

Document Control Sheet			
Client	Gas Networks Ireland		
Project	Non-volant terrestrial mammal impact assessment for a proposed Gas to Bord na Mona, Edenderry Pipeline, new Ballykilleen AGI and Kilwarden Offtake Installation.		
Report	Non-volant terrestrial mammal impact assessment		
Date	30 th April 2026		
Version	Author	Reviewed	Date
Draft	Emma Peters	Bryan Deegan	31 st March 2026
Final	Emma Peters	Frank Spellman	30 th April 2026

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Summary

Structure/features:	The survey area is a proposed gas pipeline route through mainly agricultural land. The habitats within the pipeline route consists primarily of grassland, scrub, treelines and hedgerows with roadways, watercourse, drainage ditches, woodland, recolonised bare ground, bare ground and loose gravel paths.
Location:	Kilwarden Offtake Installation (Kilwarden, Co, Meath) to Bord na Móna Cushaling Peaker Plant (Kilcumber, Co. Offaly).
Fauna species present:	Badger (<i>Meles meles</i>), fox (<i>Vulpes vulpes</i>), rabbit (<i>Oryctolagus cuniculus</i>), pine marten (<i>Martes martes</i>), wood mouse (<i>Apodemus sylvaticus</i>), otter (<i>Lutra lutra</i>), deer (species unknow) and hare (<i>Lepus timidus hibernicus</i>).
Proposed work:	Gas pipeline installation and associated above and below-ground works.
Survey by:	Emma Peters and Frank Spellman.
Survey date:	14 th of October 2024, 9 th , 17 th of December 2024, the 20 th ,21 st , 29 th and 30 th of January, the 4 th ,5 th ,10 th ,14 th and 18 th of February and the 11 th and 18 th of March 2025. Also, The 13 th , 14 th ,15 th , 20 th , 21 st , 22 nd of January of 2026 and the 12 th and 13 th of March 2026.

Receiving environment

Background

The Proposed Development site and associated temporary working areas covers an area of approximately 243.4 hectares (ha) (the “Proposed Development Site”) and encompasses all lands required for the construction and operation of the pipeline, including the Kilwarden Offtake Installation, the Ballykilleen AGI, temporary construction compounds, line-pipe storage areas, and all associated ancillary works.

The Proposed Development Site comprises the c. 23.65 km linear route of the underground GNI 143 Ballykilleen Pipeline and its temporary working areas.

The Proposed Development site outline and location are demonstrated in figures 1 & 2.



0 2 4 6 8 10 km

Legend:
 EIAR Red Line Boundary

Project: GNI143 Ballykilleen Pipeline
 Location: Kilwarden Offtake Installation (Kinnefad) to Bord na Móna Cushaling Peaker Plant (Edenderry)
 Date: 15th December 2025
 Drawn By: Frank Spellman (Altamar)

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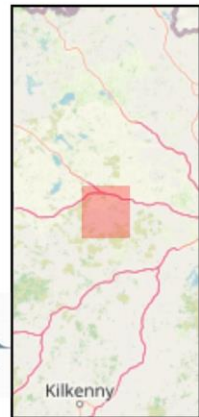
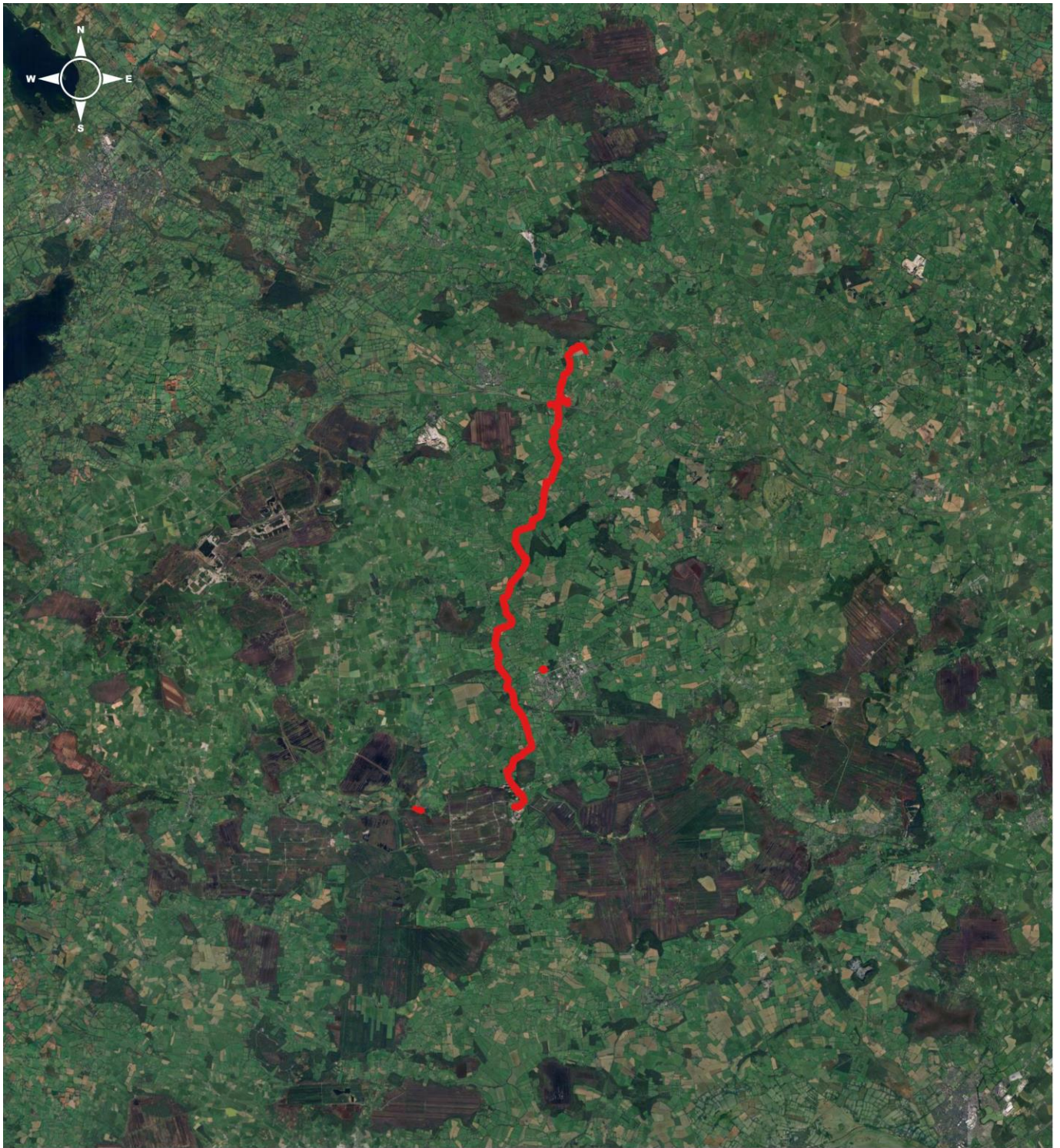


Figure 1. Proposed Development site outline.



0 2 4 6 8 10 km



Legend:

 EIAR Red Line Boundary

Project: GNI143 Ballykilleen Pipeline
 Location: Kilwarden Offtake Installation (Kinnegad) to Bord na Móna Cushaling Peaker Plant (Edenderry)
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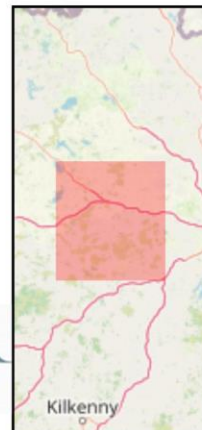


Figure 2. Proposed Development location.

Competency of assessor

Since its inception in 2001, Altemar has been delivering ecological and environmental services to a broad range of clients. Operational areas include: residential; infrastructural; renewable; oil & gas; private industry; Local Authorities; EC projects; and, State/semi-State Departments.

Frank Spellman (BSc Zoology, MSc Zoology).

This report and associated surveys were carried out by Frank Spellman (MSc (Ind) Zoology, BSc Zoology). Frank has extensive experience in carrying out a wide range of ecological surveys as both a sub-contractor and employee for environmental consultancies and organisations in Ireland and the US. These include both roving and static acoustic bat surveys, terrestrial non-volant mammal surveys, breeding/wintering bird surveys, freshwater ecology surveys as well as flora/invasive plant surveys. Frank has been lead surveyor on numerous development projects within Ireland carrying out full avian/non-volant mammal, wintering bird, breeding bird, Fossitt and invasive species assessments.

Emma Peters (BSc Environmental Science).

This report and associated surveys was carried out by Emma Peters (BSc Environmental Science). Emma is a skilled ecological assessor with an aptitude for flora identification, invasive species and bat detection through static detector surveys, dusk emergence, and dawn re-entry surveys. Emma has been the lead ecologist in 40+ projects responsible for mammal tracking, camera trapping, wintering bird, breeding bird, bat surveys, flora and habitat mapping.

Bryan Deegan (MCIEEM, BSc Applied Marine Biology, MSc Environmental Science)

Bryan Deegan, the managing director of Altemar, is an Environmental Scientist and Marine Biologist with 30 years' experience working in Irish terrestrial and aquatic environments, providing services to the State, Semi-State and industry. He is currently lead project ecologist for Project Pembroke and was contracted to Inland Fisheries Ireland as the sole "External Expert" to environmentally assess internal and external projects. He is also chair of an internal IFI working group on environmental assessment. Bryan Deegan (MCIEEM) holds a MSc in Environmental Science, BSc (Hons.) in Applied Marine Biology, NCEA National Diploma in Applied Aquatic Science and a NCEA National Certificate in Science (Aquaculture).

Legislative context

A number of non-volant terrestrial mammal species are protected under the Wildlife Act (1976), Wildlife [Amendment] Acts (2000 to 2012), and Annex IV of the Habitats Directive (transposed into Irish law by the European Communities (Birds and Natural Habitats) Regulations, 2011-2021. These include species such as badger, Irish stoat, Irish hare, brown hare, pine marten, red squirrel, otter, hedgehog, all deer species, and pygmy shrew.

The badger is also a Red Data Book species, but it is a relatively common species and ubiquitous through much of the Irish countryside (Smal, 1995).

It is standard best practice to make special provisions for badgers affected by development. Whilst the species is common in much of the Irish landscape, badgers are notable for their practice of constructing large underground tunnel and chamber systems (setts). Provisions are made for their humane removal or for their conservation on site where feasible or practicable. The Wildlife [Amendment] Act (2000-2012) protects all resting places of protected species.

Otters are protected under the Irish Wildlife Acts and are also listed under Annex II and Annex IV of the EU Habitats Directive.

Otters are relatively common in Ireland, and they do occur on most rivers in this country. Protection of this species is important, and provisions are made to ensure that holts are not interfered with except under especial circumstances and to ensure the quality of their foraging habitat.

Non-volant mammal survey

This report presents the results of site visits by Frank Spellman and Emma Peters from December 2024 to March 2026. A badger/mammal transect survey was carried out on each occasion. Mammal observations recorded during breeding bird surveys from June 2025 by Emma Peters & Frank Spellman were included in this assessment. Surveys were carried out using techniques approved and recommended by CIEEM.

Survey methodology

These non-volant mammal surveys were carried out based on techniques approved and recommended by CIEEM.

The survey area for the Proposed Development consists of a proposed gas pipeline route and associated above and below-ground structures through mainly agricultural land. The habitats within the Proposed Development area consist primarily of grassland, scrub, treelines and hedgerows with roadways, watercourse, drainage ditches, woodland, recolonised bare ground, bare ground and loose gravel paths. Due to the expansive nature of the survey area, multiple site visits were made along the route in accordance with permission to access the lands by the various landowners. Fields within the proposed route, and additional fields within a 50-meter radius of the proposed pipeline route were surveyed for presence of mammals. A radius of 150m either side of the Proposed Development area at waterbody crossings was surveyed for otter holts.

A single roving transects following the full perimeter and circumnavigating all habitats and features within the survey area was carried out on each visit. Trail cameras were placed on major waterbodies, and burrows which the status could not be ascertained.

Movements were carried out slowly, with pauses to observe open spaces, further following trails to determine their direction and investigate recipient areas for potential dens/setts/holts/scatt/prints/scrapes/latrines etc. Camera traps were placed in areas where high evidence of mammal activity and/or an active den/sett was likely. Camera traps were set on suspected badger setts by both Emma Peters and Frank Spellman in 31 locations across the route during the 2024/25 surveys. During the 2026 surveys, an additional seven cameras were deployed to determine the use/activity of the burrows/dens/setts.

Survey results

Habitats of non-volant terrestrial fauna potential

A ground level habitat assessment was carried out and used to examine the structures and vegetation on site for features that could facilitate non-volant terrestrial mammals. Potential features include heavy scrub, piles of vegetative/construction debris, grassland etc. All areas on site were assessed for evidence of non-volant mammals.

Areas of high non-volant mammal potential in the survey area included the scrub, drainage ditches, grassland hedgerows and treelines throughout the survey area.

Non-volant terrestrial fauna surveys.

A total of eight fauna species were confirmed within the survey area by visual confirmation and behavioural evidence: badger (*Meles meles*), fox (*Vulpes vulpes*), rabbit (*Oryctolagus cuniculus*), pine marten (*Martes martes*), wood mouse (*Apodemus sylvaticus*), otter (*Lutra lutra*), deer (species unknown) and hare (*Lepus timidus hibernicus*).

The mammal survey primarily aimed to identify active badger (*Meles meles*) setts to inform the final alignment of the proposed gas pipeline and thereby avoid disturbance to badgers. A total of 31 active setts (Table. 1) were recorded within the survey area in the 2025 surveys. An additional ten active setts were noted in 2026 (Table 2.). Setts were identified based on their characteristic size and shape, in conjunction with field indicators such as the presence of bedding material, fresh spoil heaps, and proximity to badger signs including footprints, latrines, and well-used trails.

Where physical and behavioural evidence was insufficient to confirm sett status, motion-activated wildlife cameras were deployed to verify activity. Review of the camera footage and observational evidence confirmed that sixteen of the recorded setts were being utilised as breeding setts. Breeding setts were defined as those occupied by sexually mature pairs (as observed on camera footage) or those of substantial size located in favourable conditions, displaying signs of frequent use such as extensive fresh spoil, well-defined trails, and proximity to latrines and footprints.

Out of an abundance of caution, motion-activated camera traps were deployed at fox (*Vulpes vulpes*) dens that had the potential to be misidentified as badger (*Meles meles*) setts. Sixteen fox dens were recorded within the survey area in 2024/5 and approximately 7 in the 2026 surveys. In addition, camera traps were installed at river crossings that could support otters, to determine whether otters (*Lutra lutra*) were utilising these areas. No otters were captured on camera during the monitoring period, and no spraints or holts were identified during mammal surveys. However, a

single otter footprint was observed at river crossing WCX4 - Knockerasally or Colehill River, Ballyboggan during the aquatic baseline survey undertaken by Triturus Environmental Ltd. for AWN Consulting Ltd.

A total of eleven rabbit (*Oryctolagus cuniculus*) warrens or burrow systems were recorded throughout the survey area and were frequently encountered during the course of the survey. A hare (*Lepus timidus hibernicus*) form was noted at the southern end of the survey area close so the Edenderry power plant. Deer (exact species unknown) droppings and tracks were noted primarily to the north of the site.

Table 1 . Badger setts recorded in 2025 listed with assigned number, chainage, activity status, exclusion zone and fencing requirements.

Sett No	Chainage (m)	Status	Exclusion zone (m)	Fencing Needed
1	0 (North)	Active	30	No
2	200 (North)	Active	30	No
3	1100 (East)	Breeding	50	No
4	2000 (East)	Active	30	Yes
5	4100 (West)	Active	30	Yes
6	4100 (West)	Active	30	Yes
7	5400 (East)	Active	30	Yes
8	5800 (East)	Breeding	50	No
10	6700(West)	Breeding	50	Yes
12	7400 (East)	Active	30	Yes
13	9300 (North)	Active	30	Yes
14	9900 (West)	Active	30	No
15	10000(East)	Breeding	50	No
16	10000(East)	Breeding	50	No
17	10000 (West)	Active	30	No
18	10500 (East)	Breeding	50	No
19	10600 (East)	Breeding	50	No
21	11000 (West)	Breeding	50	No
22	11000 (West)	Breeding	50	No
25	15100 (West)	Breeding	50	No
26	15400 (West)	Breeding	50	No
28	16900 (East)	Active	30	No
29	18500(West)	Breeding	50	No
31	19800(West)	Breeding	50	No
32	19800 (West)	Active	30	Yes
33	20500 (Southeast)	Breeding	50	No
34	21000 (East)	Breeding	50	No
37	22000 (East)	Active	30	Yes
38	22200 (East)	Breeding	50	Yes
39	22800 (North)	Active	30	No
41	N/A	Active	30	Yes

Table 2 . Badger setts recorded in 2026 listed with assigned number, chainage, activity status, exclusion zone and fencing requirements.

Sett no.	Chainage (m)	Status	Exclusion zone (m)	Fencing needed
9	6600	Active	30	Yes
11	7000	Breeding	50	Yes
20	10500	Active	30	Yes
23	12400	Active	30	Yes
24	13600	Active	30	Yes
27	15600	Active	30	No
30	19600	Active	30	Yes
35	21800	Active	30	Yes

Sett no.	Chainage (m)	Status	Exclusion zone (m)	Fencing needed
36	21800	Active	30	Yes
40	23400	Breeding	50	Yes

Description of Setts

Sett 1 is located at **chainage 0 m** (approximately 85m north of the Proposed Development). The sett occurs within a woodland habitat situated outside the Proposed Development boundary. It is classified as an active, non-breeding sett; therefore, a exclusion zone of 30 m has been applied.



Plate 1. Sett one.

Sett 2 is at **chainage 200 m** (approximately 100m north of the Proposed Development boundary). The sett occurs within a woodland habitat situated outside the Proposed Development boundary. It is classified as an active, non-breeding sett; therefore, an exclusion zone of 30 m has been applied. A small fresh spoil heap was noted at the entrance to this sett.



Plate 2. Sett two.

Sett 3 is located at **chainage 1100m** (approximately 338m east from the Proposed Development boundary). The sett had three entrances (two on the east site, one on the west side), set into a soil bank within a double beech treeline that divided agricultural fields. On the west side of this double treeline was a drainage ditch which led into the Kilwarden River. The three entrances had disturbed soil. On the far side drainage ditch, from the embankment, an additional entrance had a small spoil heap and was likely a subsidiary sett. Leaf litter accumulation at the edge of the entrance was light, indicating occasional activity but not high-frequency traffic. The location, size, presence of multiple entrances and signs of active use identified this sett as a possible breeding sett; therefore, an exclusion zone of 50m has been applied. A camera trap was deployed at the central sett entrance; Badgers were noted at this sett along with a fox and wood mouse.

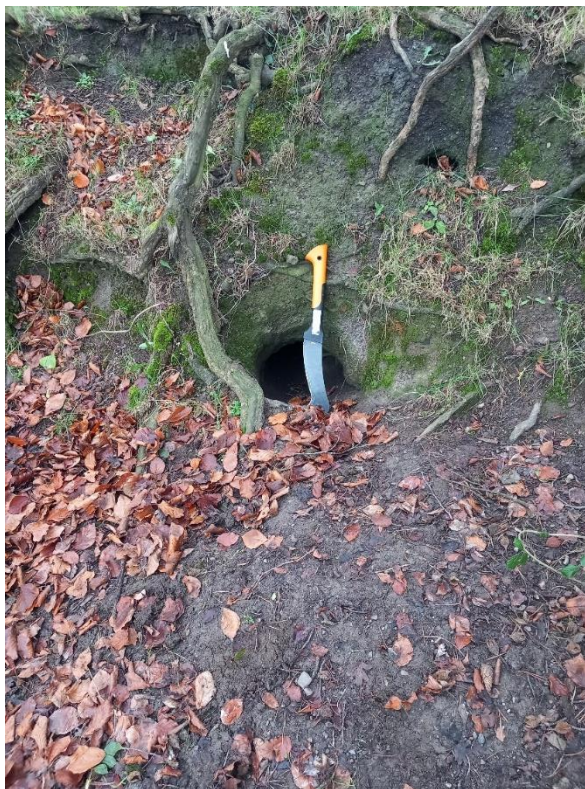


Plate 3. One entrance to sett 3. Machete placed at entrance for scale.



Plate 4. Additional entrance to sett 3.



Plate 5. Subsidiary sett and small spoil head within the yellow ring.

Sett 4 was located at **chainage 2000m** (Approximately 45m east of the Proposed Development boundary). This sett was located within a scrubby ditch comprised of mainly bramble. A mammal trap camera was deployed along a well-established mammal trail which indicated at badger use. The camera revealed two badgers (possibly siblings) using the sett on one occasion. This sett was likely a rest place for badgers. This sett was given a 30m exclusion zone as it did not have attributes aligning with a breeding sett. Any resting place of a badger must be protected from disturbance. This

sett is meters out from the Proposed Development boundary so it is imperative that protective fencing with signage must be erected in a 30m radius around the sett before commencement of any works to avoid disturbing the badgers or collapsing the sett.



Plate 6. Photo captured from camera trap footage of pair of badgers.



Plate 7. Screen grab taken from video captured in camera trap footage.

Sett 5 was located at **chainage 4100m** (approximately 60m west of the Proposed Development boundary). The sett was situated within a drainage ditch beneath a mature tree line and positioned directly adjacent to Sett 6. The sizeable spoil heap suggested the presence of a deep tunnel system; however, the extent of moss growth indicated that the sett had been in place for a considerable period. Several trails were observed leading to the sett, though the presence of cobwebs and accumulated leaf litter within the entrance suggested only semi-active use. Based on these observations, the sett was not classified as a breeding sett, and a precautionary 30m exclusion zone was applied. This sett is meters out from the Proposed Development boundary so it is imperative that protective fencing with signage must be erected in a 30m radius around the sett before commencement of any works to avoid disturbing the badgers or collapsing the sett.



Plate 8. The entrance to sett 5 .

Sett 6 was located at **chainage 4100m** (Approximately 55m from the Proposed Development boundary). This sett was positioned directly adjacent to sett 5. The sett entrance appeared semi-active as there was a lack of fresh digging however, vegetation had been kept back. There were also trails leading to this sett. Based on these observations, the sett was not classified as a breeding sett, and a precautionary 30m exclusion zone was applied. This sett is meters out from the Proposed Development boundary so it is imperative that protective fencing with signage must be erected in a 30m radius around the sett before commencement of any works to avoid disturbing the badgers or collapsing the sett.



Plate 9. The entrance to sett 6.

Sett 7 was located at **chainage 5400m** (Approximately 45m for the Proposed Development boundary). The sett entrance had a large spoil heap indicating a deep sett. Mammal trap camera footage revealed that a single male badger was using the sett occasionally. This sett is meters out from the Proposed Development boundary so it is imperative that

protective fencing with signage must be erected in a 30 meter radius around the sett before commencement of any works to avoid disturbing the badgers or collapsing the sett.



Plate 10. The entrance to Sett 7.



Plate 11. The single male badger entering the sett.

Sett 8 was located at **chainage 5800m** (Approximately 588m east of the Proposed Development boundary). The sett entrance was concealed, and a photo was not possible, however, camera trap footage revealed that this sett was being used by a breeding pair and were actively maintaining the sett in the camera footage. Many trails and snuffle holes were noted in this area. For these reasons, the sett has been given a 50m exclusion zone. As the sett is located far beyond the Proposed Development boundary, no protective fencing will be required.



Plate 12. Badger leaving sett 8.

Sett 9 was located at chainage 6600m (within the Proposed Development boundary). This sett had a large amount of fresh bedding with a fresh spoil heap and clean entrance. Strong trails led to and from this sett. The sett was classified as a breeding sett and awarded a 50m exclusion zone. The sett itself and the exclusion zone is within the Proposed Development boundary.

Sett 10 is located at **chainage 6700m** (approximately 100m west of the Proposed Development boundary). The sett contained two entrances, on the bank of the KNOCKERSALLY_or_COLEHILL river. There were large fresh spoil heaps on each entrance. The sett was classified as a breeding sett, and a precautionary 50m exclusion zone was applied. The sett itself is over 50m from the Proposed Development boundary with 6m of clearance between the 50m exclusion zone and the Proposed Development boundary so, it is imperative that protective fencing with signage must be erected in a 50m radius around the sett before commencement of any works to avoid disturbing the badgers or collapsing the sett.



Plate 13. Largest entrance to sett 10 on the riverbank.

Sett 11 was located at chainage 7000 (within the Proposed Development boundary). The sett had two entrance and a large clean entrance directly under tree against trunk with moderate spoil heap. This sett was confirmed as a breeding sett as two cubs and sow observed during emergent survey summer 2025.



Plate 14. North entrance to sett 11.

Sett 12 was located at **chainage 7400m** (Approximately 97m southeast of the Proposed Development boundary). The sett was situated in an earthen bank within a deciduous patch of woodland. The sett was used regularly by one badger. Based on these observations, the sett was not classified as a breeding sett, and a precautionary 30m exclusion zone was applied. There is less than a meter of clearance between the 30m exclusion zone and the Proposed Development boundary so, it is imperative that protective fencing with signage must be erected in a 30m radius around the sett before commencement of any works to avoid disturbing the badgers or collapsing the sett.



Plate 15. Entrance to sett 12.

Sett 13 was located at **chainage 9300m** (Approximately 51m north of the Proposed Development boundary). Fresh bedding was noted at this location multiple times however its small size ruled it out as a breeding sett, and a precautionary 30m exclusion zone was applied. The sett itself is located a mere 5m from the Proposed Development boundary so, it is imperative that protective fencing with signage must be erected in a 30m radius around the sett before commencement of any works to avoid disturbing the badgers or collapsing the sett.



Plate 16. Entrance to sett 13.

Sett 14 was at **chainage 9900m** (Approximately 140 meters west of the Proposed Development boundary). This sett had a large spoil heap indicating a deep sett with fresh badger prints at the entrance. Despite its active use, camera trap footage revealed it was not a breeding sett. No fencing or signage is required as it is approximately 90m from the Proposed Development boundary.



Plate 17. Entrance to sett 14.

Sett 15 was at **chainage 10000m** (approximately 370m east of the Proposed Development boundary). This sett is one of the largest noted during this mammal survey. It backed out from the field into a drainage ditch with the height of

the spoil heap being approximately 1.5m. A large boar badger was noted digging out this sett night after night in preparation for mating. Due to these observations, this sett was classified as a breeding sett. The exclusion zone of 50m as a clearance of approximately 210m from the Proposed Development boundary so, no fencing or signage will be necessary for this sett.



Plate 18. *Spoil heap at the rear side of sett 15.*



Plate 19. *Boar badger doing maintenance digging, pictured at sett entrance.*

Sett 16 was located at **chainage 10000m** (approximately 326m east from the Proposed Development boundary). This sett was adjacent (12.5 meters south) to sett 15 and is believed to hold the same family of badgers. This sett has two additional entrances. The sett entrance displayed fresh bedding and a large spoil heap. The features and badger use of this sett have had it classified as a breeding sett with an exclusion zone of 50m. Similar to sett 15, the sett is far away from the Proposed Development boundary so no fencing and signage is required.



Plate 20. *Entrance to sett 16.*



Plate 21. *Screengrab from camera trap video, depicting badger entering sett 16.*

Sett 17 was at **chainage 10000m** (approximately 525 meters west of the Proposed Development boundary). The sett was located on the banks of the river Boyne. The sett was active with a small and fresh spoil heap however, the sett was quite small and was classified a subsidiary sett with an exclusion zone of 30m. The sett is well away from the Proposed Development boundary and will not require any signage or fencing.



Plate 22. *Entrance to sett 17.*

Sett 18 was at **chainage 10500m** (approximately 550m east of the Proposed Development boundary). This sett was in an area of lots of badger activity. Camera trap footage revealed a male and female badger repeatedly entering the sett. A pine martin was also noted in this footage, traversing across the sett entrance. The sett has been classified as a breeding sett and given a 50m exclusion zone. There is approximately 19m clearance between the exclusion zone and Proposed Development boundary. There will be no need for fencing or signage here. It is imperative that all works and machinery stay within the confines of the Proposed Development boundary.



Plate 23. *Entrance to sett 18.*

Sett 19 was at **chainage 10600m** (approximately 117m northeast of the Proposed Development boundary). This sett was in an area of high mammal activity. The sett has four clear entrances, three of which were fresh spoil and tracks. Camera trap footage revealed two adults and at least one, possibly two adolescents using the sett. Due to these observations, this sett was classified as a breeding sett with a 50 meter exclusion zone. There is approximately 17 meter clearance between the exclusion zone and the Proposed Development boundary. There will be no need for fencing or signage here. It is imperative that all works and machinery stay within the confines of the Proposed Development boundary.



Plate 24. *Main entrance to sett 19 with machete at opening for scale.*



Plate 25. *Second entrance to sett 19.*



Plate 26. *Third entrance to sett 19.*



Plate 27. *Fourth entrance to sett 19.*

Sett 20 was located at **chainage 10500m** (within the Proposed Development boundary). This sett was proximate to two breeding setts and in an area of badger activity. A camera trap was deployed in January of 2026 and found badgers using both entrances of the sett. It was not classified as a breeding sett and awarded a 30m exclusion zone.

Sett 21 was located at **chainage 10900m** (approximately 400m west of the Proposed Development boundary). The sett had two entrances with snuffle holes and latrines in its proximity. This sett was used regularly, had a large entrance and fresh bedding was noted here on multiple occasions. For these observations, the sett was classified as a breeding sett and given a 50m exclusion zone. The sett is well away from the Proposed Development boundary so this sett does not need any fencing or signage.



Plate 28. *Largest entrance to sett 21.*



Plate 29. *Second entrance to sett 21.*

Sett 22 was located at **chainage 11000m** (approximately 105 meters west from the Proposed Development boundary). The sett has two entrances, One in the treeline and another on the flat ground. Camera trap footage revealed that a male and female badger were using the sett. Based on these observations, the sett was classified as a breeding sett and given a 50 meter exclusion zone. There is 15m of clearance between the exclusion zone and the Proposed Development boundary No fencing or signage will be need at this sett however; It is imperative that all works and machinery stay within the confines of the Proposed Development boundary.



Plate 30. *Main entrance to sett 22.*



Plate 31. *Second entrance on flat ground to sett 22.*

Sett 23 was located at **chainage 12400m** (western edge of Proposed Development boundary). This sett had a large spoil heap and appeared in use. A camera trap was deployed in January of 2026 which revealed it was not a breeding sett and awarded a 30m exclusion zone. The exclusion zone extended into the Proposed Development boundary therefore protective fencing and signage will be required to prevent collapsing the sett.



Plate 32. *Second entrance on flat ground to sett 23.*

Sett 24 was located at **chainage 13600m** (within Proposed Development boundary). Fresh latrines were found in the boundaries of the fields of sett. There was some bedding noted however, this sett was not classified as a breeding sett and awarded a 30m exclusion zone. The sett is within the Proposed Development boundary and will require protective fencing and signage.



Plate 33. *Second entrance on flat ground to sett 24.*

Sett 25 was at **chainage 15100m** (approximately 250 meters west from the Proposed Development boundary). The sett had three entrances with fresh excavations and bedding. Due to the freshness of the spoil heap, its shape and size, this sett was classified as a breeding sett and was given a 50m exclusion zone. There is a 125m clearance between the exclusion zone and the Proposed Development boundary, so, there will be no need for protective fencing and signage around this sett.



Plate 34. *Main entrance to sett 25.*

Sett 26 was located at entrance **chainage 15400m** (approximately 125 meters west of the Proposed Development boundary). The area around this sett had indicators such as snuffle holes and latrines which indicated mammal activity. The sett was located outside the accessible area of the mammal survey; however, visibility of the entrance way was possible. The size and activity of the sett classified it as a breeding sett giving it a 50m exclusion zone. There is approximately 25m clearance between the exclusion zone and the Proposed Development boundary so fencing and signage will not be necessary around this set. However, It is imperative that all works and machinery stay within the confines of the Proposed Development boundary.



Plate 35. *Entrance to sett 26.*

Sett 27 was located at **chainage 15600** (just east of the Proposed Development boundary). Sett 27 was located proximate to two large breeding setts, had a fresh spoil and a clean entrance. It was classified as a subsidiary sett and awarded a 30m exclusion zone. The exclusion zone does not extend into the Proposed Development boundary therefore no fencing will be required.



Plate 36. *Entrance to sett 27.*

Sett 28 was located at **chainage 16900m** (approximately 144m east of the Proposed Development boundary). This sett was located on a slope of a drainage ditched at the bottom of a shrubby treeline. Camera trap footage revealed one badger using the sett regularly. This sett was classified as an active, non-breeding sett giving it a 30m exclusion zone. There is approximately 60m of clearance between the exclusion zone and the Proposed Development boundary so, no fencing or signage will be necessary for this sett.



Plate 37. *Entrance to sett 28.*



Plate 38. *Badger leaving sett 28.*

Sett 29 was located at **chainage 18500m** (Approximately 120m west of the Proposed Development boundary). This sett was located on a country lane. It was a new dig with a large spoil heap and fresh bedding. Based on these observations, the sett was classified as a breeding sett with a 50m exclusion zone. There is a clearance of 20m between the exclusion zone and the Proposed Development boundary so protective signage and fencing will not be necessary.



Plate 39. *Entrance to sett 29 with large spoil heap.*

Sett 30 was located at chainage 19600m (just west of the Proposed Development boundary). The sett had two entrances, fresh spoil and a clean entrance. The spoil heap was limited and there was very little fresh bedding. The sett was classified as active and awarded a 30m exclusion zone. The exclusion zone of the most east of the two entrances does extend into the Proposed Development boundary by approximately 5.5m. Protective fencing and signage must be erected here.



Plate 40. *Entrance to sett 30 with large spoil heap.*

Sett 31 was located at **chainage 19800m** (approximately 163m west of the Proposed Development boundary). This sett was not a new dig, however it was evident that the bedding was fresh. The sett was in an area of high mammal activity. Camera trap footage revealed that two badgers and a possible third, were using the sett on a consistent basis. Based on these observations, the sett was classified as a breeding sett with a 50m exclusion zone. There is approximately 65m of clearance between the exclusion zone and the Proposed Development boundary route so protective fencing and signage will not be necessary.



Plate 41. *Entrance to sett 31.*



Plate 42. *Two badgers emerging from sett 31.*

Sett 32 was located at **chainage 19800m** (approximately 58m west of the Proposed Development boundary). The sett was located in a scrubby hedgerow and had signs of active use. It was quite close to sett 32 and in an area of high mammal activity. Camera trap footage revealed that one badger was using the sett regularly. Based on these observations, it was classified as an active subsidiary sett with a 30m exclusion zone. As there is no clearance between the exclusion zone and the Proposed Development boundary and the sett itself being approximately 7m from the Proposed Development boundary, protective fencing and signage will be necessary to outline the exclusion zone.



Plate 43. *Sett 32 entrance (behind scrub).*

Sett 33 was located at **chainage 20500m** (approximately 232m southeast of the Proposed Development boundary). Was located on the bank of a wet drainage ditch. No camera trap was deployed here however, due to its size, shape and indicators of active use it cannot be ruled out as breeding sett. As per breeding sett classification, a 50m exclusion zone has been awarded to this sett. There is approximately 122m clearance between the protective exclusion zone and the Proposed Development boundary route boundary so no protective fencing or signage will not be necessary.



Plate 44. *Sett 33 entrance.*

Sett 34 was located at **chainage 21000m** (Approximately 155m east of the Proposed Development boundary). The sett is located on the bank of a wet drainage ditch. No camera trap was deployed here however, due to its size, shape and indicators of active use it cannot be ruled out as breeding sett. As per breeding sett classification, a 50m exclusion zone has been awarded to this sett. There is approximately 55m clearance between the protective exclusion zone and the Proposed Development boundary boundary so no protective fencing or signage will be necessary.



Plate 45. *Sett 34 entrance.*

Sett 35 was located at chainage 21800m (just east of the Proposed Development boundary). The sett had fresh spoil however, it was small and classified as a subsidiary sett. There were strong tracks leading to this sett. An active sett is awarded a 30m exclusion zone and will require protective fencing and signage as the sett is located at the edge of the Proposed Development boundary.



Plate 46. *Sett 35 entrance.*

Sett 36 was located at chainage 21800m (just east of the Proposed Development boundary). The sett had an entrance on each side of hedgerow/fence. A small spoil heap was noted on east side with Clean entrance. This, with the light trails leading to the sett indicated the set was likely a subsidiary sett. Sett 36 was awarded an 30m exclusion zone and will require protective fencing and signage as the sett is located at the edge of the Proposed Development boundary.



Plate 47. *Sett 36 entrance.*

Sett 37 was located at **chainage 22000m** (approximately 43m east of the Proposed Development boundary). The sett showed signs of active use but was consider too small for a breeding sett classification. As an active subsidiary sett, it was awarded a 30m exclusion zone. As there is no clearance between the exclusion zone and the Proposed Development boundary and 17m between sett itself and the Proposed Development boundary, protective fencing and signage will be needed around the exclusion zone.

Sett 38 was located at **chainage 22200m** (approximately 63m east from the proposed route.) This sett was close to sett 38 and had four entrances, three of which had fresh spoil. Badger hair was found on the barbed wire quite close to one of the entrances. Based on these observations, the sett was classified as a breeding sett and awarded a 50m exclusion zone. As there is no clearance between the exclusion zone and the Proposed Development boundary and the sett itself being approximately 18m from the Proposed Development boundary, protective fencing and signage will be necessary to outline the exclusion zone.



Plate 48. *Entrance 1 to sett 38.*



Plate 49. *Entrance 2 to sett 38.*



Plate 50. *Entrance 3 to sett 38.*

Sett 39 was located at **chainage 22700m** (Approximately 143m north from the Proposed Development boundary). There are four entrances noted in total, three of which were old with no fresh bedding. The fourth entrance showed signs of active use with fresh spoil and bedding. Based on these observations the sett was classified as an active subsidiary sett and was awarded a 30m exclusion zone. As there is approximately 46m of clearance between the exclusion zone and the Proposed Development boundary, fencing and signage around the exclusion zone will not be necessary.



Plate 50. *Entrance 3 to sett 39.*

Sett 40 was located at chainage 23200 (just northwest of the Proposed Development boundary). The set had a double entrance with fresh digging, large spoil, fresh bedding and in an area of mammal activity with latrines noted in the area. For this reason sett 40 classified as a breeding sett and awarded a 50m exclusion zone. The exclusion zone extends into the Proposed Development boundary by approximately 30m therefore protective fencing and signage must be erected.



Plate 51. *East entrance to sett 40.*



Plate 52. *West entrance to sett 40.*

Sett 41 was located off the chainage path. Its coordinates are as follows 53°17'31.7"N 7°08'49.6"W. This sett was classified an active subsidiary sett due it its small size and fresh bedding.



Plate 53. Entrance to sett 41 with a machete for scale.

Non-volant mammal assessment findings

Review of local mammal records

The review of existing terrestrial mammal records (sourced from NBDC Database) within a 10km² grid (Reference grid N52, N53, N62,N63,N64) encompassing the study area reveals that twelve known Irish species have been observed locally (Table 3.)

Table 3: Status of non-volant mammal species within the 10km² grid (N52).

Species name	Date of last record	Title of dataset	Designation
American Mink (<i>Neovison vison</i>)	15/03/2017	National Invasive Species Database	Invasive Species: EU Invasive Alien Species Regulation No. 1143/2014 Invasive Species: Regulation S.I. 477/2011 (Ireland) Invasive Species: High Risk Invasive Species (2013 Report) Invasive Species: Regulation S.I. 374/2024 (Ireland) Invasive Species: The Wildlife (Northern Ireland) Order 1985
Badger (<i>Meles meles</i>)	09/05/2018	Mammals of Ireland 2016-2025	Protected Species: Wildlife Acts
Brown Long-eared Bat (<i>Plecotus auritus</i>)	22/06/2021	National Bat Database of Ireland	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts
Brown Rat (<i>Rattus norvegicus</i>)	15/05/2017	National Invasive Species Database	Invasive Species: High Risk Invasive Species (2013 Report)
Common Pipistrelle (<i>Pipistrellus pipistrellus sensu stricto</i>)	30/08/2021	National Bat Database of Ireland	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts

Daubenton's Bat (<i>Myotis daubentonii</i>)	31/08/2021	National Bat Database of Ireland	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts
Fallow Deer (<i>Dama dama</i>)	13/03/2015	General Biodiversity Records from Ireland	Invasive Species: Regulation S.I. 477/2011 (Ireland) Invasive Species: High Risk Invasive Species (2013 Report) Invasive Species: Regulation S.I. 374/2024 (Ireland) Protected Species: Wildlife Acts
Greater White-toothed Shrew (<i>Crocidura russula</i>)	17/10/2020	Mammals of Ireland 2016-2025	Invasive Species: Medium Risk Invasive Species (2013 Report)
Grey Squirrel (<i>Sciurus carolinensis</i>)	31/12/2012	Irish Squirrel Survey 2012	Invasive Species: EU Invasive Alien Species Regulation No. 1143/2014 Invasive Species: Regulation S.I. 477/2011 (Ireland) Invasive Species: High Risk Invasive Species (2013 Report) Invasive Species: Regulation S.I. 374/2024 (Ireland)
Hedgehog (<i>Erinaceus europaeus</i>)	23/07/2023	Hedgehogs of Ireland	Protected Species: Wildlife Acts
Leisler's Bat (<i>Nyctalus leisleri</i>)	18/05/2019	National Bat Database of Ireland	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts
Natterer's Bat (<i>Myotis nattereri</i>)	18/05/2009	National Bat Database of Ireland	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts
Otter (<i>Lutra lutra</i>)	22/12/2018	Mammals of Ireland 2016-2025	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex II Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts
Pine Marten (<i>Martes martes</i>)	15/06/2021	Mammals of Ireland 2016-2025	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex V Protected Species: Wildlife Acts
Pipistrelle (<i>Pipistrellus pipistrellus sensu lato</i>)	21/10/2008	National Bat Database of Ireland	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts
Pygmy Shrew (<i>Sorex minutus</i>)	21/05/2019	Mammals of Ireland 2016-2025	Protected Species: Wildlife Acts
Rabbit (<i>Oryctolagus cuniculus</i>)	29/10/2014	General Biodiversity Records from Ireland	Invasive Species: Medium Risk Invasive Species (2013 Report)
Red Squirrel (<i>Sciurus vulgaris</i>)	04/04/2023	Mammals of Ireland 2016-2025	Protected Species: Wildlife Acts
Soprano Pipistrelle (<i>Pipistrellus pygmaeus</i>)	10/06/2021	National Bat Database of Ireland	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts

Evaluation of results

The mammal surveys comply with CIEEM guidelines.

A total of six terrestrial mammal species were confirmed within the survey area by visual confirmation and behavioural evidence: badger (*Meles meles*), fox (*Vulpes vulpes*), rabbit (*Oryctolagus cuniculus*), pine Marten (*Martes martes*), wood mouse (*Apodemus sylvaticus*), hare (*Lepus timidus hibernicus*) and unconfirmed deer species.

During the 2025 survey, 31 active badger setts were identified. During the 2026 surveys, 10 active badger setts were identified. A total of 41 active badger sets were noted within the survey area. Numerous sightings of foxes and rabbits in addition to their dens and warrens were made during the survey. The active setts noted along the pipeline route and the associated compound areas are listed in table 1 & 2 along with the sett number, chainage, fencing requirements and exclusion zone. The required exclusion zone has been placed around each of the badger setts, its

distance is depending on each setts activity level (50m for a breeding sett (during breeding season from December to June inclusive) and 30m for all other active setts) in line with the National Roads Authority (NRA) Guidelines (2005).

A review of existing records revealed that eleven additional species, west European hedgehog (*Erinaceus europaeus*), pine marten (*Martes martes*), brown rat (*Rattus norvegicus*), grey squirrel (*Sciurus carolinensis*), red squirrel (*Sciurus vulgaris*), pygmy shrew (*Sorex minutus*), greater white – toothed shrew (*Crocidura russula*), American mink (*Neogale vision*), ferret (*Mustela putorius furo*), fallow deer (*Dama dama*) and feral goat (*Capra hircus*) have been recorded in the vicinity of the survey area.

Mammal surveys were conducted on the 9th, 17th of December 2024, the 20th,21st, 29thand 30th of January, the 4th,5th,10th, 14th and 18th of February and the 11th and 18th of March 2025. The survey areas encompassed the entirety of each field that was the proposed route and the proposed development boundary passed through, as well as those adjacent again where required. The surveys in 2026 were conducted on the 13th, 14th,15th, 20th, 21st, 22nd of January of 2026 and the 12th and 13th of March 2026. Surveys in 2026 were confined to the 50m either side of the Proposed Development boundary and 150m out at water crossings.

Overall, considering the scale of the site, the survey area is of moderate to high importance to mammal species, particularly badgers. Forty- one active setts (eighteen of which are classified as breeding setts) were noted within or in relative proximity to the proposed 23km pipeline route and compound areas. The badger is a protected species under the Wildlife Act. It is standard best practice to make special provisions for badgers affected by development, specifically the implementation of exclusion zones around setts in line with the National Roads Authority (NRA) Guidelines(2005). The required exclusion zones of 20 of the setts cross over into, or border, the Proposed Development site. Protective fencing and signage must be placed along the perimeter of exclusion zones of these setts. In relation to badger sett 41 in the O’Gradys Option 2 compound area, a preconstruction activity assessment is required to determine activity of the sett. An appropriate exclusion zone will be determined by a mammal specialist prior to this site compound being used by machinery.

Otters are known to utilize watercourses that the proposed development route traverses. Throughout the survey, evidence of otter activity was actively sought; however, a single otter footprint was noted at watercourse WCX4. Camera traps were deployed along the watercourses, but no otter activity was captured. It is considered likely that otters use these watercourses; however, due to their secretive and elusive nature, the absence of recorded evidence does not negate their presence or use of the watercourses.

Potential impact of the development on non-volant fauna

Due to the high levels of mammal activity within the survey area, and considering the overall size of the survey area, a short-term moderate adverse impact on protected non-volant terrestrial mammals is foreseen as a result of the proposed development in the absence of mitigation. Mitigation measures are necessary to protect the badger setts and there foraging areas.

Limitations

There were minimal limitations in relation to the surveys associated with this report. Suitable habitat exists on site for pine marten which has previously been recorded in the surrounding area. Additional surveys may have been required to detect transient use of this species on site; however, no scat of this species was observed. Weather conditions had minimal impact on the execution of the survey.

Mitigation measures

Overall, proposed site outline within the survey area is of moderate to high importance to the local non-volant terrestrial mammal population. However, the impact of the development during construction phase will be a loss of existing habitats and species. The following mitigation measures relevant to mammals, as well as those outlined within the accompanying NIS and EIAR, shall be implemented to minimise any potential negative impact on biodiversity:

- An Ecological Clerk of Works (ECoW) will be appointed to oversee the construction phase and to oversee the implementation of all mitigation including compliance with Wildlife Acts and Water Pollution Acts and ensure that biodiversity in neighbouring areas including birds will not be impacted.
- All mitigation measures outlined in the EIAR Chapters and Natura Impact Statement (NIS) that pertain to the construction stage of the proposed development will be implemented by the Contractor.
- Preconstruction surveys for mammals will be carried out along the full route given the time between the original surveys and possible site clearance.
- In the vicinity of badger setts, no construction operations will take place only during daylight hours.
- To prevent badgers from climbing into pipes, gas pipes arriving onsite will be clean and sealed. Pipes in storage will be sealed. Open-cut trenches will have sloped face at the end of each of working day to allow badgers to exit.
- Fencing outlining the site boundary is planned to be erected for the entirety of the project. As directed by the ECoW mammal access points will be placed and monitored along the pipeline route. In areas of fencing close to known badger setts, access points will be made along existing tracks. Additional, access points will be made close to ecological corridors such as hedgerows, treelines, watercourses and drainage ditches.
- The effectiveness of the proposed mitigation will be monitored by the ECoW throughout the works.
- Where the required exclusion zone of badger setts encroach into the proposed construction corridor, protective fencing and signage will be put in place to maintain the integrity of the exclusion zones.

Any construction works required outside the construction corridor will require prior approval from the project ECoW.

Predicted residual impact of development.

Following mitigation, the overall impact on the ecology of the proposed development will result in a short-term minor adverse, not significant, residual impact on the ecology of the site and locality overall.

A pre-construction survey will be carried out for terrestrial mammals of conservation importance. It is imperative that all works are carried out within the construction corridor and that fencing is erected before the commencement of works. A NPWS derogation licence is not required for the proposed development.

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