, including bryophyte-rich substrates, exposed rock surfaces, mossed tree bases and humid crevice structures. These datasets provided a robust foundation for planning the 2026 field survey and informed expectations regarding species presence prior to undertaking the most recent survey work.

4.2. Status of the Species in the Local/Regional Area

Available records from the NBDC and NPWS indicate that Kerry Slug is established within the wider landscape surrounding the Site and within the local region. These data confirm that the Site lies within an area of known occupancy rather than representing an isolated or marginal outpost of the species' range within the locality.

Regional distribution patterns show continued association with humid microhabitats linked to suitable geological substrates. While Kerry Slug in Ireland is strongly associated with old red sandstone formations, records from granite-based landscapes demonstrate the species' capacity to

occupy a broader range of geological contexts where suitable microhabitats are present. The Site's green sandstone and siltstone geology aligns with these regional patterns of occurrence.

Survey work undertaken under licence in 2021 and 2026 provides direct evidence of an active and detectable local population. The 2021 programme recorded individuals across all surveyed transects, and the 2026 surveys recorded individuals at multiple new locations within the Site. These findings, combined with the wider NBDC and NPWS datasets, indicate that the species is well established at a local scale and forms part of a broader, regionally distributed population in this part of County Kerry.

On the basis of these records, the local/regional population can be considered stable and represented by multiple known occurrences within the surrounding landscape. The Site therefore supports part of a wider functioning population, and any assessment of impacts must be considered within this broader regional context.

4.3. Objectives of the Survey

The objective of the survey is to identify, capture and translocate the Kerry Slug population present within the works footprint of the Site prior to the commencement of construction activities. The survey seeks to locate individuals using methods consistent with existing guidance and the species' known ecology, and to implement phased removals during suitable weather conditions to minimise the risk of harm.

A further objective is to relocate any Kerry Slugs detected within the works footprint to appropriate receptor habitat situated within the Site. The survey aims to ensure that all individuals encountered during pre-construction clearance are moved to habitat that offers suitable microclimatic and ecological conditions.

The survey programme is therefore intended to support compliance with Article 54 derogation requirements by:

- identifying and documenting the presence and microhabitat used by Kerry Slugs within works footprint;
- capturing individuals encountered during systematic refuge-mat checks and hand searching; and
- transporting these individuals to pre-assessed receptor sites that provide the greatest likelihood of supporting their continued survival.

The overall aim is to reduce the potential for injury, harm or disturbance to Kerry Slugs arising from pre-construction and construction activities.

4.4. Description of Survey Area

The survey area comprises only the locations within the proposed works footprint where ground disturbance or vegetation removal will occur. These areas lie within a commercially managed upland forestry landscape in the Derrynasaggart Mountains and include plantation blocks, recently felled sections and small degraded patches of heath and peatland, i.e. habitats known to support suitable microhabitats for Kerry Slugs.

The derogation applies specifically to turbine locations, access tracks, cable trenches, the substation, the grid connection route, crane hardstands, borrow pits and temporary construction areas. These discrete areas represent the parts of the Site where construction activity has the potential to disturb Kerry Slugs and therefore require pre-construction detection and translocation surveys.

4.5. Survey Methodology

It is noted that the translocation of Kerry Slugs is not a widely established or commonly practised procedure, and the methodology adopted here is informed by existing survey guidance (Gormally 2011) and the species' known ecology (Reich *et al*., 2012; McDonnell *et al*., 2013). The findings of the 2021 and 2026 surveys have also shaped the approach, ensuring that all actions minimise risk to individuals while allowing development within the Site. Additionally, methods applied under previous derogation licences have been reviewed and incorporated where appropriate (Atmos Consulting Ltd. (2024)).

Fieldwork will be undertaken by a minimum of one supervisor level APEM Group Woodrow licence holder and at least one additional licenced APEM Group Woodrow team member and will involve the targeted capture, temporary holding and translocation of individual Kerry Slugs from within the works footprint to pre-identified receptor sites. Surveys and capture will be carried out only during suitable weather conditions that support Kerry Slug activity, including periods of high humidity, overcast conditions, rainfall and mild temperatures (Reich *et al*., 2012; Mc Donnell *et al*., 2013).

Refuge traps will be deployed a minimum of six weeks prior to the commencement of any works, including tree felling, to allow early detection and phased removal of Kerry Slugs from the works footprint. The traps will be left in place for two weeks after deployment, then checked weekly thereafter. Any individuals found within the traps, will be translocated to an appropriate receptor site within the Site at each visit. This staggered approach progressively reduces the number of Kerry Slugs remaining within the works footprint and ensures that most individuals are relocated before the final pre-construction clearance.

In addition to refuge mat trap-based removals, hand searching will be carried out (minimum of 45 minutes per ha) under suitable conditions. Capture will include microhabitats confirmed during the 2021 and 2026 surveys, in addition to any moss-covered rock faces, crevices, bryophyte mats, mossed tree bases, decaying wood and other humid features where Kerry Slugs may shelter within the works footprint. Following translocation, surface vegetation and any habitats that are suitable for Kerry Slugs will be carefully removed and stored to a designated area within the works footprint, where they will be retained for reinstatement during post-construction restoration.

Each Kerry Slug will be lifted by hand using gloves and transferred immediately into a ventilated container lined with damp moss collected from the capture location. Containers will remain shaded and individuals will be held only for the minimum time necessary to transport them to the receptor site. No Kerry Slugs will be held overnight under any circumstance. In the absence of moss, small amounts of suitable local vegetation or a supplemental moisture source, such as damp leaf matter, will be provided to maintain humidity for the short duration of holding.

At the time of writing, receptor sites have not yet been finalised. Suitable locations will be identified and confirmed prior to any translocation, following assessment by the APEM Group Woodrow

licence holder. Receptor areas must be accessible and located within the Site, and must support habitat characteristic of Kerry Slug ecology. Once receptor sites are confirmed, each individual will be released into habitat that closely matches the conditions from which it was captured. All actions will be taken to ensure that individuals have the greatest possible opportunity to successfully adapt to the new location. All capture locations and corresponding translocation points will be recorded to ensure accurate documentation and traceability of every individual moved.

Immediately prior to construction and habitat removal, a final clearance and translocation effort will be undertaken. This final translocation will occur no more than 24 hours before any construction activity begins, including groundworks, deforestation, access works or turbine foundation excavation. No machinery will enter any area scheduled for works until the APEM Group Woodrow licence holder confirms that clearance has been completed at that location. At this point, all refuge mats will be collected, and any subsequent surveys will be carried out solely through hand searching.

All captures, handling events and release locations will be recorded in full, including GPS coordinates, photographs and microhabitat descriptions at both capture and receptor sites. These records will support tracking of the translocation process and will be available to the NPWS on request.

4.6. Survey Results

Survey results of the 2026 have been provided in the form of a survey report in Appendix II. Three survey visits were undertaken between 12 January and 29 January 2026. Across these surveys, a minimum of 23 individual Kerry Slugs, and potentially up to 31 individuals, were recorded (Table 3 in Appendix II). The species was confirmed at four of the ten transects surveyed (transects 6, 7, 8 and 10), indicating continued use of a range of habitats within the Site. Individuals were detected under metric mats, during hand searches, and through incidental observations. These results confirm the ongoing presence and activity of Kerry Slug within the proposed works footprint and inform the mitigation measures outlined in this application.

4.7. Population Size Class Assessment

4.7.1. Data Basis

The population size class assessment is based on data collected during the second Site visit (28–29 January 2026, daytime), which provided the most consistent survey effort across both days. As individuals were not uniquely marked, potential recaptures between survey occasions could not be determined. In addition, the limited number of survey visits and the mobility of the target species mean that the assumptions required for capture–recapture analysis (e.g. identifiable individuals and known recapture probabilities) are not met (Seber, 1982; Williams et al., 2002). Therefore, standard capture–recapture estimators were not applied, and analysis is based on Survey Visit 2 data only. Per-transect capture counts for Survey Visit 2 are presented in Table 1.

Table 1: Per-transect capture counts and surveyed area (Visit 2)

Transect	Individuals (Visit 2)	Area (ha)
1	0	0.03
2	0	0.04
3	0	0.30
4	0	0.20
5	0	0.35
6	8	0.35
7	4	0.60
8	9	0.17
9	0	0.10
10	2	0.50
Total	**23**	**2.64**

4.7.2. Minimum Number Known Alive (MNA)

Approach

Given the absence of individual marking (and thus unknown recapture status), standard capture–recapture estimators are not applicable. Consequently, the Minimum Number Known Alive (MNA) is used as a conservative index of population size, representing the number of unique individuals confirmed present without double counting (Krebs, 1999).

Results (Visit 2 within surveyed area)

- MNA (unique individuals confirmed present): 23
- Surveyed area: 2.64 ha (10 transects)
- MNA density: 23 ÷ 2.64 = 8.71 ≈ 8 to 9 slugs/ha

Interpretation

The MNA of 23 represents a minimum confirmed number of Kerry Slugs within the surveyed area during the sampling period. The true population is likely higher, as individuals present but undetected are not included. Given habitat heterogeneity and variable detectability (Section 2.2.4, Appendix II), the MNA is a conservative minimum count and is likely to underestimate true population size; it should not be interpreted as a precise estimate.

Illustrative extrapolation (not a site-wide estimate)

If the above density were (unrealistically) assumed uniform across the total Site (728.6 ha), the arithmetic extrapolation would be: 8.71 x 728.6 ≈ 6,348 individuals.

This is provided solely for context and should not be interpreted as a Site population estimate.

4.7.3. Comparison with 2021 Survey Data

Methods and Results Summary (MWP 2021; Atmos Consulting Ltd., 2024)

In August–September 2021, Malachy Walsh and Partners (MWP) undertook Kerry Slug surveys using live refuge (metric mat) trapping and hand searching under licence. Five traps were set at each of eight transects within conifer woodland, with hand searches carried out in tandem. By 17 August, slugs were recorded at six of the eight transects, and by 24 August at all of their eight transect locations. Additional plain-sight observations were made along a clear-fell firebreak on the approach to the T6 bat detector route, and one specimen was recorded near T8. Atmos Consulting Ltd. (2024) further notes: "*A total of 38 individuals were recorded in conifer woodland,"* and "*no Kerry Slug was identified along the western access track despite suitable habitat*." A summary table of records, dates, and coordinates is provided in Annex 1 of the Atmos report (Appendix I).

Data Interpretation and Limitations

From the information provided by MWP/Atmos, it is not clear how consistently each transect was visited on every survey date (i.e., whether all eight transects were surveyed on every occasion). Individuals were not marked, so potential recaptures cannot be determined. The Annex table includes a mixture of exact counts, minimum counts (e.g., "≥1"), shorthand entries (e.g., "KS"), and an aggregated total (i.e., 38 individuals after 12:00 on 1 June). For conservative interpretation in this report:

- entries labelled "KS" are treated as one individual;
- entries labelled "≥1" are treated as at least one individual (minimum of one); and
- the "total of 38 specimens recorded after 12:00 on 1 June and 12 July" are treated as a single aggregated total of 38 (i.e., not more than 38).

Applying these conventions MWP/Atmos data yields an estimated total of ~88 detections across the 2021 season. This derived total is not explicitly stated by Atmos and is used only to convey the order of magnitude of detections under optimal seasonal conditions.

Comparability with 2026

Due to uncertainty in transect-by-visit coverage, the lack of individual marking, and the presence of minimum and aggregated counts, the 2021 dataset cannot support a formal population size-class assessment or MNA calculation equivalent to the 2026 analysis. Survey effort and timing also differed substantially (multiple summer visits in 2021 versus one full winter visit plus a partial and night visit in 2026). Some habitat parcels appear to have changed between years (e.g., mature plantation converted to clear-fell), which can affect detectability and local occupancy. Although transect layouts are not identical between years, there is approximate overlap at one location (2026 transect 5), offering only limited comparability.

Summary Conclusion

The 2021 surveys demonstrate Site-wide occupancy of Kerry Slug under optimal seasonal conditions, with detections across all of MWP's eight transect locations, supplemented by observations in adjacent clear-fell. The 2026 winter survey confirms continued presence within the same general woodland and clear-fell compartments. Given methodological, seasonal, and effort differences, no direct comparison of population size or density is made between 2021 and 2026. The 2021 data are used contextually to support persistence at the Site. Consistent with the Atmos evaluation, the Kerry

Slug population within the Site is considered important at the National level due to Annex II status and restricted range.

5. EVIDENCE TO SUPPORT THE DEROGATION TESTS

5.1. Reason for Derogation

The project is of overriding public interest as it contributes directly to Irish national and EU targets for renewable energy generation and greenhouse gas reduction, in line with the revised renewable energy directive (amending directive (EU) 2023/2413), which updates the renewable energy directive 2018/2001.

In the interest of public health and safety, the transition to clean, renewable energy is essential to mitigate the increasing risks associated with climate change, including deteriorating air quality, the spread of climate-sensitive diseases, food and water insecurity, and the growing frequency of extreme weather events.

The project also provides economic and social benefits through local employment, infrastructure investment, and a community benefit fund, supporting the sustainable development of the region.

While the Site supports the protected species Kerry Slug, appropriate mitigation and monitoring measures have been incorporated to ensure minimal impact. On balance, the long-term environmental and social gains arising from renewable energy production represent an imperative reason of overriding public interest that justifies the proposed works.

The reason for seeking a derogation is to allow for the translocation of the Kerry Slug population present on the Site, in the event that planning permission is granted.

Translocation would be required to prevent harm to individuals during the permitted works and to ensure the long-term protection of the species through the establishment of a viable receptor population in suitable, secured habitat. This derogation therefore enables the necessary conservation action to avoid injury, mortality or disturbance to this Annex II and IV species during project implementation.

5.2. Absence of Alternative Solutions

The “do-nothing” alternative was considered, whereby no translocation of Kerry Slug would be undertaken even if the proposed development were granted permission. Under this scenario, any individuals present within areas subject to habitat removal or ground disturbance would remain in place without protective intervention. This would expose them to a clear risk of direct harm through vegetation clearance, excavation, machinery movement, and associated habitat loss.

Kerry Slug is strictly protected under national and EU legislation, which requires proactive avoidance of deliberate injury, killing, disturbance, or destruction of resting and breeding sites. These obligations apply irrespective of population size or project scale. As the Site area contains habitat features capable of supporting the species and individuals have previously been recorded within the works footprint, the likelihood of encountering Kerry Slugs during construction is very high. Even small alterations to moisture, shading, or ground cover can remove the essential conditions the species depends on, meaning that leaving slugs in situ would not prevent significant harm.

A do-nothing approach would therefore offer no protection against predictable impacts such as crushing, desiccation, burial, or the loss of refuges. It would not avoid prohibited impacts, nor would it meet the requirement to take reasonable steps to prevent harm to a strictly protected species.

If the development permissions are granted, from an ecological perspective, translocation represents the only available measure capable of preventing direct mortality where habitat loss cannot be avoided. It provides a practical means of removing individuals from the works footprint and relocating them to suitable habitat, ensuring that they are not left exposed to unavoidable works. Without translocation, no meaningful protective outcome can be achieved for the species.

A desk-based alternative, relying solely on existing records, was briefly considered but cannot address the central issue of preventing harm during construction. Historical data do not mitigate impacts, and therefore such an approach does not represent a viable alternative.

For these reasons, the “do-nothing” alternative is not considered environmentally responsible or legally compliant. It would not protect Kerry Slugs from harm and does not provide an acceptable substitute for the proposed translocation programme.

5.3. Impact of a Derogation on Conservation Status

The derogation will result in temporary handling and the permanent movement of Kerry Slugs from their original habitats to receptor sites within the Site. Handling impacts are expected to be minimal, as individuals will be lifted under suitable environmental conditions, kept in damp, shaded containers for the shortest possible duration, and released promptly into habitats similar to which they were found in. Under these conditions, stress, dehydration risk and injury risk remain low.

The primary ecological impact arises from the displacement of individuals from their established habitats. Because they cannot be returned to their capture locations, each Kerry Slug must adjust to a new set of structural and moisture conditions. This introduces a short period of potential disorientation and behavioural stress. These risks are reduced by selecting receptor habitats that closely replicate the species’ preferred habitat features, including stable humidity, dense moss cover, natural refuges and shaded microclimates. Matching individuals to equivalent habitat types provides strong support for successful settlement immediately after release.

At the population scale, the derogation avoids mortality during construction by ensuring that individuals are removed prior to habitat clearance. Because all slugs encountered are relocated to suitable habitat within the Site, and because handling and displacement effects are short-term and unlikely to affect long-term survival, the derogation is not expected to negatively influence the maintenance of the species at a favourable conservation status within its natural range.

6. MONITORING THE IMPACTS OF THE DEROGATION

Monitoring will be undertaken to confirm that the translocation has not resulted in adverse effects on Kerry Slugs and that the species continues to occupy suitable habitat within both the receptor areas and the reinstated habitats on Site. The purpose of this monitoring is to verify successful establishment of relocated individuals, assess the effectiveness of mitigation measures and ensure that the species' conservation status is maintained.

- Receptor sites will be inspected annually to confirm ongoing habitat suitability and to record evidence of Kerry Slug presence. These checks will be completed under licence by an ecologist experienced in the species, using hand searching and refuge mats.
- Monitoring will assess whether individuals have successfully settled into the receptor habitat. Observations of Kerry Slugs, signs of occupation and the use of typical refuges will be recorded. Any indication of poor settlement or habitat performance will prompt a review of site suitability.
- Post-construction reinstated habitats will also be surveyed annually. These surveys will document recolonisation or movement of individuals into restored areas of the Site. Methods used will follow the conditions of the licence and be consistent between years to allow meaningful comparison.
- All observations will be recorded, including the number of individuals found, their condition, GPS coordinates and microhabitat details. This data will allow results to be compared with pre-construction surveys and translocation records.
- If monitoring indicates unexpected declines, absences or habitat issues, mitigation measures and receptor site selection will be reviewed and modified to prevent further impacts and support population resilience.
- Monitoring results will be made available to NPWS upon request and included in any required post-construction reporting.

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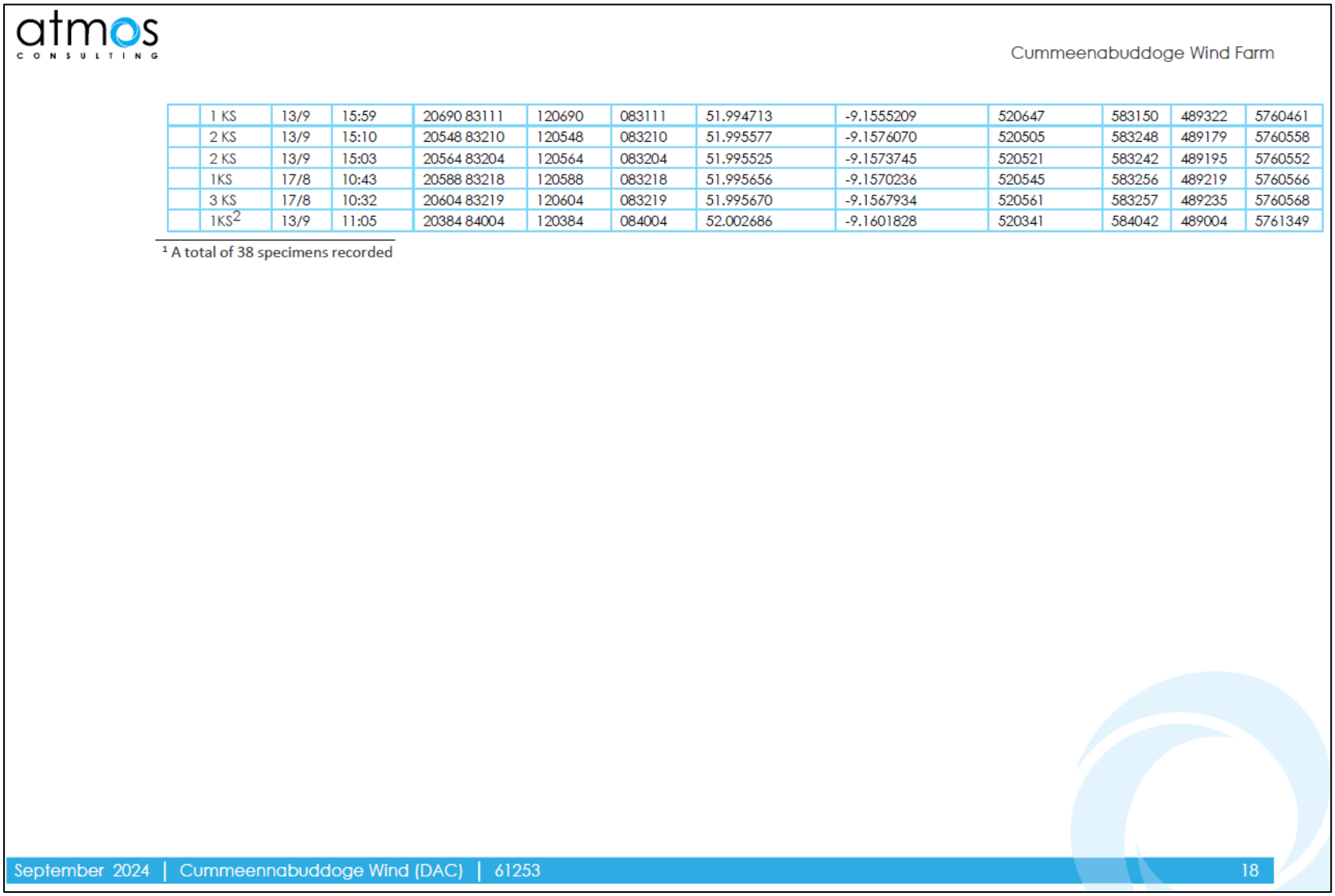
APPENDIX I - KERRY SLUG SURVEY RESULTS FROM MALACHY WALSH & PARTNER (2021), AS REPORTED IN ATMOS CONSULTING LTD. (2024)

atmos CONSULTING

Cummeenabuddoge Wind Farm

	Caption	Date	Time	Grid (W)	Eastings	Northings	Lat	Long	X(ITM)	Y(ITM)	X(UTM)	Y(UTM)
	KS	1/6	11:44	20483 83086	120483	083086	51.994451	-9.1585279	520440	583124	489115	5760432
	KS	1/6	11:46	20490 83097	120490	083097	51.99455	-9.15842	520447	583135	489123	5760443
	KS	1/6	11:53	20665 83148	120665	083148	51.99504	-9.15589	520622	583186	489296	5760498
	13 KS	1/6	11:15	20652 83101	120652	083101	51.994611	-9.1560709	520609	583139	489284	5760450
	KS >=1	1/6		20514 83087	120514	083087	51.994471	--9.1580681	520472	583126	489147	5760435
	KS >=1	12/7		20477 83080	120477	083080	51.994403	-9.15860521	520435	583119	489110	5760427
	KS >=1	12/7		20585 83217	120585	083217	51.9956497	-9.15706463	520543	583256	489216	5760566
	KS >=1	12/7		20584 83216	120584	083216	51.9956406	-9.15707896	520542	583255	489215	5760564
	KS >=1	12/7		20575 83214	120575	083214	51.9956213	-9.15720952	520533	583253	489206	5760562
	KS >=1	12/7		20574 83214	120574	083214	51.9956212	-9.15722408	520532	583253	489205	5760562
	KS >=1	12/7	After[1] 12:00	20566 83216	120566	083216	51.9956380	-9.15734102	520524	583255	489197	5760564
	KS >=1	12/7		20565 83213	120565	083213	51.9956109	-9.15735488	520523	583252	489196	5760561
	KS >=1	12/7		20565 83213	120565	083213	51.9956109	-9.15735488	520524	583252	489196	5760561
	KS >=1	12/7		20552 83203	120552	083203	51.9955192	-9.15754183	520510	583242	489183	5760551
	KS >=1	12/7		20553 83204	120553	083204	51.9955283	-9.1575275	520511	583243	489184	5760552
	KS >=1	12/7		20552 83204	120552	083204	51.9955282	-9.15754206	520510	583243	489183	5760552
	KS >=1	12/7		20540 83202	120540	083202	51.9955085	-9.15771631	520498	583241	489171	5760550
	3 KS	10/8	11:06	20664 83105	120664	083105	51.994647	-9.1558930	520621	583143	489296	5760454
	5 KS	10/8	11:12	20688 83116	120688	083116	51.994751	-9.1555519	520645	583154	489320	5760465
	2 KS	1/9	14:36	20680 83111	120680	083111	51.994707	-9.1556706	520637	583149	489311	5760460
	1KS	1/9	14:36	20680 83107	120680	083107	51.994672	-9.155661	520637	583145	489312	5760457
	1KS	1/9	14:36	20628 83108	120628	083108	51.994675	-9.156425	520585	583146	489260	5760457
	1KS	1/9	14:38	20678 83084	120678	083084	51.994467	-9.155683	520635	583122	489310	5760434
	1KS	1/9	14:39	20673 83117	120673	083117	51.994758	-9.155767	520630	583155	489305	5760466
	1KS	1/9	14:52	20626 83097	120626	083097	51.994571	-9.1564465	520583	583135	489258	5760445
	3 KS	17/8	10:32	20604 83219	120604	083219	51.995670	-9.1567934	520561	583257	489235	5760568
	1KS	17/8	10:43	20588 83218	120588	083218	51.995656	-9.1570236	520545	583256	489219	5760566
	1 KS	13/9	15:43	20592 83100	120592	083100	51.994596	-9.1569346	520550	583138	489225	5760448
	1 KS	13/9	15:47	20634 83090	120634	083090	51.994508	-9.1563338	520591	583128	489266	5760438
	1 KS	13/9	15:50	20637 83094	120637	083094	51.994548	-9.1562860	520594	583132	489269	5760443
	1 KS	13/9	15:52	20656 83101	120656	083101	51.994610	-9.1560034	520614	583139	489288	5760450
	1 KS	13/9	15:55	20674 83105	120674	083105	51.994654	-9.1557553	520631	583143	489306	5760455

Figure A 1: Extract from Annex 1 of Atmos Consulting Ltd. (2024), Part 1, showing Kerry Slug records collected by MWP in summer 2021, including exact, minimum ("KS", "≥1"), and aggregated (38 individuals) observations.



atmos CONSULTING

Cummeenabuddoge Wind Farm

	1 KS	13/9	15:59	20690 83111	120690	083111	51.994713	-9.1555209	520647	583150	489322	5760461
	2 KS	13/9	15:10	20548 83210	120548	083210	51.995577	-9.1576070	520505	583248	489179	5760558
	2 KS	13/9	15:03	20564 83204	120564	083204	51.995525	-9.1573745	520521	583242	489195	5760552
	1KS	17/8	10:43	20588 83218	120588	083218	51.995656	-9.1570236	520545	583256	489219	5760566
	3 KS	17/8	10:32	20604 83219	120604	083219	51.995670	-9.1567934	520561	583257	489235	5760568
	1KS[2]	13/9	11:05	20384 84004	120384	084004	52.002686	-9.1601828	520341	584042	489004	5761349

[1] A total of 38 specimens recorded

September 2024 | Cummeennabuddoge Wind (DAC) | 61253 18

Figure A 2: Extract from Annex 1 of Atmos Consulting Ltd. (2024), Part 2, showing Kerry Slug records collected by MWP in summer 2021, including exact, minimum ("KS", "≥1"), and aggregated (38 individuals) observations.

APPENDIX II - KERRY SLUG SURVEY REPORT (APEM GROUP WOODROW, 2026)

FuturEnergy Ireland

Cummeennabuddoge Wind Farm, Co. Kerry

Kerry Slug Survey Report 2026

APEM Group Woodrow

Authors: Patrick Power and Sophie Papczyk

APEM Group Woodrow Ref: P00019229

Date: 17 March 2026

woodrow
APEM Group

Client:	FuturEnergy Ireland Development DAC
Address:	Dublin 2, DUBLIN

Project reference:	P00019229
Date of issue:	19/03/2026

Project Director:	Rory Canavan
Project Manager:	Sophie Papczyk
Authors:	Patrick Power and Sophie Papczyk

APEM Group Woodrow
Upper Offices
Ballisodare Centre
Station Road
Ballisodare
Co. Sligo
F91 PE04
Ireland

Tel: +353 71 9140542
Web: www.woodrow.ie

Registered in Ireland No. 493496

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Version Number	Date	Section(s)	Page(s)	Summary of Changes	Approved by
D01	02/03/2026	All	17	All	SP
D02	06/03/2026	All	24	All	PP
D03	09/03/2026	All	24	QA	BK
D04	10/03/2026	All	25	Figures, appendix etc.	SP
D05	11/03/2026	All	25	Review - All	RN
V01	12/03/2026	All	25	Sign off	RN
V01	13/03/2026	All	25	Review all and changes	Client / DH
V02	17/03/2026	All	25	Accepted changes, added in Table 3	SP

STATEMENT OF AUTHORITY

This report has been prepared on behalf of FuturEnergy Ireland by APEM Group Woodrow. Kerry Slug surveys were conducted under licence at the location of the Cummeennabuddoge Wind Farm by appropriately experienced surveyors, Sophie Papczyk, Patrick Power, and Damien McAndrew (all APEM Group Woodrow). The report was written by Patrick Power and Sophie Papczyk, has been checked by Bridget Keehan and signed off by Róisín NigFhloinn.

Patrick Power is an Ecologist with APEM Group Woodrow. He holds a BSc in Forestry, BSc (Hons) in Land Management in Forestry from Waterford Institute of Technology, and a Post Graduate Certificate in Wildlife Biology and Conservation from Edinburgh Napier University. Patrick's work is focused on bat data analysis including bat call identification and bat roost and bat habitat suitability surveys. Patrick has developed a high level of proficiency with Kaleidoscope and Bat Explorer, the analysis software used to assess bat calls and activity. Patrick also possesses reptile, mammal, and woodland tree surveying skills. Patrick currently has a bat licence from the Department of Culture Heritage and the Gaeltacht. He is also experienced in ecological report writing, including survey reporting. Patrick has previously undertaken Kerry Slug surveys under National Parks and Wildlife Services (NPWS) licence DER-KERRY SLUG-2026-02.

Sophie Papczyk is an Ecologist with APEM Group Woodrow with a specialism in botany and expertise in habitat assessment, botanical identification and ecological surveying. She has over two years' experience delivering habitat mapping and ecological assessments using Fossitt, IVC, NVC, NSUH and Annex I habitat classifications, along with survey experience for a range of protected flora and fauna. Her fieldwork portfolio includes surveys for bats, badger, Kerry Slug, marsh fritillary, dragonflies, damselflies, reptiles and non-native invasive species. Sophie has contributed to ecological work on multiple wind-farm projects, including baseline habitat surveys, post-construction monitoring and the delivery of technical ecological reporting. Her reporting experience spans AA Screenings, Natura Impact Statements, Preliminary Ecological Appraisals, due-diligence assessments and upland habitat monitoring for NPWS Wild Atlantic Nature. She is also proficient in GIS and data management and has managed several small- and medium-scale ecological projects, including a dedicated Kerry Slug survey project. Sophie is a Qualifying Member of CIEEM and a member of the British Bryological Society. She has previously conducted Kerry Slug surveys under licence NPWS DER-KERRY SLUG-2026-02.

Damien McAndrew is an Ecologist with APEM Group Woodrow. and holds a BSc (Hons.) in Environmental Science from Atlantic Technological University (ATU), Sligo. He has over four years' experience in ecological consultancy, with a strong background in terrestrial fieldwork, protected species surveys, and ecological site appraisal. Damien has completed specialist surveys for protected terrestrial molluscs, including Desmoulin's Whorl Snail, and has experience in upland, woodland and peatland habitats relevant to Kerry Slug. He has also provided Ecological Clerk of Works services and contributed to ecological assessments for infrastructure and renewable energy projects. Damien has previously undertaken Kerry Slug surveys under NPWS licence DER-KERRY SLUG-2026-02 and progressed from trainee to supervisor following structured training under Patrick Power.

Bridget Keehan ACIEEM is Botany Technical Specialist at APEM Group Woodrow, where she has worked as lead botanist since 2015. She is an accomplished field botanist with over seventeen years of experience working as a professional ecologist. With Woodrow, Bridget has worked on habitat surveys, monitoring and reporting for a wide range of developments including numerous wind farm

and quarry sites. She maintains a thorough knowledge of both European and national environmental legislation and has experience producing a wide range of reports as required by planning legislation, including Ecological Impact Assessments, Natura Impact Statements, Habitat Management Plans and Compliance Reports. Since 2023, Bridget is also employed by the Botanical Society of Britain and Ireland as their Ireland Officer.

Róisín NigFhloinn is an Associate Director with APEM Group Woodrow. She has more than 15 years' practice working as an ecological consultant in the UK and Ireland with experience in Environmental Impact Assessment and mitigation design for development projects including national road schemes, national trails, overhead power lines, grid connection, other infrastructure projects and smaller scale commercial and residential developments. She is also an experienced Ecological Clerk of Works. Róisín is a project director, project manager, line manager and field ecologist. She carries out multidisciplinary surveys as well as specialising in habitat and botanical identification, in addition to protected species surveys for mammals, amphibians and reptiles. She is competent in the compilation of Ecological and Environmental reports, including Ecological Impact Assessment (EcIA), to inform planning proposals, and as part of Environmental Impact Assessment reports (EIAR), and reports to inform the Appropriate Assessment process (Screening and Natura Impact Statements (NIS) (Habitats Regulations Assessment in Northern Ireland).

All ecologists named as supervisors have previously held a Kerry Slug licence (NPWS reference: DER-KERRY SLUG-2025-08 and DER-KERRY SLUG-2026-02. All ecologists named as trainees are working at consultant ecologist level or above and consistently demonstrate a high standard of professional competence.

Education and qualifications as follow:

Patrick Power:

PG Certificate in Wildlife Biology and Conservation, Edinburgh Napier University (2023)
BSc (Hons) in Land Management in Forestry, Waterford Institute of Technology (2016)
BSc in Forestry, Waterford Institute of Technology (2014)

Sophie Papczyk:

BSc Environmental Sciences, Carl von Ossietzky University of Oldenburg, Germany (2023)

Certificate of Attendance: Orthoptera Taxonomy and Conservation Summer School, Naturalis Biodiversity Center, Department of Biological Applications and Technology & University of Ioannina, Konitsa, Greece (2023) – Grade: 9/10, 5 ECTS

Damien McAndrew:

BSc (Hons) Environmental Science, Atlantic Technological University, Sligo (2020)

Bridget Keehan:

BSc (Hons) Botany, University College of North Wales, UK (1992)

Róisín NigFhloinn:

MSc Ecology and Management of the Natural Environment, University of Bristol, UK (2011)
B.A. Mod (BSc) (Hons) Natural Sciences - Specialised in Botany, Trinity College Dublin (2008)

TABLE OF CONTENTS

1. INTRODUCTION

APEM Group Woodrow was commissioned by FuturEnergy Ireland on 2 October 2025 to carry out dedicated surveys for Kerry Slug (*Geomalacus maculosus*) at the proposed Cummeennabuddoge Wind Farm in County Kerry, Ireland.

The proposed development includes the construction and operation of 17 wind turbines, a permanent met mast, a substation and an underground grid connection. In this report, "Site" refers to the full site boundary, whereas the "works footprint" refers only to the locations of proposed infrastructure, including turbines, access roads, the substation, the grid connection and the met mast.

The survey work at the Site was carried out to address a Request for Further Information (RFI) issued by An Coimisiún Pleanála on 22 July 2025, which stated that the earlier assessment had underestimated potential significant effects on the species. The RFI requires a more detailed and robust evaluation and asks the applicant to consider whether a Regulation 54 derogation is necessary for any disturbance, handling, or relocation of Kerry Slugs, in line with recently published guidance from the Department of Housing, Local Government and Heritage.

In response, APEM Group Woodrow was tasked with supplying all ecological information needed to meet the RFI requirements and with preparing the derogation application for any proposed disturbance or translocation of the species. That derogation application is provided separately.

Baseline surveys completed in 2021 by Malachy Walsh and Partners (MWP) recorded Kerry Slug across all of the eight surveyed transects that year, with a total of 88 individuals documented from live refuge traps, hand searches, and incidental observations (Annex 1, Atmos Consulting Ltd., 2024).

The 2026 surveys by APEM Group Woodrow build on this baseline using revised transect and survey-site locations, providing an updated and licence-compliant assessment of the species' distribution, habitat use, and potential vulnerability within the works footprint.

This report outlines the methods and findings of the 2026 surveys and supports the preparation of a revised ecological impact assessment, as well as any required derogation application under Regulation 54 of the European Communities (Birds and Natural Habitats) Regulations. All survey work in 2026 was carried out under NPWS licence DER-KERRY SLUG-2026-02.

2. METHODOLOGY

2.1. Desk study

A desktop review of Kerry Slug records was carried out to inform the assessment. NPWS species data was requested on 18 November 2025 and received on 24 November 2025 for Irish National Grid squares within approximately 10 km of and near the Site, including: W07, W08, W09, W17, W18, W19, W27, W28, W29, W37, W38 and W39 (Figure A 1, Appendix). These datasets provide contextual information on the wider distribution of Kerry Slug around the Site and support the interpretation and ground-truthing of field survey findings.

In addition, National Biodiversity Data Centre (NBDC) records for Kerry Slug were accessed on 05 March 2026 for grid squares W18 and W28, which directly encompass the Site boundary.

2.2. Field survey

2.2.1. Survey Overview

Kerry Slug surveys were undertaken by APEM Group Woodrow in January 2026. Two complementary methods were used: live refuge trapping and timed hand searches. All survey work was carried out under NPWS licence DER-KERRY SLUG-2026-02, issued on 18 December 2025. Artificial refugia consisted of metric mats supplied by De Sangosse (Pont du Casse, France), in line with established best-practice guidance (NPWS, 2010; Reich *et al.*, 2012). Survey locations were selected to fall within the proposed works footprint and therefore differ from the locations used in the previous baseline survey undertaken by MWP (Atmos Consulting Ltd., 2024). Incidental observations of Kerry Slug were also recorded throughout the survey period. Weather conditions during survey visits were cool (3–8 °C) and humid (73–86%), typical of upland Kerry and Cork in January. Species identification during field surveys was supported by the FSC publication “Slugs of Britain and Ireland”, ensuring accurate verification of Kerry Slug observations (Rowson *et al.,* 2014).

2.2.2. Live Refuge Trapping

Fifty metric mats were deployed across ten predetermined locations on 12 and 13 January 2026, with five mats installed at each survey site (“transects”) (Figure 1). The selected locations encompassed accessible areas of young forest plantation, established forestry habitats and recently felled stands, all of which provide suitable microhabitat conditions for Kerry Slug.

At each transect, mats were wetted with bottled water before placement. They were installed either on the ground or attached to trees, depending on local habitat structure and accessibility. The setup of survey equipment is shown in Figure 2. The placement methods are summarised in Table 1.

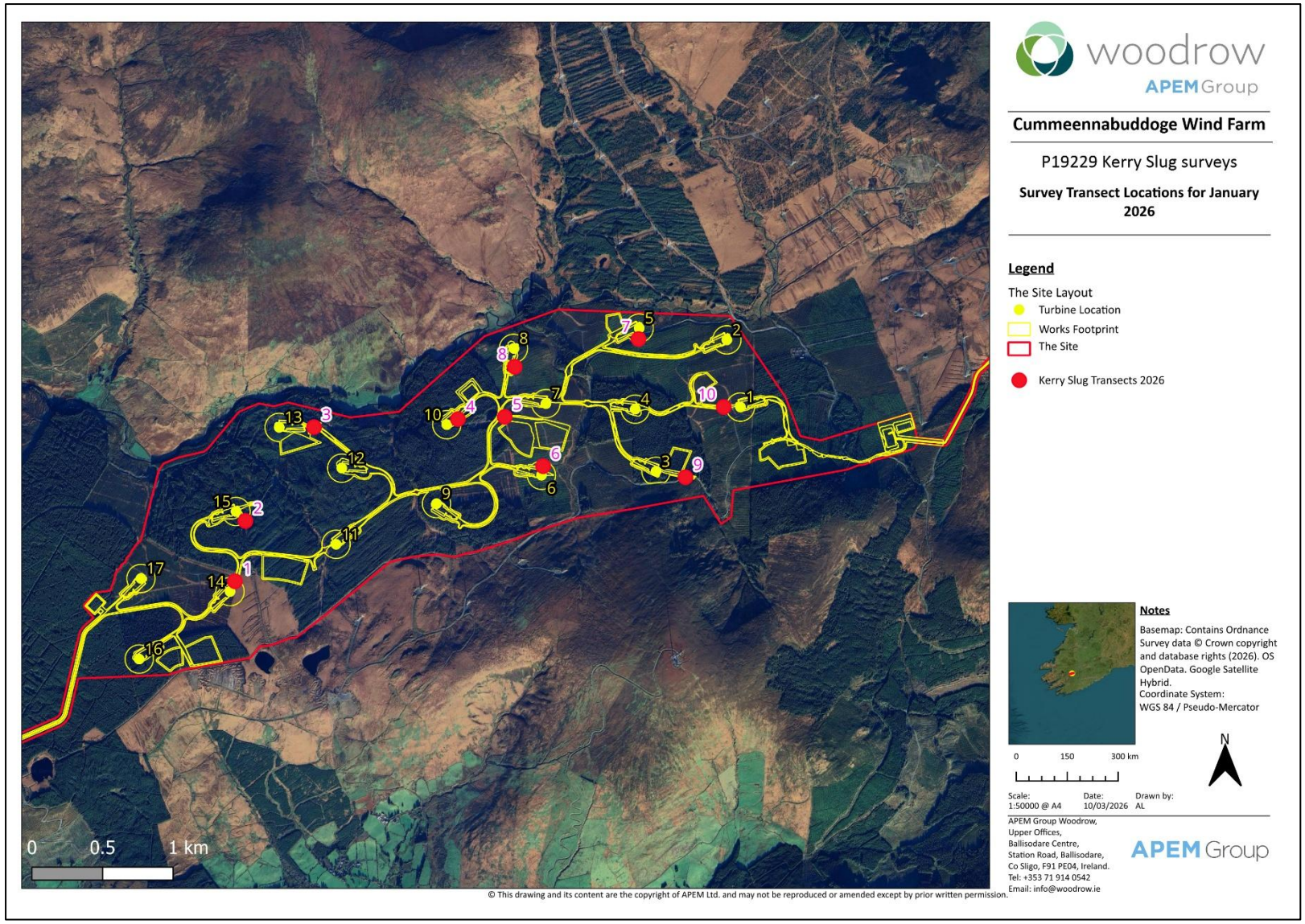

Figure 1: Site boundary, works footprint and transect locations for Kerry Slug surveys in January 2026

For ground-based transects, each mat was positioned flat on the substrate and baited with a single organic carrot (approximately 2 cm of length) placed beneath it. Stones were arranged around the edges to secure the mats and prevent displacement by wind or animal disturbance. For tree-mounted transects, mats were installed at approximately 1.5 m above ground level and secured to the trunk using nylon cord.

A single piece of organic carrot (approximately 2 cm long) was provided as bait and attached to the tree adjacent to the metric mat using a short length of wire (Figure 2 c). All mats remained *in situ* for approximately two weeks and were retrieved on 28 and 29 January 2026. This allowed sufficient time for their potential occupation by Kerry Slug. Incidental observations of Kerry Slug individuals encountered during mat retrieval were also recorded.

On the final day of surveying (29 January 2026), the metric mats at transects 5 and 6 were redeployed and rebaited with carrots. These mats were checked again that night to assess any changes in individual movements.

a) Wetting the metric mats with bottled water prior to deployment

b) Metric mats positioned on the ground at Transect 1

c) Carrot bait securely attached to the tree trunk at Transect 2

d) Metric mat attached to the trees at Transect 2

Figure 2 a-d: Setup of survey equipment along the transect, including metric mats and carrot bait.

Table 1: Details on transect and live metric mat locations

Transect No.	Location	Mat placement	Set out on	Checked and retrieved on
1	Close to Turbine 14	On ground	12 January 2026	28 January 2026
2	Close to Turbine 15	On tree trunks	12 January 2026	28 January 2026
3	Close to Turbine 13	On tree trunks	12 January 2026	28 January 2026
4	Close to Turbine 10	On tree trunks	13 January 2026	28 January 2026
5	On access track between turbines 7, 8 and 10	On ground	13 January 2026	28 January 2026
			29 January 2026	29 January 2026
6	Close to Turbine 6	On ground	13 January 2026	29 January 2026
			29 January 2026	29 January 2026
7	Close to Turbine 5	On ground	13 January 2026	29 January 2026
8	Close to Turbine 8	On ground	13 January 2026	29 January 2026
9	Close to Turbine 3	On tree trunks	13 January 2026	29 January 2026
10	Close to Turbine 1	On ground	13 January 2026	29 January 2026

2.2.3. Timed Hand Searches

Timed hand searches were undertaken at each transect within the works footprint.

An initial hand search was conducted on 13 January 2026 following an incidental observation of Kerry Slug. This search lasted 45 minutes and targeted microhabitats considered suitable for the species. During this first visit, additional informal checks were made at other transects, although no systematic searches were carried out at that stage.

Systematic timed hand searches were then carried out during the subsequent site visit on 28 and 29 January 2026. These surveys were standardised to 30 minutes per transect to ensure consistent coverage across all ten transects. Each search focused on microhabitats relevant to the habitat present, such as brash, drains, moss-covered substrates and shaded, humid areas.

On 29 January, metric mats at selected transects were redeployed earlier in the day to examine potential changes in slug activity. Night-time timed hand searches were subsequently completed at these transects, again using a fixed 30-minute survey duration to maintain consistency with the established search protocol.

The following approaches were applied:

- Clear-fell forestry — Searches focused on rock outcrops, brash piles from forestry operations, and tree stumps.
- Young plantations — Surveyors examined rock outcrops, brash piles, and stumps, mirroring the approach used in clear-fell areas.
- Mature plantations — Searches targeted the bark and bases of mature trees where slugs may shelter.
- Forest roads and verges — Surveyors inspected piles of rocks, stumps, and brash along and adjacent to forest roads.

2.2.4. Survey Constraints and Environmental Conditions

2.2.4.1. Weather and Ground Conditions

Surveys were undertaken in January 2026, a period typically characterised by cool temperatures and high rainfall in the upland areas of Counties Kerry and Cork. Conditions during deployment and retrieval of metric mats were generally cool (3-8 °C during site visits, excluding night temperatures), and damp with intermittent rainfall, resulting in moist ground and elevated humidity (73–86%). These conditions are broadly favourable for Kerry Slug activity, as the species is strongly associated with wet microhabitats. However, colder night-time temperatures may have reduced surface activity during some parts of the survey period.

2.2.4.2. Habitat Accessibility

Clear-fell areas contained brash piles, uneven ground, and exposed stumps, which limited ease of movement and required careful navigation. In young and mature plantations, dense planting rows and accumulated debris restricted visibility and slowed progress. Some areas of established forestry were difficult to access due to steep terrain and thick understorey vegetation.

2.2.4.3. Survey Timing

Winter daylight hours restricted the number of daytime hand searches that could be completed safely and consistently. The inclusion of one night-time search helped to balance this constraint by targeting periods when Kerry Slugs are naturally more active. Night surveys required additional precautions to ensure safe movement through forestry terrain.

2.2.4.4. Detection Limitations

Kerry Slugs are cryptic, slow-moving, and often concealed within deep crevices, under bark, or within saturated moss layers. Even under optimal conditions, detectability can vary due to microhabitat complexity, weather fluctuations, and the species' nocturnal tendencies. Metric mats provide an effective supplementary survey method, but occupation is not guaranteed during short deployment periods, limited site visits, or unsuitable weather conditions.

3. RESULTS

3.1. Desk study

The NBDC dataset reports the presence of Kerry Slug within two Irish National Grid squares relevant to the site, i.e. W18 and W28 (Table 2). The All-Ireland Non-Marine Molluscan Database includes records of three individuals within W18 and one individual within W28.

The NPWS data request returned additional records for the surrounding grid squares W07, W08, W17, W18, W27, W28 and W38, indicating a wider regional distribution of the species in the region (Figure A 1 in Appendix).

Table 2: Irish national grid squares (W18 and W28) for which records are retained at NBDC

Species name	Scientific name	Habitats Directive Annex II/IV[1]	Wildlife Act[2]	Red List status[3]	Most recent record
Kerry Slug [W18]	*Geomalacus maculosus*	Y	Y	LC	10 October 2023
Kerry Slug [W28]	*Geomalacus maculosus*	Y	Y	LC	10 October 2023

Key to Red List Status: CR = Critically Endangered; NT = Near Threatened; VU = Vulnerable; LC = Least Concern; DD = Data Deficient.

[1] Available at: article-17-report-2025-volume-3.pdf and https://environment.ec.europa.eu/topics/nature-and-biodiversity/natura-2000/managing-and-protecting-natura-2000-sites_en.

[2] Available at: https://www.irishstatutebook.ie/eli/1976/act/39/enacted/en/html#zza39y1976.

[3] Available at: https://www.npws.ie/publications/red-lists.

The Site is adjacent to the Natura 2000 site Killarney National Park, McGillicuddy's Reeks and Caragh River Catchment SAC (000365) which is designated for Kerry Slug [1024]. The SAC supports suitable habitat for Kerry Slug, but the SAC sub-population is unlikely to be functionally connected with the sub-population recorded on or near the site. The River Clydagh acts as a substantial natural dispersal barrier, because Kerry Slug is an entirely terrestrial, moisture-dependent species that occupies humid microhabitats such as wet rock faces, mossy woodland, and shaded forest environments, and is physiologically unsuited to aquatic movement. This is further supported by ecological studies showing that the species' movement range is extremely limited: laboratory observations recorded a maximum mean movement distance of 6.7 m over two hours, emphasising its reliance on continuous, moist terrestrial substrates and its inability to disperse across open water or structurally unsuitable terrain (Johnston, 2017). Given these constraints, the River Clydagh, a flowing aquatic

feature devoid of suitable substrate, prevents functional connectivity between the SAC sub-population and the individuals recorded within W18 and W28. As a result, the two groups operate as discrete and isolated sub-populations with no realistic opportunity for gene flow or regular movement between them.

3.2. Field surveys

Previous and recent surveys for Kerry Slug within the Site have confirmed the continued presence and active use of the area by the species. Surveys undertaken under licence in 2021 recorded individuals across all eight of eight transect locations, supported by 88 confirmed records from metric mats, hand searches and incidental observations, indicating widespread occupancy at that time.

Across the three survey visits in January 2026, at least 23 individual Kerry Slugs - potentially up to 31 individuals - were recorded at four of the ten transects (transects 6, 7, 8 and 10), indicating continued use of a broad range of habitats within the Site. Individuals were detected both beneath metric mats, during hand searches, and through incidental observations. An overview of the temperature conditions and the total number of Kerry Slug individuals recorded during each visit is provided in Table 3. All survey results are illustrated on maps and are presented in Figures A 2 to A 6 in the Appendix.

Table 3: Temperature and number of Kerry slug individuals detected across three survey visits (12–13 January 2026, 28–29 January 2026 daytime, and 29 January 2026 nighttime)

Parameter	Survey visit 1	Survey visit 2	Survey visit 3
Temperature (°C)	3-8	6-8	7-8
Individuals detected	4	23	4

3.2.1. Live Refuge Trapping

The metric mat surveys recorded the presence of one Kerry Slug individual at metric mat 28 (transect 6, 29 January 2026, daytime). The rest of the mats at the different transects did not have any individuals present. All metric mat results are summarized in Table 4.

No individuals were found beneath the metric mats at transects 5 and 6 that were redeployed on 29 January 2026 and checked during the night-time survey.

Table 4: Kerry Slug detections, number of individuals, and coordinates recorded along surveyed transects

Transect No.	Mat ID	Detection (Yes/No)	Number of Individuals found	Coordinates in WGS84 (Lat/Long) (± 1 m)
1 - 5	1–27	No	0	—
6	28	Yes	1	51.995599, -9.157948
7 - 10	29–50	No	0	—

3.2.2. Timed Hand Searches

All results of timed hand searches are shown in Table 5. The first timed hand search on 13 January 2026 recorded four individuals during a 45-minute inspection at transect 6 (Plate 1).

The timed hand searches conducted between 28 and 29 January 2026 at daytime recorded 16 individuals in total. No individuals were recorded at transects 1 to 5. At transect 6, four individuals were found adjacent to a drain on brash material (Plate 2). Transect 7 held two individuals, transect 8 held eight, transect 9 had none and transect 10 recorded two individuals.

On 29 January 2026, the night-time hand searches resulted in no additional records at transect 5 and four records at transect 6.

Table 5: Results of hand searches on the Site during the first visit (13 January 2026), the second visit (29 January 2026, daytime) and the third visit (29 January 2026, night-time)

Transect No.	Visit No.	Timed hand search [min]	Individuals Recorded	Findings with coordinates in WGS84 (Lat/Long) (± 1 m)
6	1	45	4	After metric mats were first deployed. Four juveniles underneath rocks in crevices at 51.995600, -9.157558.
1 to 5	2	30	0	No individuals present.
6	2	30	4	Three adults on deadwood at 51.995561, -9.157946. One juvenile on ground at 51.995605, -9.15809.
7	2	30	2	One adult on dead stump at 52.003642, -9.147981. One adult on dead bark at 52.003764, -9.147671.
8	2	30	8	One adult on deadwood at 52.002025, -9.160484. Two juveniles on deadwood at 52.002012, -9.160452. One adult on bark on ground at 52.001989, -9.160304. One adult on stump at 52.001948, -9.160279. Two adults and one juvenile in mosses and lichens on ground at 52.001946, -9.160338.
9	2	30	0	No individuals present.
10	2	30	2	One adult under bark at 51.999439, -9.139184. One adult under bark at 51.999489, -9.139205.
5	3	30	0	No individuals present.
6	3	30	4	One adult under bark at 51.995711, -9.157595. One adult on roadside at 51.995674, -9.157642. One juvenile under bark at 51.995642, -9.15812. One adult in rock crevice at 51.995597, -9.158408.

Plate 1: Juvenile Kerry Slug within its microhabitat beneath rock on the ground at transect 6

Plate 2: Three adult Kerry Slugs found during a timed hand search at transect 6

3.2.3. Incidental Records

During both deployment and retrieval of the metric mats, surveyors recorded multiple incidental observations of Kerry Slug in close proximity to the metric mats or within the immediate surrounding habitat. These observations occurred while moving between mats and during general handling of survey equipment.

At transect 6, three incidental observations were recorded close to the metric mat no. 28 (at WGS84 Lat: 51.995599, Lon: -9.157948; ± 1 m) on 29 January 2026 during the day. One individual was recorded beneath the metric mat no. 28 (see 3.2.1 Live Refuge Trapping).

At transect 7, two incidental observations were made while collecting the metric mats. One adult Kerry Slug was found on deadwood (at WGS84 Lat: 52.003857, Lon: -9.147254; ± 1 m) and one juvenile on the ground (at WGS84 52.003733, -9.147716; ± 1 m). However, no individuals were found beneath any of the metric mats at this location.

At transect 8, one adult Kerry Slug was observed in close vicinity to the mats during retrieval (at WGS84 Lat: 52.001964, Lon: -9.160495; ± 1 m; Plate 3). As with transect 7, no slugs were recorded beneath the metric mats themselves.

Plate 3: Incidental record of one adult Kerry Slug at transect 8

4. CONCLUSION

The 2026 surveys carried out by APEM Group Woodrow provide an updated and robust assessment of the distribution and activity of Kerry Slug within the proposed works footprint of the Cummeennabuddoge Wind Farm, Co. Kerry. Building on earlier baseline data and commenced under an NPWS licence (DER-KERRY SLUG-2026-02), the combined use of live refuge traps (metric mats), timed hand searches and incidental observations allowed for comprehensive coverage of a range of different habitats across the Site.

Results confirm the continued presence of Kerry Slug within the works footprint, with individuals recorded across several transects and within multiple habitat types. Although detections were concentrated at specific transects, notably transect 6 and parts of transects 7, 8 and 10, the surveys demonstrate active use of different refugia and underline the species' reliance on different habitats during winter conditions. Desk-study information and previous records from 2021 and 2026, together with NBDC and NPWS datasets, support the conclusion that Kerry Slug occupies several habitats across the landscape and remains consistently detectable within parts of the Site.

Desk study data further indicate that the Site lies within a wider landscape supporting established populations of Kerry Slug, though functional connectivity with the nearby designated SAC is highly unlikely due to the natural barrier created by the River Clydagh. The findings presented here therefore provide an essential evidence base for evaluating potential impacts of the proposed development on local populations and for determining whether a Regulation 54 derogation is required to proceed with the works.

Consideration should also be given to differences between the 2021 and 2026 datasets. Only one survey location (transect 5) overlapped with MWP's earlier study, as the 2026 surveys were specifically targeted within the works footprint. Differences in the number of individuals recorded between years therefore reflect both survey-design variation and natural patchiness in habitat suitability rather than any indication of population decline. Taken together, the 2021 and 2026 datasets confirm persistent habitat suitability across multiple parts of the Site and support the identification of the area as hosting an established Kerry Slug population.

Overall, the survey successfully meets the requirements set out in the Request for Further Information from An Coimisiún Pleanála. The results offer a robust account of the species' presence and habitat use within the works footprint. The findings support the preparation of the revised ecological impact assessment and informing any necessary mitigation or derogation processes to be carried out in relation to this EU and Nationally protected species (Annex II and Annex IV Habitats Directive, Wildlife Acts (as amended). This species is of European Community interest and requires strict protection.

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APPENDIX - MAPS

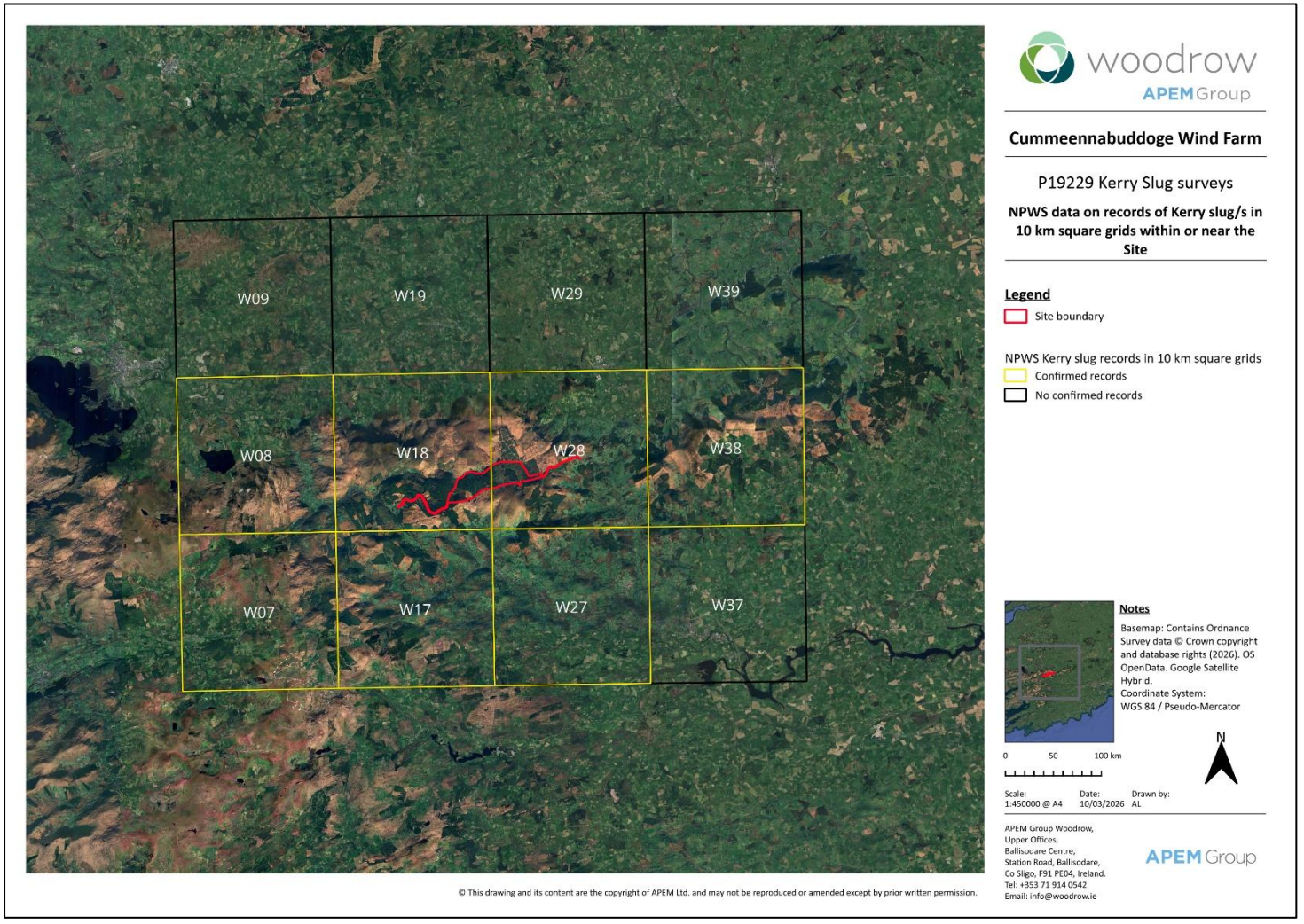

Figure A 1: NPWS grid square data showing confirmed Kerry Slug records and areas with no recorded evidence within or near the Site.

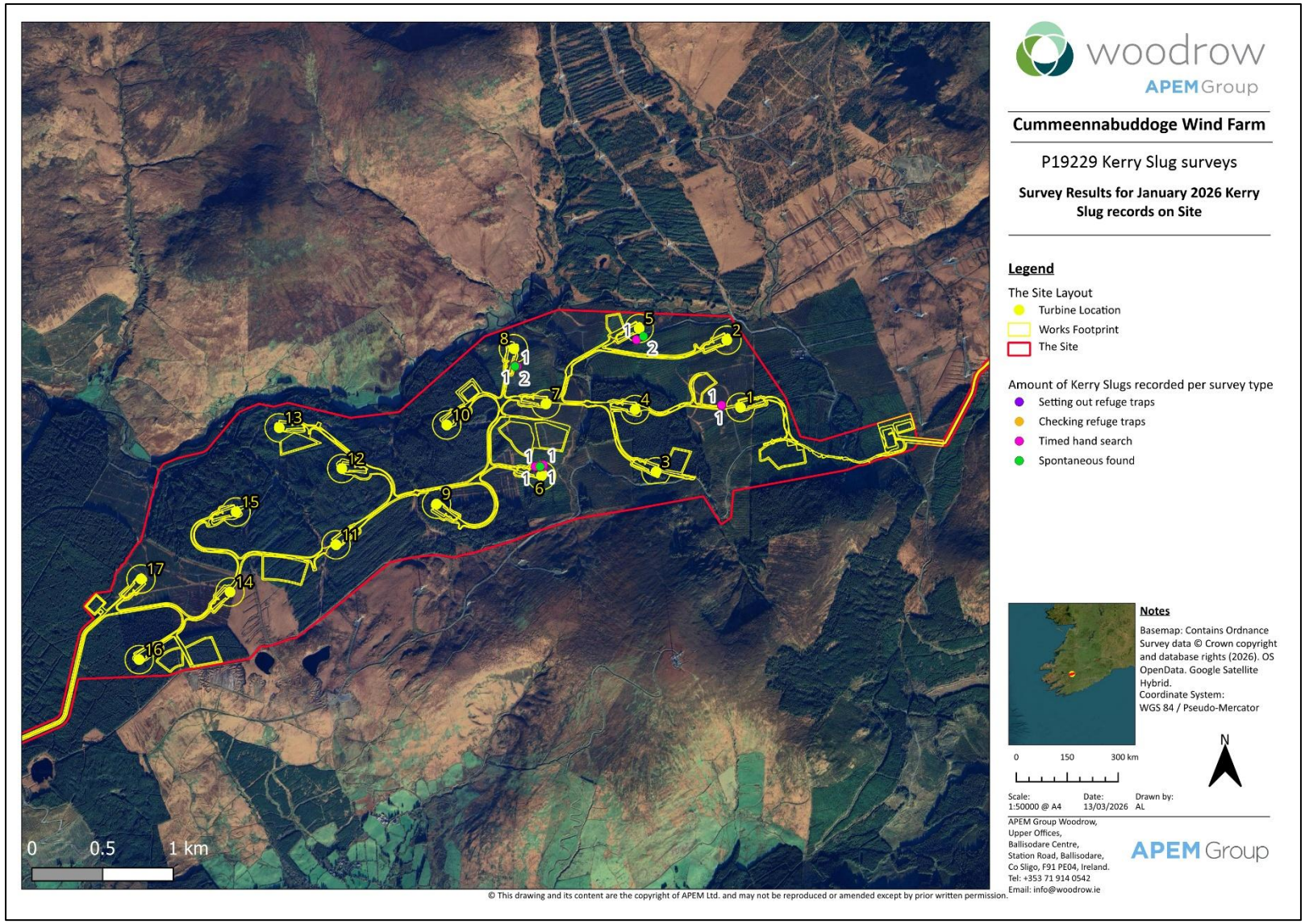

Figure A 2: Number of Kerry Slug individuals recorded per survey type at the Site

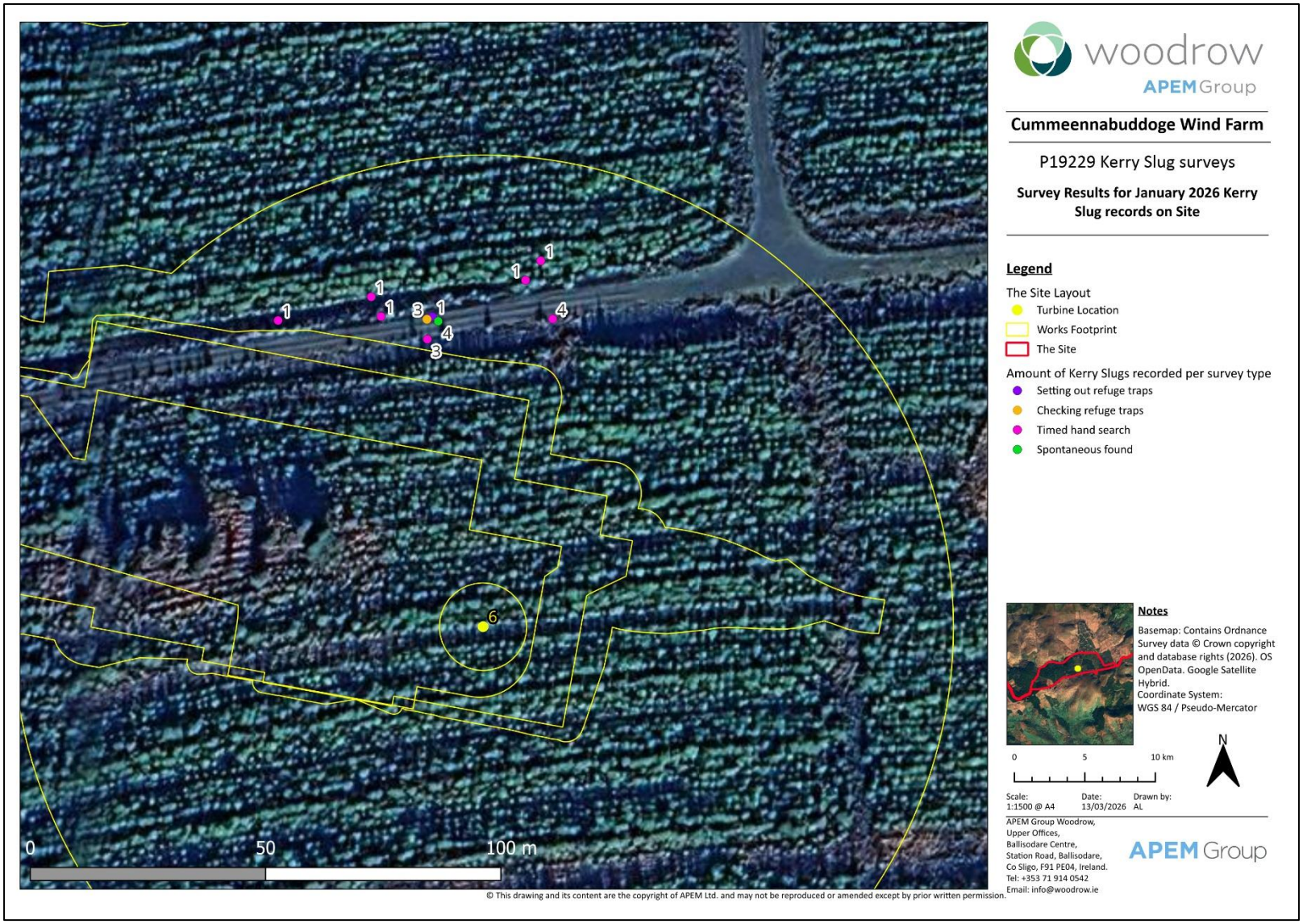

Figure A 3: Number of Kerry Slug individuals recorded per survey type at transect 6 (turbine 6)

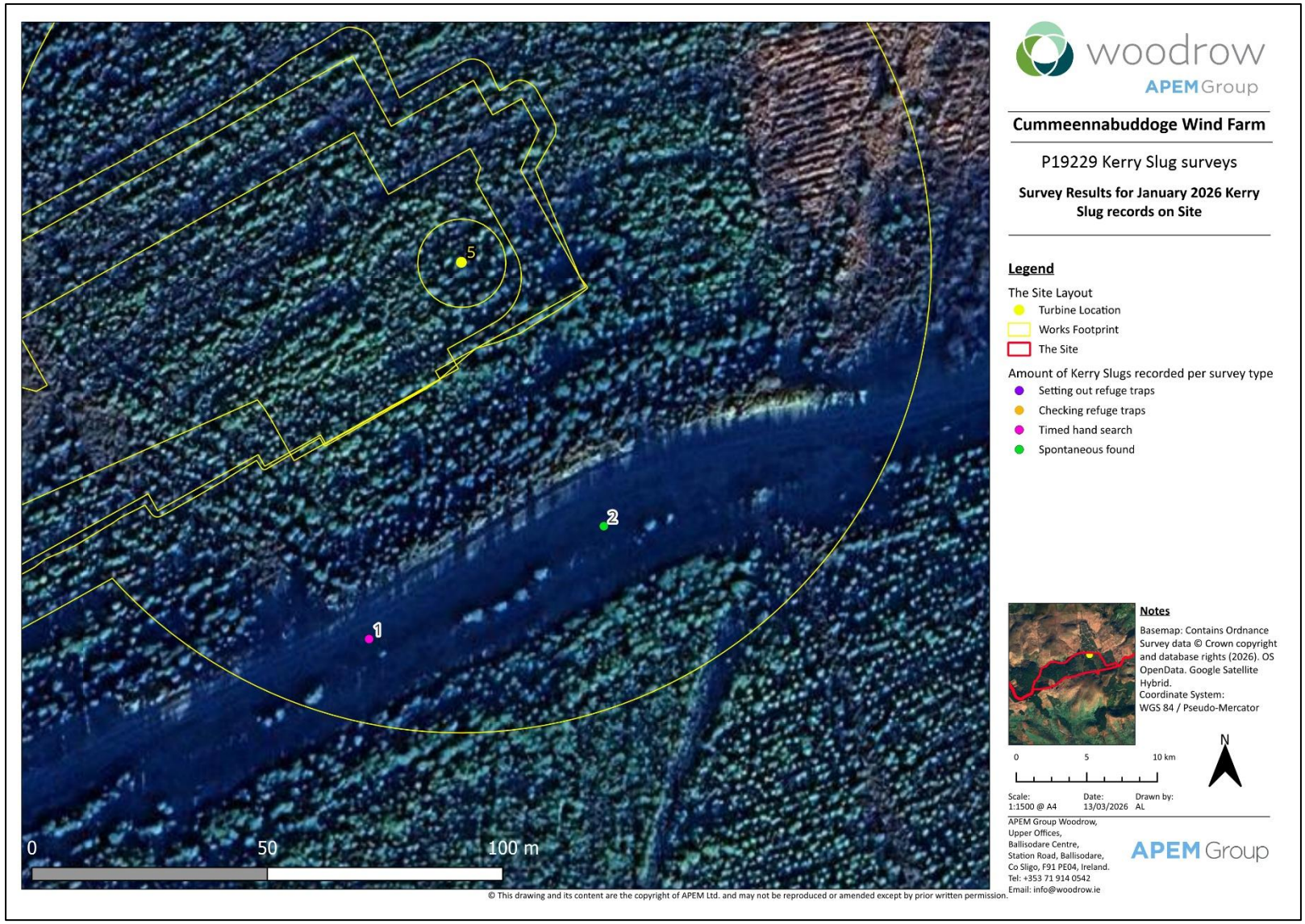

Figure A 4: Number of Kerry Slug individuals recorded per survey type at transect 7 (turbine 5)

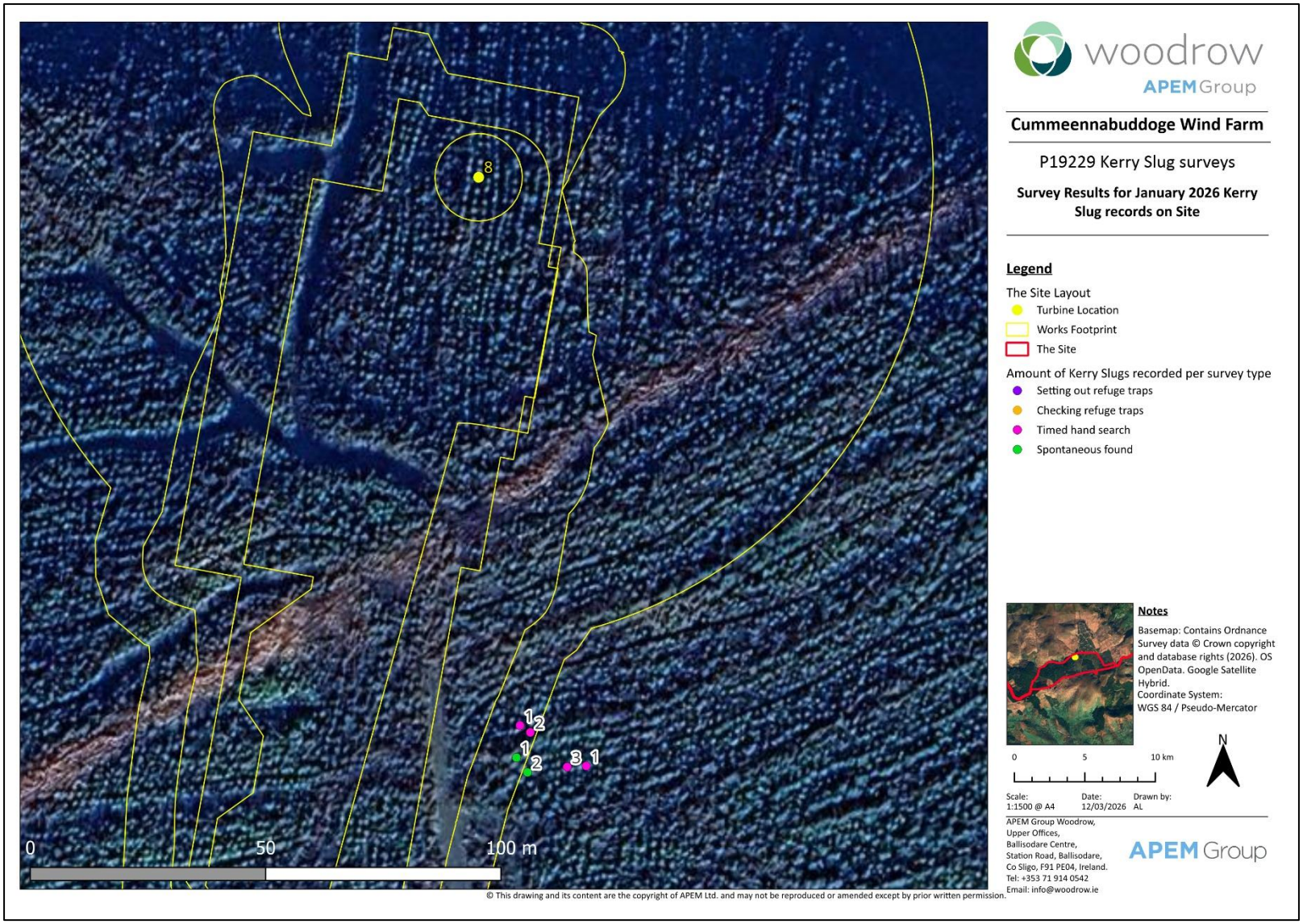

Figure A 5: Number of Kerry Slug individuals recorded per survey type at transect 8 (turbine 8)

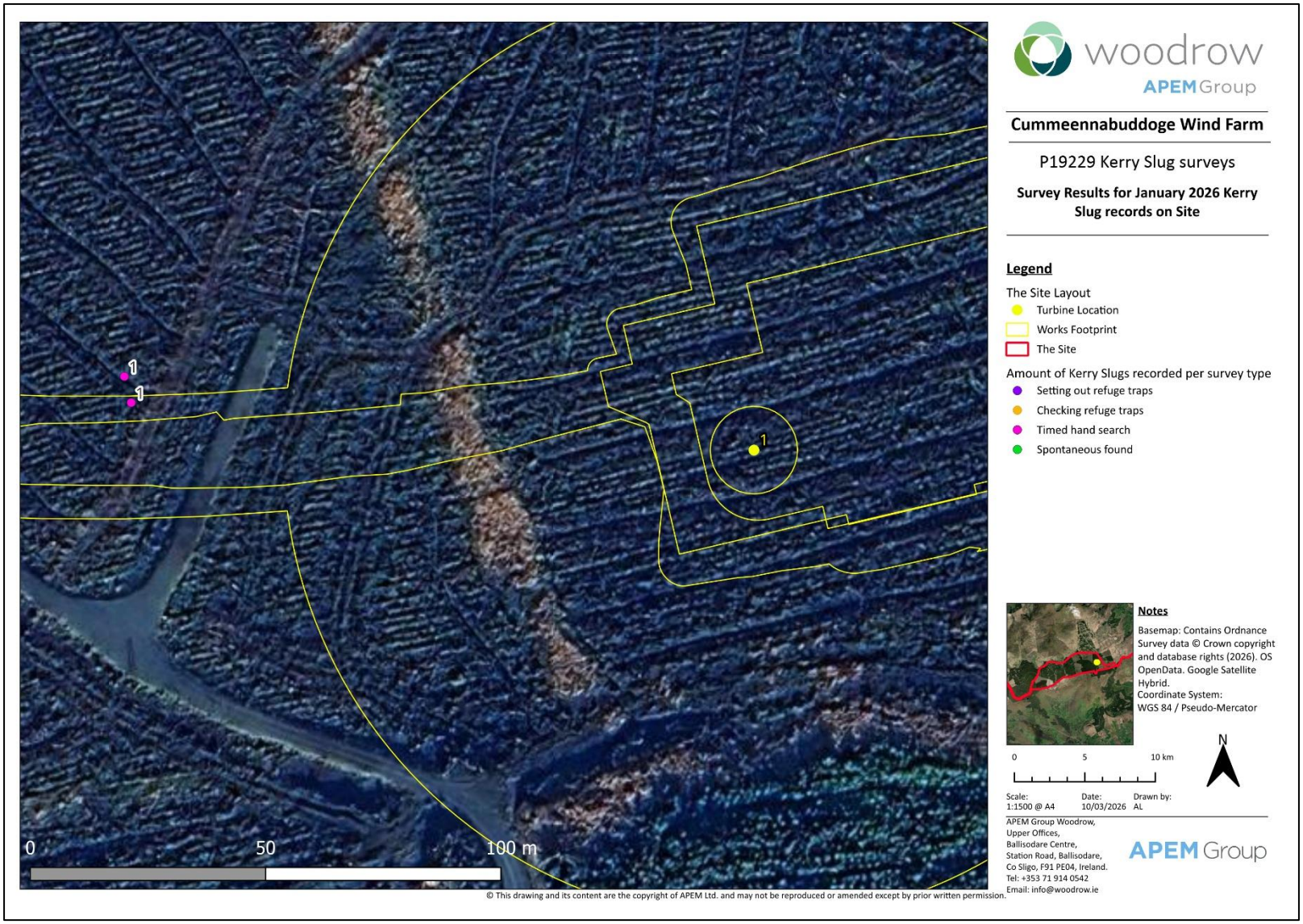

Figure A 6: Number of Kerry Slug individuals recorded per survey type at transect 10 (turbine 1)