



DESIGNING AND DELIVERING
A SUSTAINABLE FUTURE

APPENDIX 11

Biodiversity

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DESIGNING AND DELIVERING
A SUSTAINABLE FUTURE

APPENDIX 11.1

Desktop Species Records for
the Proposed Development &
Proposed Gas Pipeline Route

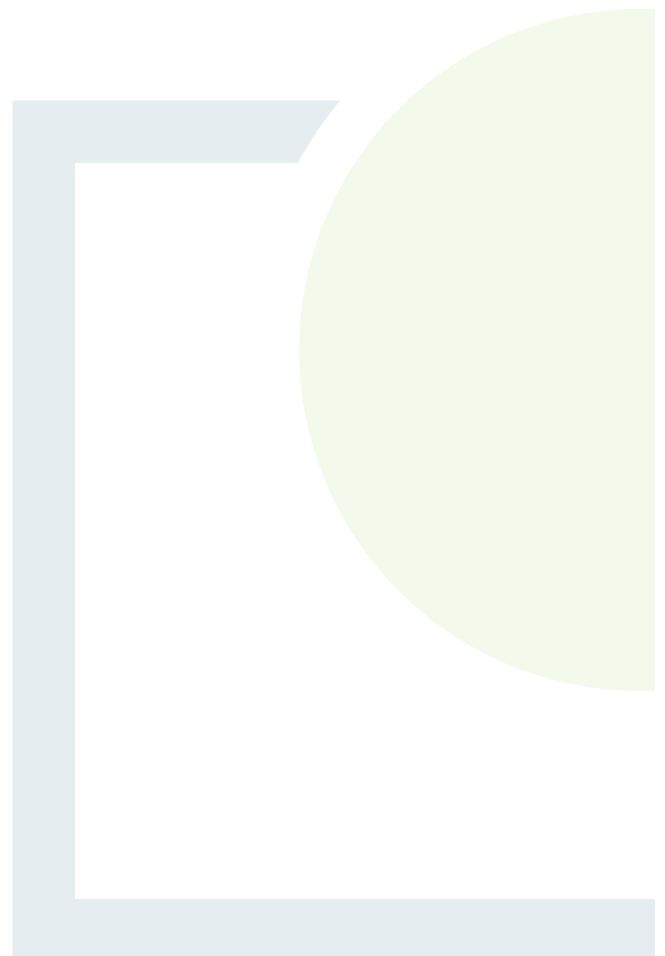




Table A: NBDC species records for the 2km² grids S76E (site), S76D, S66Y, S66Z and S67V (gas pipeline)

Species (Latin Name)	Latest record: Site grid	Latest record: Gas pipeline grid	Designation
Mammals			
Badger (<i>Meles meles</i>)	31/12/2009	18/08/2018	Wildlife Acts
Common Pipistrelle (<i>Pipistrellus pipistrellus sensu stricto</i>)		03/10/2015	EU Habitats Directive: Annex IV. Wildlife Acts
Daubenton's Bat (<i>Myotis daubentonii</i>)		03/10/2015	EU Habitats Directive: Annex IV. Wildlife Acts
Hedgehog (<i>Erinaceus europaeus</i>)	14/04/2018	11/05/2022	Wildlife Acts
Red Squirrel (<i>Sciurus vulgaris</i>)		21/09/2014	Wildlife Acts
Soprano Pipistrelle (<i>Pipistrellus pygmaeus</i>)		03/10/2015	EU Habitats Directive: Annex IV. Wildlife Acts
Birds			
Barn Owl (<i>Tyto alba</i>)	25/06/2021	23/10/2025	Wildlife Acts. BoCCI Red List
Black-headed Gull (<i>Chroicocephalus ridibundus</i>)	07/11/2020	03/03/2020	Wildlife Acts. BoCCI Amber List
Brambling (<i>Fringilla montifringilla</i>)			Wildlife Acts. BoCCI Amber List
Cormorant (<i>Phalacrocorax carbo</i>)	11/01/2025	11/01/2025	Wildlife Acts. BoCCI Amber List
Curlew (<i>Numenius arquata</i>)		12/12/2021	Wildlife Acts. EU Birds Directive: Annex II. BoCCI Red List
Goldcrest (<i>Regulus regulus</i>)	09/03/2018	19/01/2019	Wildlife Acts. BoCCI Amber List
Golden Plover (<i>Pluvialis apricaria</i>)	26/12/2020	22/10/2025	Wildlife Acts. EU Birds Directive: Annex I, Annex II, Annex III. BoCCI Red List
Great Spotted Woodpecker (<i>Dendrocopos major</i>)		21/05/2023	Wildlife Acts
Greenfinch (<i>Chloris chloris</i>)	31/12/2011	31/12/2011	Wildlife Acts. BoCCI Amber List
Grey Wagtail (<i>Motacilla cinerea</i>)	07/06/2020	04/06/2022	Wildlife Acts. BoCCI Red List
House Martin (<i>Delichon urbicum</i>)	01/06/2013	28/04/2018	Wildlife Acts. BoCCI Amber List
House Sparrow (<i>Passer domesticus</i>)	31/12/2011	21/05/2016	Wildlife Acts. BoCCI Amber List
Kestrel (<i>Falco tinnunculus</i>)	05/02/2023	15/05/2023	Wildlife Acts. BoCCI Red List



Species (Latin Name)	Latest record: Site grid	Latest record: Gas pipeline grid	Designation
Kingfisher (<i>Alcedo atthis</i>)	07/05/2021	19/09/2025	Wildlife Acts. EU Birds Directive: Annex I. BoCCI Amber List
Lapwing (<i>Vanellus vanellus</i>)	11/01/2025	01/01/2025	Wildlife Acts. EU Birds Directive: Annex II. BoCCI Red List
Lesser Black-backed Gull (<i>Larus fuscus</i>)	26/10/2022	10/03/2024	Wildlife Acts. BoCCI Amber List
Linnet (<i>Linaria cannabina</i>)	10/04/2021	26/05/2023	Wildlife Acts. BoCCI Amber List
Little Egret (<i>Egretta garzetta</i>)	26/10/2022	16/06/2024	Wildlife Acts. EU Birds Directive: Annex I
Little Grebe (<i>Tachybaptus ruficollis</i>)	05/03/2020	31/12/2011	Wildlife Acts
Mallard (<i>Anas platyrhynchos</i>)	26/10/2022	25/01/2025	Wildlife Acts. EU Birds Directive: Annex II, Annex III. BoCCI Amber List
Meadow Pipit (<i>Anthus pratensis</i>)	13/05/2020	13/01/2018	Wildlife Acts. BoCCI Red List
Merlin (<i>Falco columbarius</i>)	17/11/2020	11/01/2025	Wildlife Acts. EU Birds Directive: Annex I. BoCCI Amber List
Mistle Thrush (<i>Turdus viscivorus</i>)	13/04/2018	26/05/2023	Wildlife Acts
Mute Swan (<i>Cygnus olor</i>)	26/08/2012	26/05/2023	Wildlife Acts. BoCCI Amber List
Peregrine (<i>Falco peregrinus</i>)		15/04/2015	Wildlife Acts. EU Birds Directive: Annex I
Pheasant (<i>Phasianus colchicus</i>)	29/11/2020	08/03/2019	Wildlife Acts. EU Birds Directive: Annex II. Annex III
Redwing (<i>Turdus iliacus</i>)	09/03/2018	11/01/2025	Wildlife Acts. BoCCI Red List
Robin (<i>Erithacus rubecula</i>)	11/01/2025	11/01/2025	Wildlife Acts
Rock Dove (<i>Columba livia</i>)		04/07/2012, 11/01/2025	Wildlife Acts. EU Birds Directive: Annex II
Ruff (<i>Calidris pugnax</i>)	01/11/2022		Wildlife Acts. EU Birds Directive: Annex I. BoCCI Amber List
Sand Martin (<i>Riparia riparia</i>)	10/04/2021	28/04/2021	Wildlife Acts. BoCCI Amber List
Skylark (<i>Alauda arvensis</i>)	10/04/2021	11/01/2025	Wildlife Acts. BoCCI Amber List
Snipe (<i>Gallinago gallinago</i>)	11/01/2025	31/12/2011	Wildlife Acts. EU Birds Directive: Annex II, Annex III. BoCCI Red List
Sparrowhawk (<i>Accipiter nisus</i>)	26/10/2022	16/04/2023	Wildlife Acts
Spotted Flycatcher (<i>Muscicapa striata</i>)		04/07/2012	Wildlife Acts. BoCCI Amber List
Starling (<i>Sturnus vulgaris</i>)	11/01/2025	26/05/2023	Wildlife Acts. BoCCI Amber List
Stock Dove (<i>Columba oenas</i>)	10/04/2021		Wildlife Acts. BoCCI Red List



Species (Latin Name)	Latest record: Site grid	Latest record: Gas pipeline grid	Designation
Stonechat (<i>Saxicola rubicola</i>)		31/12/2011	Wildlife Acts
Swallow (<i>Hirundo rustica</i>)	01/06/2013	26/05/2023	Wildlife Acts. BoCCI Amber List
Swift (<i>Apus apus</i>)		07/07/2019	Wildlife Acts. BoCCI Red List
Teal (<i>Anas crecca</i>)		13/01/2018	Wildlife Acts. EU Birds Directive: Annex II, Annex III. BoCCI Amber List
Tree Sparrow (<i>Passer montanus</i>)	31/12/2011		Wildlife Acts. BoCCI Amber List
Willow Warbler (<i>Phylloscopus trochilus</i>)	13/04/2018	26/05/2023	Wildlife Acts. BoCCI Amber List
Woodcock (<i>Scolopax rusticola</i>)		05/12/2024	Wildlife Acts. EU Birds Directive: Annex II, Annex III. BoCCI Red List
Yellowhammer (<i>Emberiza citrinella</i>)	10/03/2022	23/06/2017	Wildlife Acts. BoCCI Red List
Herperofauna			
No reptiles or amphibians			
Aquatic Invertebrates			
White-clawed Crayfish (<i>Austropotamobius pallipes</i>)		29/09/2014	EU Habitats Directive: Annex II, Annex V. Wildlife Acts
Invertebrates			
Gooden's Nomad Bee (<i>Nomada goodeniana</i>)	15/04/2023		Endangered
Moss Carder Bee (<i>Bombus muscorum</i>)		08/05/2018	Near threatened
Red-tailed Bumblebee (<i>Bombus lapidarius</i>)	06/04/2019	02/07/2022	Near threatened
Flora			
Fragrant Agrimony (<i>Agrimonia procera</i>)	01/06/2015		Near threatened
Greater Knapweed (<i>Centaurea scabiosa</i>)	14/06/2020		Near threatened
Invasive species			
American Mink (<i>Neovison vison</i>)	25/09/2010		EU Invasive Alien Species Regulation No. 1143/2014 & Invasive Species: Regulation S.I. 374/2024 - High risk (2013 Report)
Bank Vole (<i>Myodes glareolus</i>)	20/04/2018		Invasive Species: Medium Risk Invasive Species (2013 Report)



Species (Latin Name)	Latest record: Site grid	Latest record: Gas pipeline grid	Designation
Brown Rat (<i>Rattus norvegicus</i>)	13/03/2012	19/08/2012	Invasive Species: High Risk Invasive Species (2013 Report)
Greater White-toothed Shrew (<i>Crocidura russula</i>)		15/07/2020	Invasive Species: Medium Risk Invasive Species (2013 Report)
Grey Squirrel (<i>Sciurus carolinensis</i>)		31/12/2012	EU Invasive Alien Species Regulation No. 1143/2014 & Invasive Species: Regulation S.I. 374/2024 - High risk (2013 Report)
Rabbit (<i>Oryctolagus cuniculus</i>)	07/06/2015	01/06/2013	Medium Risk Invasive Species (2013 Report)
Jenkins' Spire Snail (<i>Potamopyrgus antipodarum</i>)		01/08/2018	Medium Risk Invasive Species (2013 Report)
Butterfly-bush (<i>Buddleja davidii</i>)	10/07/2015		Medium Risk Invasive Species (2013 Report)
Cherry Laurel (<i>Prunus laurocerasus</i>)		30/03/2019	High Risk Invasive Species (2013 Report)
Giant Hogweed (<i>Heracleum mantegazzianum</i>)	19/04/2019		EU Invasive Alien Species Regulation No. 1143/2014 & Invasive Species: Regulation S.I. 374/2024
Himalayan Balsam (<i>Impatiens glandulifera</i>)	21/08/2022	18/09/2022	EU Invasive Alien Species Regulation No. 1143/2014 & Invasive Species: Regulation S.I. 374/2024 - High risk (2013 Report)
Japanese Knotweed (<i>Fallopia japonica</i>)	10/04/2021		EU Invasive Alien Species Regulation No. 1143/2014 & Invasive Species: Regulation S.I. 374/2024 - High risk (2013 Report)
Nuttall's Waterweed (<i>Elodea nuttallii</i>)		31/12/2010	EU Invasive Alien Species Regulation No. 1143/2014 & Invasive Species: Regulation S.I. 374/2024 - High risk (2013 Report)
Sycamore (<i>Acer pseudoplatanus</i>)	21/05/2016	30/03/2019	Medium Risk Invasive Species (2013 Report)
Water Fern (<i>Azolla filiculoides</i>)		31/12/2021	EU Invasive Alien Species Regulation No. 1143/2014 & Invasive Species: Regulation S.I. 374/2024 - Moderate risk (2013 Report)
<i>Aphanomyces astaci</i>	31/08/2017		High Risk Invasive Species (2013 Report)



Table B: BSBI Plant Atlas 2020 (data from 2000-2019) for the 2km² grids S76E (site), S76D, S66Y, S66Z and S67V (gas pipeline)

Species (Latin Name)	Designation
Rare / Protected Plants	
Fragrant agrimony (<i>Agrimonia procera</i>)	Near Threatened
Basil thyme (<i>Clinopodium acinos</i>)	Near Threatened
Dwarf spurge (<i>Euphorbia exigua</i>)	Near Threatened
Invasive Plants	
Sycamore (<i>Acer pseudoplatanus</i>)	Medium Risk Invasive Species (2013 Report)
Butterfly-bush (<i>Buddleja davidii</i>)	Medium Risk Invasive Species (2013 Report)
Canadian waterweed (<i>elodea canadensis</i>)	EU Invasive Alien Species Regulation No. 1143/2014 & Invasive Species: Regulation S.I. 374/2024 - High risk (2013 Report)
Nuttall's waterweed (<i>Elodea nuttallii</i>)	EU Invasive Alien Species Regulation No. 1143/2014 & Invasive Species: Regulation S.I. 374/2024 - High risk (2013 Report)
Giant hogweed (<i>Heracleum mantegazzianum</i>)	EU Invasive Alien Species Regulation No. 1143/2014 & Invasive Species: Regulation S.I. 374/2024
Himalayan balsam (<i>Impatiens glandulifera</i>)	EU Invasive Alien Species Regulation No. 1143/2014 & Invasive Species: Regulation S.I. 374/2024 - High risk (2013 Report)
Cherry laurel (<i>Prunus laurocerasus</i>)	High Risk Invasive Species (2013 Report)
Water fern (<i>Azolla filiculoides</i>)	EU Invasive Alien Species Regulation No. 1143/2014 & Invasive Species: Regulation S.I. 374/2024 - Moderate risk (2013 Report)



Table C: I-WeBS records Rver Barrow, Milford lock to the New Bridge Graiguecullen (upstream of site)

Species Name	Scientific Name	All Ireland 1%	Flyway 1%	2024/25	2023/24	2022/23	2021/22
Black-headed Gull	<i>Chroicocephalus ridibundus</i>			3	220	112	89
Cormorant	<i>Phalacrocorax carbo</i>	110	1200	4	-	2	3
Curlew	<i>Numenius arquata</i>	350	7600	14	11	-	25
Golden Plover	<i>Pluvialis apricaria</i>	920	9300	-	385	-	-
Grey Heron	<i>Ardea cinerea</i>	25	5000	3	2	1	3
Kingfisher	<i>Alcedo atthis</i>			1	1	-	1
Lapwing	<i>Vanellus vanellus</i>	850	72300	10	1	-	-
Lesser Black-backed Gull	<i>Larus fuscus</i>			-	2	-	-
Mallard	<i>Anas platyrhynchos</i>	280	53000	41	17	14	37
Moorhen	<i>Gallinula chloropus</i>			6	-	4	3
Mute Swan	<i>Cygnus olor</i>	90	100	30	25	25	48
Shoveler	<i>Spatula clypeata</i>	20	650	10	-	-	-
Teal	<i>Anas crecca</i>	360	5000	1	-	-	-
Wigeon	<i>Mareca penelope</i>	560	14000	12	-	-	-

Table D: I-WeBS records Rver Barrow, Rathvinden lock to Milford lock (adjacent to site)

Species Name	Scientific Name	All Ireland 1%	Flyway 1%	2024/25	2023/24	2022/23	2021/22
Black-headed Gull	<i>Chroicocephalus ridibundus</i>			250	29	-	-
Cormorant	<i>Phalacrocorax carbo</i>	110	1200	1	-	1	2
Golden Plover	<i>Pluvialis apricaria</i>	920	9300	350	-	-	-
Grey Heron	<i>Ardea cinerea</i>	25	5000	1	1	3	6
Lapwing	<i>Vanellus vanellus</i>	850	72300	-	-	-	350
Lesser Black-backed Gull	<i>Larus fuscus</i>			-	-	-	1
Little Egret	<i>Egretta garzetta</i>	20	1100	1	1	2	1
Little Grebe	<i>Tachybaptus ruficollis</i>	20	4700	-	-	-	1
Mallard	<i>Anas platyrhynchos</i>	280	53000	4	10	27	21
Moorhen	<i>Gallinula chloropus</i>			1	-	1	-
Mute Swan	<i>Cygnus olor</i>	90	100	2	2	1	3



Table E: I-WeBS records Rver Barrow, Goresbridge to Rathvinden lock (downstream of site)

Species Name	Scientific Name	All Ireland 1%	Flyway 1%	2024/25	2023/24	2022/23	2021/22
Mute Swan	<i>Cygnus olor</i>	90	100	58	53	46	45
Whooper Swan	<i>Cygnus cygnus</i>	150	340	16	16	35	22
Mallard	<i>Anas platyrhynchos</i>	280	53000	149	145	163	281
Little Grebe	<i>Tachybaptus ruficollis</i>	20	4700	1	5	3	-
Cormorant	<i>Phalacrocorax carbo</i>	110	1200	27	25	22	30
Little Egret	<i>Egretta garzetta</i>	20	1100	8	7	17	6
Grey Heron	<i>Ardea cinerea</i>	25	5000	7	7	14	12
Water Rail	<i>Rallus aquaticus</i>			1	-	1	-
Moorhen	<i>Gallinula chloropus</i>			13	7	12	14
Kingfisher	<i>Alcedo atthis</i>			1	1	2	1
Black-headed Gull	<i>Chroicocephalus ridibundus</i>			17	61	7	40
Lesser Black-backed Gull	<i>Larus fuscus</i>			7	2	178	-
Coot	<i>Fulica atra</i>	190	15500	-			1
Dipper	<i>Cinclus cinclus</i>			-			2
Golden Plover	<i>Pluvialis apricaria</i>	920	9300	-	450	-	80
Great White Egret	<i>Ardea alba</i>			-	1	-	-
Greylag Goose (resident)	<i>Anser anser</i>	35	980		2		
Lapwing	<i>Vanellus vanellus</i>	850	72300	-	10	-	90
Shelduck	<i>Tadorna tadorna</i>	100	2500	-	-	1	-
Snipe	<i>Gallinago gallinago</i>			-	-	-	4



Table F: IFI species records for the River Barrow from upstream to downstream monitoring stations

Monitoring Site Name	Year of survey	Fish Status (Fish status Change)	Species recorded
Upstream of site and Carlow (Barrow_160)			
Site Name: Bestfield_A	2015	Moderate (NA)	Brown trout; Dace; European eel; Perch; Roach; Salmon
	2021	Moderate (No change)	Brown trout; Dace; European eel; Minnow; Perch; Pike; Roach; Salmon
Site Name: Strawhall_A	2015	Poor (NA)	Dace; Gudgeon; Minnow; Perch; Pike; Roach
Site Name: Strawhall_B	2015	Poor (NA)	Dace; Perch; Roach
	2021	Moderate (Improvement)	Dace; Gudgeon; Minnow; Perch; Pike; Roach; Roach x Bream hybrid
Upstream of site and downstream of Carlow (Barrow_170)			
Site Name: Clogrennan Br._A	2015	Moderate (NA)	Dace; Gudgeon; Minnow; Perch; Pike; Roach; Stone loach
Site Name: Mortarstown Lower_A	2015	Moderate (NA)	Dace; Gudgeon; Minnow; Perch; Roach; Stone loach
	2021	Poor (Deterioration)	Dace; European eel; Perch; Roach
Downstream of site and Carlow (Barrow_180)			
Site Name: Leighlinbridge_A	2012	Moderate (NA)	Brown trout; Dace; European eel; Minnow; Roach; Salmon; Three-spined stickleback
Site Name: Dunleckny_A	2012	Good (N/A)	Brown trout; Dace; European eel; Gudgeon; Minnow; Perch; Pike; Roach; Salmon; Stone loach; Three-spined stickleback
	2015	Poor (Deterioration)	Dace; European eel; Perch; Roach
	2021	Moderate (Improvement)	Dace; Minnow; Perch; Roach; Three-spined stickleback



Table G: Q values for the River Barrow from upstream to downstream monitoring stations

Monitoring Station	Latest Q-value (Status) (year)	Lowest Q-value (most recent year)	Highest Q-value (most recent year)
River Barrow upstream of site and Carlow (Barrow_160)			
RS14B012150	4 (Good) (1994)	3-4 (Moderate) (1982)	4 (Good) (1994)
RS14B012200	3-4 (Moderate) (2023)	2-3 (Poor) (1974)	4 (Good) (2003)
River Barrow upstream of site and downstream of Carlow (Barrow_160)			
RS14B012400	1 (Bad) (1986)	1 (Bad) (1986)	2 (Bad) (1982)
RS14B012450	3 (Poor) (2003)	3 (Poor) (2003)	3-4 (Moderate) (1986)
RS14B012455	3-4 (Moderate) (2023)	3-4 (Moderate) (2023)	4 (Good) (2006)
River Barrow upstream of site and downstream of Carlow (Barrow_170)			
RS14B012500	3-4 (Moderate) (1989)	2 (Bad) (1976)	3-4 (Moderate) (1989)
RS14B012600	3-4 (Moderate) (2023)	2 (Bad) (1978)	4 (Good) (2006)
River Barrow downstream of site (Barrow_180)			
RS14B012680	3-4 (Moderate) (2023)	3-4 (Moderate) (2023)	4 (Good) (2009)



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Bird Records for the Proposed
Development & Proposed
Gas Pipeline Route

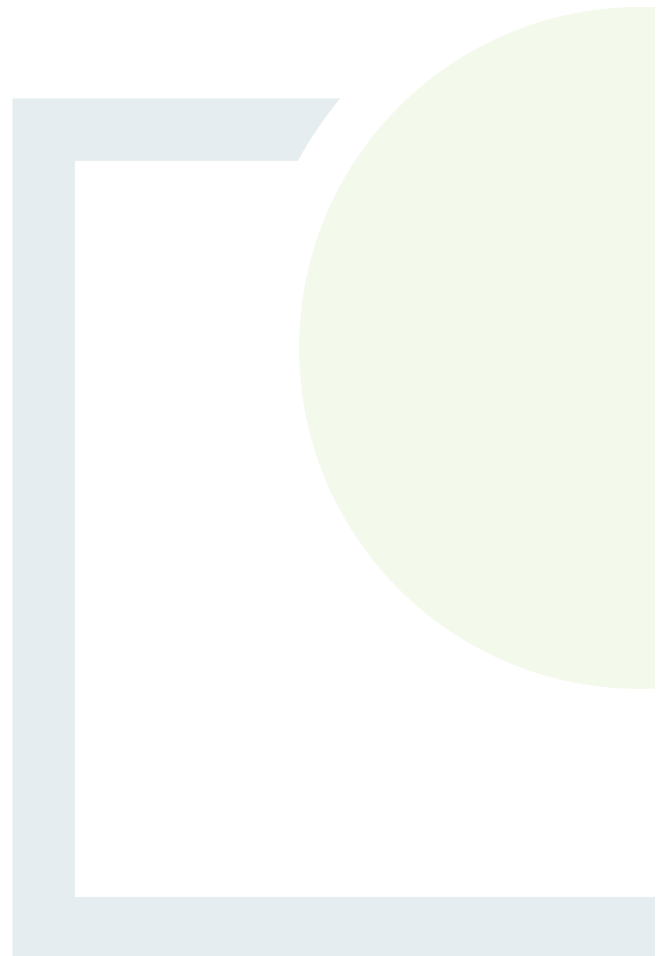


Table A: Species recorded during VP surveys

Date	Species	Quantity	Duration	Notes
29/01/2025	Golden Plover	90	70	Flying/circling over survey site, before departing towards the river Barrow
29/01/2025	Buzzard	1	45	Flyover survey site, harassed by hooded crow
02/02/2025	Black-headed Gull	11	58	Flyover from river Barrow area
02/02/2025	Lesser Black-backed Gull	28	60	Flyover and circling before departing
11/02/2025	Lesser Black-backed Gull	2	38	2x adults flying towards the river Barrow over site.
11/02/2025	Buzzard	1	36	Flying low over site, hunting
03/03/2025	Kestrel	1	50	Hunting before departing from site
03/03/2025	Lesser Black-backed Gull	32	73	Flock arrived in over site from the north, then circling before departing Southwest/West. Mostly adults
03/03/2025	Black-headed Gull	2	33	2 flying with LB flock, flew Southwest and didn't circle like LB flock
14/05/2025	Buzzard	1	44	Flying along the site boundary
10/06/2025	Buzzard	1	44	Flew across site before being harassed by a HC
25/08/2025	Black-headed Gull	1	33	Flyover site
13/11/2025	Skylark	16	25	Flyover flock, north
13/11/2025	Lesser Black-backed Gull	28	77	Mixed ages
13/11/2025	Buzzard	2	35	Two flying north over site
24/01/2026	Buzzard	1	38	Flying through site, heading North
04/03/2026	Sparrowhawk	1	107	Hunting, before perching in wooded area
04/03/2026	Meadow Pipit	3	35	Flew then landed
04/03/2026	Sand Martin	1	33	Flew North
04/03/2026	Buzzard	4	66	2 pairs. Flew towards the river Barrow

Table B: Species recorded during transect surveys

Date	Species Name	Scientific Name	Transect	Notes
24/01/2025	Great Spotted Woodpecker	Dendrocopos major	Old landfill	Adult female foraging in trees surrounding the landfill
24/01/2025	Grey Wagtail	Motacilla cinerea	Old landfill	Heard only. No age or sex obtained
24/01/2025	Feral Pigeon	Columba livia	Old landfill	Flyovers
24/01/2025	Dunnock	Prunella modularis	Old landfill	x2 birds calling and seen along hedgerow
24/01/2025	Linnet	Carduelis cannabina	Old landfill	x4
24/01/2025	Bullfinch	Pyrrhula pyrrhula	Old landfill	Male and female, bullfinch
27/01/2025	Sparrowhawk	Accipiter nisus	Old landfill	Flying towards the buildings at recycling centre, hunting as it went
27/01/2025	House Sparrow	Passer domesticus	Old landfill	Several heard calling near the main entrance
27/01/2025	Lesser Black-backed Gull	Larus fuscus	Old landfill	5x flyover. A regular sight in the general area in winter
27/01/2025	Rook	Corvus frugilegus	Old landfill	x7 flyovers
27/01/2025	Wren	Troglodytes troglodytes	Old landfill	x2 seen and heard from scrub and trees
27/01/2025	Magpie	Pica pica	Old landfill	x6 in trees and flying around the area, agitated by the SH flying through
27/01/2025	Starling	Sturnus vulgaris	Old landfill	x5 Flyovers
27/01/2025	Hooded Crow	Corvus cornix	Old landfill	x4 perched and flying around the area, also agitated when the SH flew through
27/01/2025	Robin	Erithacus rubecula	Old landfill	x2 singing and moving around scrub area
27/01/2025	Robin	Erithacus rubecula	Old landfill	x1 in song
27/01/2025	Blackbird	Turdus merula	Old landfill	x5, 3 males and 2 females. Agitated and alarm calling when SH flew through
27/01/2025	Pied Wagtail	Motacilla alba	Old landfill	x4, 2 pairs feeding along the muddy sections
27/01/2025	Woodpigeon	Columba palumbus	Old landfill	x4 perched in treeline
27/01/2025	Golden Plover	Pluvialis apricaria	Old landfill	x90 flyover towards the River Barrow
27/01/2025	Blue Tit	Cyanistes caeruleus	Old landfill	x3 feeding and calling from treeline
27/01/2025	Stonechat	Saxicola rubicola	Old landfill	x1 male feeding along scrub line

Date	Species Name	Scientific Name	Transect	Notes
27/01/2025	Redwing	<i>Turdus iliacus</i>	old landfill	x2 perched in treeline before flying off site
27/01/2025	Bullfinch	<i>Pyrrhula pyrrhula</i>	Old landfill	x2 Male and female in scrub
27/01/2025	Chaffinch	<i>Fringilla coelebs</i>	Old landfill	x2 flyover
27/01/2025	Siskin	<i>Carduelis spinus</i>	Old landfill	x1 flyover
27/01/2025	Skylark	<i>Alauda arvensis</i>	Old landfill	x1 flyover
27/01/2025	Buzzard	<i>Buteo buteo</i>	Old landfill	x1 flyover towards Kilcarrig quarry
27/01/2025	Green Sandpiper	<i>Tringa ochropus</i>	Kilcarrig Quarry	Feeding in a muddy quarry pool, before flying off and lost from view. Likely to be a regular enough visitor to the site and along the river Barrow, especially in winter
27/01/2025	Grey Wagtail	<i>Motacilla cinerea</i>	Kilcarrig Quarry	Feeding in muddy quarry pool
27/01/2025	Pied Wagtail	<i>Motacilla alba</i>	Kilcarrig Quarry	Feeding in muddy quarry pool
27/01/2025	Grey Wagtail	<i>Motacilla cinerea</i>	Kilcarrig Quarry	x2, Feeding along a muddy track
27/01/2025	Chaffinch	<i>Fringilla coelebs</i>	Kilcarrig Quarry	x35 flying through quarry area
27/01/2025	Kestrel	<i>Falco tinnunculus</i>	Kilcarrig Quarry	Flying along fields and over the entrance road into the quarry, attacked by Hooded crows
27/01/2025	Robin	<i>Erithacus rubecula</i>	Kilcarrig Quarry	x2 seen and heard, calling
27/01/2025	Yellowhammer	<i>Emberiza citrinella</i>	Old landfill	x1 flyover
27/01/2025	Jackdaw	<i>Corvus monedula</i>	Kilcarrig Quarry	x9 around quarry building's
27/01/2025	Rook	<i>Corvus frugilegus</i>	Kilcarrig Quarry	x11 around quarry building's
27/01/2025	Hooded Crow	<i>Corvus cornix</i>	Kilcarrig Quarry	x4, Feeding in quarry pool
27/01/2025	Fieldfare	<i>Turdus pilaris</i>	Kilcarrig Quarry	Perched in surrounding treeline
27/01/2025	Redwing	<i>Turdus iliacus</i>	Kilcarrig Quarry	Perched in surrounding treeline
27/01/2025	Blue Tit	<i>Cyanistes caeruleus</i>	Kilcarrig Quarry	x3 feeding along treeline
27/01/2025	Goldcrest	<i>Regulus regulus</i>	Kilcarrig Quarry	Feeding along treeline
27/01/2025	Blackbird	<i>Turdus merula</i>	Kilcarrig Quarry	x7, 5 males and 2 female feeding in open stubble field
27/01/2025	Dunnock	<i>Prunella modularis</i>	Kilcarrig Quarry	x3 feeding in scrub
27/01/2025	Skylark	<i>Alauda arvensis</i>	Kilcarrig Quarry	Feeding in open stubble field

Date	Species Name	Scientific Name	Transect	Notes
27/01/2025	Woodpigeon	Columba palumbus	Kilcarrig Quarry	x5 Flyover
27/01/2025	Song Thrush	Turdus philomelos	Kilcarrig Quarry	Washing in quarry pool
27/01/2025	Pied Wagtail	Motacilla alba	Kilcarrig Quarry	x2 flyover
27/01/2025	Linnet	Carduelis cannabina	Kilcarrig Quarry	x38 flyover flock
27/01/2025	Mallard	Anas platyrhynchos	Kilcarrig Quarry	x7, 4 males and 3 females on quarry pool
27/01/2025	Magpie	Pica pica	Kilcarrig Quarry	x4 flyover
27/01/2025	Goldfinch	Carduelis carduelis	Kilcarrig Quarry	x3 flyover
27/01/2025	Lesser Black-backed Gull	Larus fuscus	Kilcarrig Quarry	x4 flyover. 3 adult and 1 second winter
27/01/2025	Lapwing	Vanellus vanellus	Kilcarrig Quarry	x80 flyover towards river Barrow
27/01/2025	Golden Plover	Pluvialis apricaria	Kilcarrig Quarry	x50 flyover, high towards river Barrow
27/01/2025	Jackdaw	Corvus monedula	Old landfill	x3 flyover
13/02/2025	Chaffinch	Fringilla coelebs	Powerstown	x7 mix of 5 males and 2 females
13/02/2025	Linnet	Carduelis cannabina	Powerstown	x15 flyover
13/02/2025	Goldfinch	Carduelis carduelis	Powerstown	x1 flyover
13/02/2025	Reed Bunting	Emberiza schoeniclus	Powerstown	x1 heard only
13/02/2025	Hooded Crow	Corvus cornix	Powerstown	x4 feeding on the ground and flying into nearby trees
13/02/2025	Robin	Erithacus rubecula	Powerstown	x2 singing
13/02/2025	Black-headed Gull	Chroicocephalus ridibundus	Powerstown	x40 flyover of First-winter and adults
13/02/2025	Dunnock	Prunella modularis	Powerstown	x1 flushed from grass bank
13/02/2025	Mallard	Anas platyrhynchos	Powerstown	x2, male and female flyover
13/02/2025	Rook	Corvus frugilegus	Powerstown	x2 flyover
13/02/2025	Blackbird	Turdus merula	Powerstown	x3, male and 2 female feeding
13/02/2025	Feral Pigeon	Columba livia	Powerstown	x2 flyover
13/02/2025	Magpie	Pica pica	Powerstown	x2 feeding
13/02/2025	Wren	Troglodytes troglodytes	Powerstown	1x calling
13/02/2025	Raven	Corvus corax	Powerstown	x1 flyover

Date	Species Name	Scientific Name	Transect	Notes
13/02/2025	Meadow Pipit	Anthus pratensis	Powerstown	x1 heard flying over
13/02/2025	Starling	Sturnus vulgaris	Powerstown	x1 flyover
13/02/2025	Black-headed Gull	Chroicocephalus ridibundus	Powerstown	x7, 4 First-winter and 3 adults, flyover
13/02/2025	Buzzard	Buteo buteo	Powerstown	x1 hunting along the survey site
13/02/2025	Jackdaw	Corvus monedula	Kilcarrig Quarry	x8 perched in trees
13/02/2025	Black-headed Gull	Chroicocephalus ridibundus	Kilcarrig Quarry	x52, flyover. Mix of First-winter and adults
13/02/2025	Robin	Erithacus rubecula	Kilcarrig Quarry	x1 singing
13/02/2025	Chaffinch	Fringilla coelebs	Kilcarrig Quarry	x1 flyover
13/02/2025	Mistle Thrush	Turdus viscivorus	Kilcarrig Quarry	x1 flyover
13/02/2025	Magpie	Pica pica	Kilcarrig Quarry	x3 Feeding
18/03/2025	Goldfinch	Carduelis carduelis	Powerstown	Flyover calling
18/03/2025	Blackbird	Turdus merula	Powerstown	x2
18/03/2025	Goldcrest	Regulus regulus	Powerstown	Feeding in scrub
18/03/2025	Yellowhammer	Emberiza citrinella	Powerstown	Singing from trees
18/03/2025	Lesser Black-backed Gull	Larus fuscus	Powerstown	x9 flyover, mix of adults and immature birds.
18/03/2025	Great Black-backed Gull	Larus marinus	Powerstown	x2 adults, flyover
18/03/2025	Black-headed Gull	Chroicocephalus ridibundus	Powerstown	x2 First-winter, flyover
18/03/2025	Meadow Pipit	Anthus pratensis	Powerstown	Feeding flock, 9 birds
18/03/2025	Chaffinch	Fringilla coelebs	Powerstown	x3, all males
18/03/2025	Pied Wagtail	Motacilla alba	Powerstown	x4, 2 pairs feeding
18/03/2025	Linnet	Carduelis cannabina	Powerstown	x 7 feeding
18/03/2025	Hooded Crow	Corvus cornix	Powerstown	x4 foraging
18/03/2025	Jackdaw	Corvus monedula	Powerstown	x5 flyover
18/03/2025	Wren	Troglodytes troglodytes	Powerstown	calling, x3
18/03/2025	Green Sandpiper	Tringa ochropus	Kilcarrig Quarry	Feeding on quarry pool before flying south
18/03/2025	Grey Wagtail	Motacilla cinerea	Kilcarrig Quarry	male feeding on quarry pool

Date	Species Name	Scientific Name	Transect	Notes
18/03/2025	Feral Pigeon	Columba livia	Kilcarrig Quarry	x11 resting on roof
18/03/2025	Pied Wagtail	Motacilla alba	Kilcarrig Quarry	x2 flyover
18/03/2025	Lesser Black-backed Gull	Larus fuscus	Kilcarrig Quarry	x19, flyover. Some appeared to land out of view on a quarry pool
18/03/2025	Herring Gull	Larus argentatus	Kilcarrig Quarry	x2 First-winter flyover
18/03/2025	Jackdaw	Corvus monedula	Kilcarrig Quarry	x7 Perched on a roof
18/03/2025	Kestrel	Falco tinnunculus	Kilcarrig Quarry	Hunting and perched on a water tank
18/03/2025	Merlin	Falco columbarius	Kilcarrig Quarry	Flying through the quarry, seen very briefly. Photographed also
18/03/2025	Wren	Troglodytes troglodytes	Kilcarrig Quarry	
18/03/2025	Mallard	Anas platyrhynchos	Kilcarrig Quarry	Male on small pond
18/03/2025	Mallard	Anas platyrhynchos	Powerstown	pair
18/03/2025	Mute Swan	Cygnus olor	Powerstown	foraging
18/03/2025	Grey Heron	Ardea cinerea	Powerstown	Hunting
14/05/2025	Whitethroat	Sylvia communis	T1	
14/05/2025	Sand Martin	Riparia riparia	T1	10 birds showing interest in the mud banks next to pool area. No nest holes found
14/05/2025	Blackcap	Sylvia atricapilla	T1	
14/05/2025	Feral Pigeon	Columba livia	T1	
14/05/2025	Blackbird	Turdus merula	T1	Foraging
14/05/2025	Linnet	Carduelis cannabina	T1	x6 mix of male and female
14/05/2025	Yellowhammer	Emberiza citrinella	T2	Flyover calling
14/05/2025	Stonechat	Saxicola rubicola	T2	
14/05/2025	Chiffchaff	Phylloscopus collybita	T3	
14/05/2025	Jackdaw	Corvus monedula	T1	flyovers x6
14/05/2025	Meadow Pipit	Anthus pratensis	T2	Flyover calling
14/05/2025	Dunnock	Prunella modularis	T2	
14/05/2025	Blue Tit	Cyanistes caeruleus	T2	
14/05/2025	Lesser Black-backed Gull	Larus fuscus	T1	x3 3cy birds soaring over site

Date	Species Name	Scientific Name	Transect	Notes
14/05/2025	Mistle Thrush	Turdus viscivorus	T4	x2 foraging
14/05/2025	Blackbird	Turdus merula	T4	x3 foraging
14/05/2025	Stock Dove	Columba oenas	T3	Foraging
14/05/2025	Hooded Crow	Corvus cornix	T3	x4 foraging
14/05/2025	Blackcap	Sylvia atricapilla	T3	
14/05/2025	Wren	Troglodytes troglodytes	T3	
14/05/2025	Robin	Erithacus rubecula	T3	
14/05/2025	Song Thrush	Turdus philomelos	T4	
14/05/2025	Goldfinch	Carduelis carduelis	T3	x3 flyover
14/05/2025	Woodpigeon	Columba palumbus	T3	x4 flyover
14/05/2025	Sand Martin	Riparia riparia	T3	x20 birds foraging
14/05/2025	Swallow	Hirundo rustica	T3	x5 foraging
14/05/2025	Starling	Sturnus vulgaris	T2	x7 flyover
14/05/2025	Mistle Thrush	Turdus viscivorus	T4	x3 foraging
14/05/2025	Chaffinch	Fringilla coelebs	T4	
14/05/2025	Wren	Troglodytes troglodytes	T4	
14/05/2025	Hooded Crow	Corvus cornix	T3	x2 foraging
14/05/2025	Dunnock	Prunella modularis	T3	
14/05/2025	Chaffinch	Fringilla coelebs	T1	x2 males
14/05/2025	Buzzard	Buteo buteo	T2	Soaring over site
14/05/2025	Sedge Warbler	Acrocephalus schoenobaenus	T9	Heard from T4 and T9
14/05/2025	Sand Martin	Riparia riparia	T5	x10
14/05/2025	Starling	Sturnus vulgaris	T9	
14/05/2025	House Martin	Delichon urbicum	T6	x7 foraging
14/05/2025	Sand Martin	Riparia riparia	T8	10 plus birds visiting nest holes in sandy area. This area is not permanent and is dug out and loaded onto trucks
14/05/2025	Feral Pigeon	Columba livia	T8	x8 likely nesting in building's they are perched on

Date	Species Name	Scientific Name	Transect	Notes
14/05/2025	Dunnock	Prunella modularis	T7	
14/05/2025	Song Thrush	Turdus philomelos	T7	
14/05/2025	Robin	Erithacus rubecula	T6	
14/05/2025	Jackdaw	Corvus monedula	T8	x6 flyover
14/05/2025	Blue Tit	Cyanistes caeruleus	T9	x2
14/05/2025	Blackbird	Turdus merula	T9	X2 foraging
14/05/2025	Woodpigeon	Columba palumbus	T9	x4 flyover
02/06/2025	Pied Wagtail	Motacilla alba	T1	
02/06/2025	Linnet	Carduelis cannabina	T1	x7 LI
02/06/2025	Blackcap	Sylvia atricapilla	T2	
02/06/2025	Robin	Erithacus rubecula	T2	
02/06/2025	Stock Dove	Columba oenas	T2	x2
02/06/2025	Woodpigeon	Columba palumbus	T2	x4 flyover
02/06/2025	Whitethroat	Sylvia communis	T1	
02/06/2025	Blackbird	Turdus merula	T4	
02/06/2025	Hooded Crow	Corvus cornix	T4	
27/06/2025	Hooded Crow	Corvus cornix	T1	
27/06/2025	Blackbird	Turdus merula	T1	
27/06/2025	Magpie	Pica pica	T3	
27/06/2025	Hooded Crow	Corvus cornix	T5	x4
28/11/2025	Chaffinch	Carduelis cannabina	T2	X7
28/11/2025	Great Tit	Motacilla cinerea	T3	
28/11/2025	Stock Dove	Emberiza citrinella	T4	X2 foraging
28/11/2025	Pied Wagtail	Motacilla alba yarrellii	T1	Pair
28/11/2025	Blue Tit	Passer domesticus	T4	X3
28/11/2025	Long-tailed Tit	Columba livia	T4	X6
28/11/2025	Linnet	Prunella modularis	T1	X21 foraging
28/11/2025	Hooded Crow	Corvus cornix	T2	X9

Date	Species Name	Scientific Name	Transect	Notes
28/11/2025	Woodpigeon	Pica pica	T3	X5
28/11/2025	Woodpigeon	Fringilla coelebs	T9	X33 foraging
28/11/2025	Pied Wagtail	Motacilla alba yarrellii	T5	X5
30/01/2026	Pied Wagtail	Motacilla alba yarrellii	T1	
30/01/2026	Blackbird	Columba palumbus	T1	X2
30/01/2026	Goldfinch	Carduelis carduelis	T2	X8
30/01/2026	Buzzard	Buteo buteo	T3	Perched in trees
30/01/2026	Great Tit	Turdus merula	T3	
30/01/2026	Song Thrush	Carduelis carduelis	T4	X2
30/01/2026	Hooded Crow	Buteo buteo	T3	X4
30/01/2026	Robin	Parus major	T3	
30/01/2026	Linnet	Turdus philomelos	T3	X9. Foraging
30/01/2026	Grey Wagtail	Corvus cornix	T6	Foraging on pool edge
30/01/2026	Yellowhammer	Erithacus rubecula	T5	Foraging in crop field
30/01/2026	Grey Wagtail	Phylloscopus collybita	T1	Foraging in pool
30/01/2026	House Sparrow	Saxicola rubicola	T1	Pair
30/01/2026	Feral Pigeon	Corvus monedula	T7	X11
30/03/2026	Dunnock	Fringilla coelebs	T1	
30/03/2026	Hooded Crow	Parus major	T4	HC x4
30/03/2026	Magpie	Columba oenas	T3	MG x6
30/03/2026	Chiffchaff	Phylloscopus collybita	T3	
30/03/2026	Wren	Cyanistes caeruleus	T3	
30/03/2026	Goldfinch	Aegithalos caudatus	T2	GO x7
30/03/2026	Stonechat	Carduelis cannabina	T2	
30/03/2026	Chaffinch	Corvus cornix	T3	
30/03/2026	Sand Martin	Troglodytes troglodytes	T1	Foraging overhead
30/03/2026	Jackdaw	Carduelis carduelis	T1	X5 flyover

Table C: Species recorded during Hinterland surveys

Date	Species Name	Scientific Name	Location	Notes
02/02/2025	Mallard	Anas platyrhynchos	Hinterland VP1	x39 mix of males and females
02/02/2025	Mute Swan	Cygnus olor	Hinterland VP1	First-winter, in flooded field
02/02/2025	Lapwing	Vanellus vanellus	Hinterland VP2	x80 feeding flock in flooded fields
02/02/2025	Golden Plover	Pluvialis apricaria	Hinterland VP2	x260, flying over and circling along River Barrow.
02/02/2025	Grey Heron	Ardea cinerea	Hinterland VP2	Adult roosting along River Barrow
02/02/2025	Black-headed Gull	Chroicocephalus ridibundus	Hinterland VP2	x18, mix of first winter and adult feeding in flooded field among l. flock
02/02/2025	Cormorant	Phalacrocorax carbo	Hinterland VP3	Foraging along the river Barrow
11/02/2025	Black-headed Gull	Chroicocephalus ridibundus	Hinterland VP1	x12 mix of adult and First-winter
11/02/2025	Mute Swan	Cygnus olor	Hinterland VP1	On the river Barrow
11/02/2025	Golden Plover	Pluvialis apricaria	Hinterland VP2	x180 circling over fields along the river Barrow
11/02/2025	Lapwing	Vanellus vanellus	Hinterland VP2	x80 flying along River Barrow
14/05/2025	Mallard	Anas platyrhynchos	Hinterland VP1	X3
14/05/2025	Grey Heron	Ardea cinerea	Hinterland VP1	X1
14/05/2025	Mute Swan	Cygnus olor	Hinterland VP1	X2
14/05/2025	Cormorant	Phalacrocorax carbo	Hinterland VP2	X1
14/05/2025	Buzzard	Buteo buteo	Hinterland VP2	X2
14/05/2025	Grey Heron	Ardea cinerea	Hinterland VP3	X1
14/05/2025	Cormorant	Phalacrocorax carbo	Hinterland VP3	X1
14/05/2025	Cormorant	Phalacrocorax carbo	Hinterland VP4	X4
14/05/2025	Grey Heron	Ardea cinerea	Hinterland VP4	X2
14/05/2025	Moorhen	Gallinula chloropus	Hinterland VP5	X1
14/05/2025	Sparrowhawk	Accipiter nisus	Hinterland VP5	X1
14/05/2025	Buzzard	Buteo buteo	Hinterland VP5	X2
02/06/2025	Lesser Black-backed Gull	Larus fuscus	Hinterland VP1	X3, flyover
02/06/2025	Grey Heron	Ardea cinerea	Hinterland VP2	X1

Date	Species Name	Scientific Name	Location	Notes
02/06/2025	Cormorant	Phalacrocorax carbo	Hinterland VP3	X2
02/06/2025	Mallard	Anas platyrhynchos	Hinterland VP3	X7
02/06/2025	Mute Swan	Cygnus olor	Hinterland VP3	X4
02/06/2025	Buzzard	Buteo buteo	Hinterland VP4	X1
10/07/2025	Grey Heron	Ardea cinerea	Hinterland VP1	X1
10/07/2025	Cormorant	Phalacrocorax carbo	Hinterland VP1	X2
10/07/2025	Mute Swan	Cygnus olor	Hinterland VP1	X2
10/07/2025	Cormorant	Phalacrocorax carbo	Hinterland VP3	X2
10/07/2025	Black-headed Gull	Larus ridibundus	Hinterland VP3	X4
10/07/2025	Kingfisher	Alcedo atthis	Hinterland VP3	X1
10/07/2025	Mallard	Anas platyrhynchos	Hinterland VP4	X5
10/07/2025	Mute Swan	Cygnus olor	Hinterland VP4	X3
10/07/2025	Grey Heron	Ardea cinerea	Hinterland VP4	X2
10/07/2025	Cormorant	Phalacrocorax carbo	Hinterland VP4	X1
13/11/2025	Lesser Black-backed Gull	Larus fuscus	Hinterland VP2	X36 foraging in flooded field
13/11/2025	Cormorant	Phalacrocorax carbo	Hinterland VP5	Roosting
13/11/2025	Cormorant	Phalacrocorax carbo	Hinterland VP4	Roosting
30/01/2026	Little Egret	Egretta garzetta	Hinterland VP1	
30/01/2026	Mallard	Anas platyrhynchos	Hinterland VP2	
30/01/2026	Mute Swan	Cygnus olor	Hinterland VP2	Male and female
30/01/2026	Grey Heron	Ardea cinerea	Hinterland VP3	
30/01/2026	Lapwing	Vanellus vanellus	Hinterland VP4	Flying along the River Barrow and landing at the point dropped
30/01/2026	Cormorant	Phalacrocorax carbo	Hinterland VP5	X4 roosting in trees
30/03/2026	Grey Heron	Ardea cinerea	Hinterland VP1	
30/03/2026	Mute Swan	Cygnus olor	Hinterland VP1	Pair
30/03/2026	Cormorant	Phalacrocorax carbo	Hinterland VP5	X4 roosting
30/03/2026	Mallard	Anas platyrhynchos	Hinterland VP5	X3

Table D: **Species recorded during breeding raptor surveys**

Date	Species Name	Scientific Name	Location	Notes
14/05/2025	Buzzard	<i>Buteo buteo</i>	Raptor VP1	X2, soaring over quarry area
14/05/2025	Buzzard	<i>Buteo buteo</i>	Raptor VP2	X1, soaring over woodland
14/05/2025	Buzzard	<i>Buteo buteo</i>	Raptor VP5	X4, soaring high in thermals
02/06/2025	Buzzard	<i>Buteo buteo</i>	Raptor VP1	X2, soaring to the south of quarry
02/06/2025	Buzzard	<i>Buteo buteo</i>	Raptor VP4	X1, flyover
10/07/2025	Sparrowhawk	<i>Accipiter nisus</i>	Raptor VP4	X1, male soaring overhead



DESIGNING AND DELIVERING
A SUSTAINABLE FUTURE

APPENDIX 11.3

Relevé Data for Habitat
Assessment

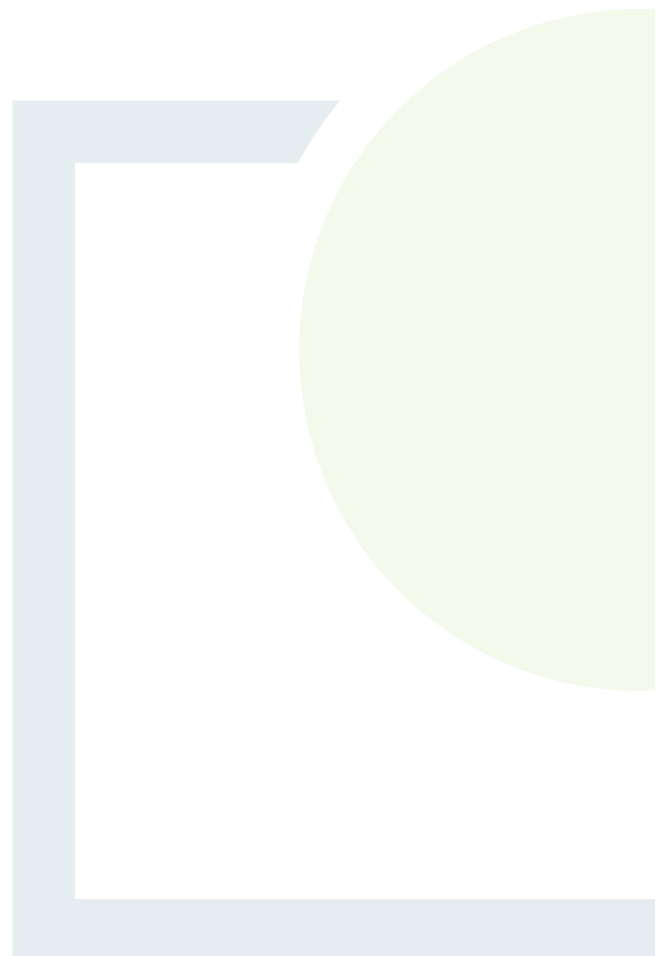


Table A: Relevés collected within Dry calcareous and neutral grassland (GS1) within 500m of the Site

Scientific Name	Common Name	Plot no. for relevé / Coverage (%)								
		P1	P2	P3	P4	P5	P6	P7	P8	P9
Plot Size		2mx2m	2mx2m	2mx2m	2mx2m	2mx2m	2mx2m	2mx2m	2mx2m	2mx2m
Vascular Plants										
<i>Achillea millefolium</i>	Yarrow		1	1	0.3	5	2		2	0.5
<i>Agrostis capillaris</i> ¹	Common Bent				2					0.3
<i>Anthyllis vulneraria</i> ²	Kidney Vetch	2	1	3						
<i>Arrhenatherum elatius</i>	False Oat-grass		3							
<i>Bellis perennis</i>	Daisy					1	1	0.5	1	
<i>Blackstonia perfoliata</i>	Yellow-wort				1	0.1				
<i>Bromus hordeaceus</i>	Soft-brome	4								
<i>Carex nigra</i>	Common Sedge			2						
<i>Cerastium fontanum</i>	Common Mouse-ear				0.1			0.1		
<i>Common Ragwort</i>	Jacobaea vulgaris								0.5	
<i>Crepis vesicaria</i>	Beaked Hawk's-beard	1			1					0.1
<i>Dactylis glomerata</i>	Cock's-foot	1			6	2	2	0.5	0.5	0.5
<i>Daucus carota</i> ³	Carrots		3							1
<i>Erigeron acris</i>	Blue Fleabane		1		0.3	4				2
<i>Euphrasia</i>	Eyebrights	0.1								

¹ Purple colour stands for negative indicators for 6210/*6210

² Red colour stands for high quality indicators for 6210/*6210

³ Amber colour stands for positive indicators for 6210/*6210

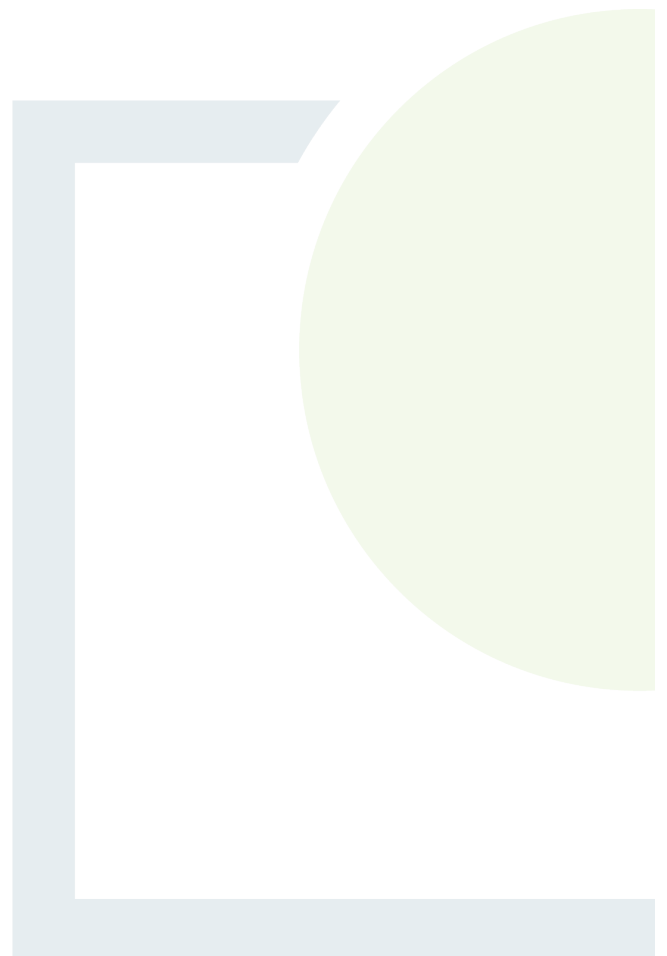
Scientific Name	Common Name	Plot no. for relevé / Coverage (%)								
		P1	P2	P3	P4	P5	P6	P7	P8	P9
<i>Festuca rubra</i> agg.	Red Fescues		20	5	1	3	5	1	6	
<i>Galium verum</i>	Lady's Bedstraw								3	
<i>Hypericum</i> sp.	St. John's-wort sp.							0.5		
<i>Hypochaeris radicata</i>	Cat's-ear					4				
<i>Jacobaea vulgaris</i>	Common Ragwort								0.1	0.1
<i>Leucanthemum vulgare</i>	Oxeye Daisy	1	3	1		1	1	3	2	4
<i>Lotus corniculatus</i>	Common Bird's-foot-trefoil			0.3		0.3				
<i>Luzula campestris</i>	Field Wood-rush	0.1	0.5	2		3	7	1		
<i>Medicago lupulina</i>	Black Medick				0.3		0.5	0.1		0.5
<i>Myosotis discolor</i>	Changing Forget-me-not	0.3	0.1	0.1	0.1			0.1	0.1	0.3
<i>Oenothera</i> sp.	Evening-primrose sp.									1
<i>Ononis repens</i>	Common Restharrow				0.3					
<i>Orchidaceae</i>	Orchid spp.					8.5			2	
<i>Pilosella officinarum</i>	Mouse-ear-hawkweed	8	6	60	3	4	4	12	55	40
<i>Plantago lanceolata</i>	Ribwort Plantain					1	2		0.5	
<i>Poa pratensis</i>	Smooth Meadow-grass			10						
<i>Quercus robur</i>	Pedunculate Oak						0.1			
<i>Ranunculus repens</i>	Creeping Buttercup								0.1	
<i>Saxifraga tridactylites</i>	Rue-leaved Saxifrage	0.1								
<i>Taraxacum</i>	Dandelion	0.5			0.1	0.3				
<i>Valerianella locusta</i>	Common Cornsalad	1	3							
<i>Veronica chamaedrys</i>	Germander Speedwell					0.1				



DESIGNING AND DELIVERING
A SUSTAINABLE FUTURE

APPENDIX 11.4

Biodiversity Enhancement
Management Plan (BEMP)



POWERSTOWN BIOENERGY

Volume 3 Appendices

Appendix 11.4 Biodiversity Enhancement & Management Plan (BEMP)

Prepared for:

Greengate Biogas 001 Ltd.



Date: June 2026

Document No:

P24188-FT-EBD-XX-RP-EN-0003

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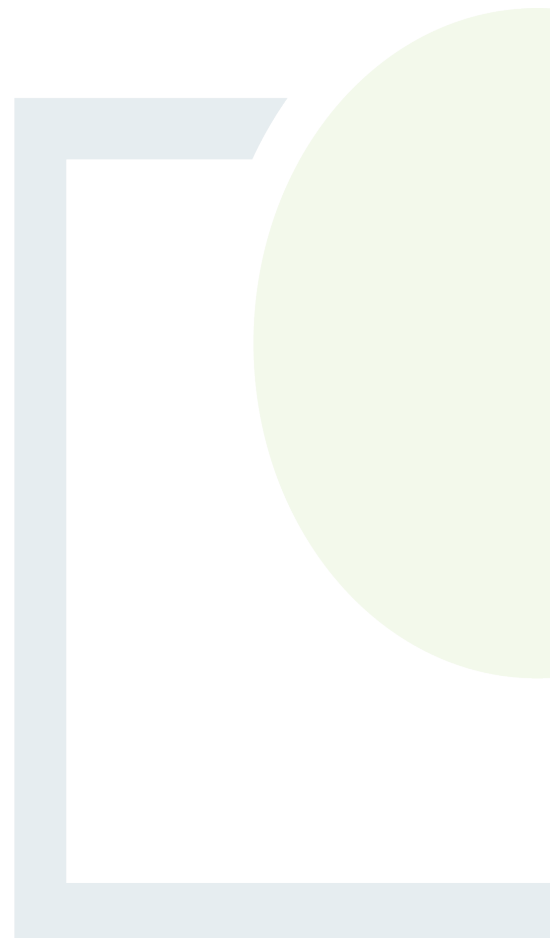


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1. INTRODUCTION

Ireland's 4th National Biodiversity Action Plan (NBAP) sets the national biodiversity agenda for the period 2023-2030. Under Objective 3 of the Plan, to 'Secure Nature's Contribution to People', actions are included that put obligations on the private sector to protect and restore biodiversity. Action 3C1 sets a target that, by 2030, shared responsibility for the conservation of biodiversity will be acted on, and that "all Public Authorities and private sector bodies will move towards no net loss of biodiversity through strategies, planning, mitigation measures, appropriate offsetting and/or investment in Blue-Green infrastructure".

This Biodiversity Enhancement and Management Plan (BEMP) has been prepared to align with the objective of Ireland's 4th National Biodiversity Action Plan and is in support of the application for the development of the Powerstown Biogas project. The BEMP provides guidance for the creation, maintenance and management of habitat and species enhancement features which will form part of the project. The BEMP has been prepared having regard to the Scottish Natural Heritage guidance on habitat management plans for developments (SNH, 2016). The BEMP should be read in conjunction with Chapter 11 Biodiversity in Volume 2 of the EIAR.

The habitat and species information pertaining to the site is summarised in Chapter 11 Biodiversity in Volume 2 of the EIAR.

Mitigation areas described in Chapter 11 Biodiversity in Volume 2 of the EIAR are prescribed for the protection of the environment. The measures prescribed herein are in addition to those and are aimed at benefitting the habitats and species that have been identified at the site and surrounding environment. A key concept in this BEMP is that improvements in the quality and extent of habitats of value will also benefit local fauna. The BEMP focusses on the lands within the proposed development site.

The habitat enhancement measures that are included in this document are designed with the aim of increasing the overall opportunity for improved biodiversity value of the proposed development site. This is achieved through the following measures:

- Creating grasslands with the aim of establishing calcareous grassland. This also incorporates:
 - Preservation of existing grassland seedbank from site (relocating turf from mosaic grassland as indicated in Figure 2-1).
 - Creation of suitable habitat for translocation of existing bee orchids on site (Figure 2-2).
 - Creation of suitable habitat for greater knapweed seeding in support of local conservation efforts for this species (Figure 2-2).
- Creation of artificial nesting wall for sand martin (Figure 2-3)
- Creation of permanent pond habitat on site (Figure 2-3) to support Herpetofauna known in the area, but also will increase insect biomass for bats and birds.

The provision of the enhancement areas within site is not proposed to reduce or avoid or compensate for any adverse effects on the integrity of any European site. A NIS has been prepared for the project and identified no potential for adverse effects on European site integrity.



2. ENHANCEMENT: IMPEMENTATION & MANAGEMENT

The habitat enhancement measures will be overseen by a suitably qualified ecologist with experience in habitat translocation and is a member of the Chartered Institute of Ecology and Environmental Management. Table 2-1 provides an overview of the enhancement measures proposed as part of the proposed development and the aim and objective of the enhancement measure.

Table 2-1: Biodiversity enhancement measures and ojectives

BEMP Area	Enhancement Measure	Objective	Extent
Figure 2-2	Creating grasslands with the aim of establishing calcareous grassland along the northern banks (tops and slopes)	To create suitable habitat as additional receptor sites for orchids and potential establishment of greater knapweed to aid in local conservation efforts of this species. To diversify on-site habitats within the site which will support more diversified fauna, including pollinators.	Within landscaping areas of the site
Figure 2-3	Artificial nesting wall for sand martin	To provide artificial nesting banks / improve existing banks to provide for the opportunity for nesting of sand martin, which are active in the immediate area.	10mx2m
Figure 2-3	Pond	To provide pond habitat for potential frogs (confirmed to utilize the ephemeral pools on site) and newts (only evidenced by eDNA)	20-25m ² (50-100cm depth)

Components of this biodiversity enhancement plan will commence before construction (marking out locations from construction activities, securing seedbank turf from on-site mosaic grasslands) and through years 1-2 of the construction phase (seeding/planting and establishing sand martin nesting wall). The implementation time frames are considered for each measure and presented with the monitoring plan.



Legend

Proposed Development Boundary

Fossitt Code

BL3 - Buildings and artificial surfaces

ED2 - Spoil and bare ground

ED3 - Recolonising bare ground

ED4 - Active quarries and mines

FL8 - Other artificial lakes and ponds

GS2 - Dry meadows and grassy verges

Other (Mosaic)

WD5 - Scattered trees and parkland

WL1 - Hedgerows

WS1 - Scrub

WL1 - Hedgerows

WL2 - Treelines

Proposed Gas Route

TITLE: Habitat Map (Proposed Development)	FIGURE NO: 2.1	
	CLIENT: Greengate Biogas	
PROJECT: Powerstown Bioenergy	SCALE: 1:2,000	REVISION: 0
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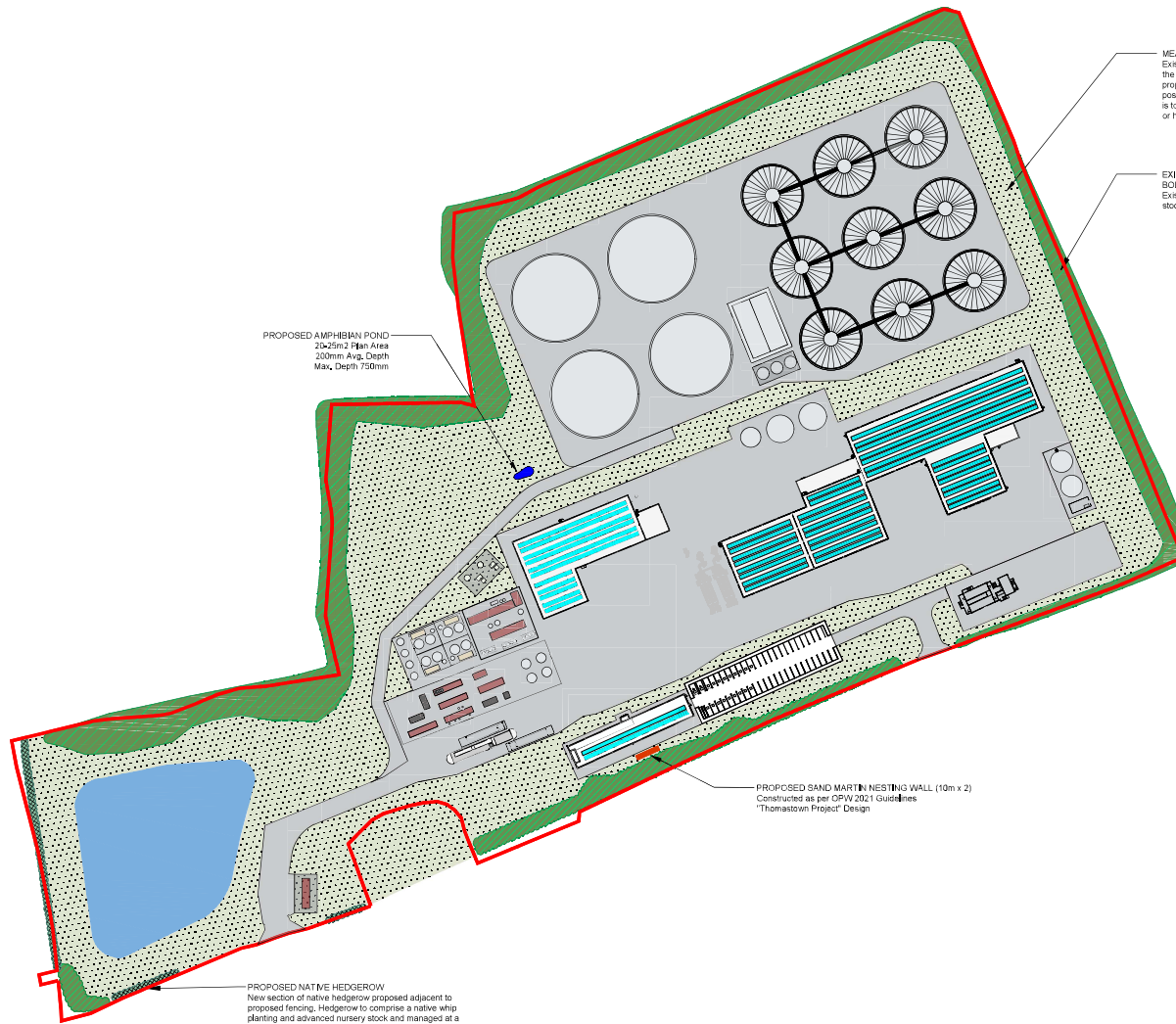
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TITLE: Flora Donor and Receptor Area	FIGURE NO: 2.2	
	CLIENT: 	
PROJECT: Powerstown Bioenergy	SCALE: 1:2,000	REVISION: 0
	DATE: 01/07/2026	PAGE SIZE: A3



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- Legend**
- Planning Boundary
 - Existing hedgerow to be retained and bolstered
 - Proposed Hedgerow
 - Meadow/Grassland Management
 - Proposed Amphibian Pond
 - Proposed Sand Martin Nesting Wall

PROPOSED LANDSCAPING PLAN
Scale 1:1000

If Applicable : Tailte Éireann Licence No. CYAL50368274 © Ordnance Survey Ireland and Government of Ireland

Rev.	Description	App By	Date
P01			

PROJECT		CLIENT		
POWERSTOWN BIOENERGY				
SHEET		Date	Project number	Scale (@ A1)
PROPOSED LANDSCAPING PLAN		28.04.26	P24-188	1:1000
		Drawn by	Drawing Number	Rev
		EB	P24188-FT-XX-XX-DR-CE-3000	P01
		Checked by	JON	



For the BEMP to be successful some general measures must be applied:

- Do not use pesticides in these areas. Where pesticides must be used in surrounding areas, use targeted applications rather than spraying.
- Where an ecological specialist has been sought to monitor the conditions of the BEMP, the recommendations / corrective actions must be implemented as soon as possible / seasonally appropriate.
- Limit pedestrian and other traffic through these areas as far as possible within the working requirements of the biogas plant.

2.1 Creating Calcareous Grassland

Grasslands typically need poor-nutrient substrates and a degree of mowing/cutting to prevent scrubbing and eventual succession into woodland; in the case of calcareous grassland, lime-rich or pH neutral soil substrate is needed (available as limestone pebbles at the site). Creation of grassland within the site will diversify the existing habitats on site, will allow for the persistence of orchids on site and could provide opportunity for establishment of rare and protected species on site such as the greater knapweed. The grasslands will also benefit pollinators and small insectivorous fauna, contribute to carbon and nutrient cycling and play a positive role in psychological effect on humans as greenspace.

Areas targeted for creating calcareous grasslands include tops of the embankments along the northern boundary (where there is enough sun) and the slopes (Figure 2-2).

The locations above are likely to receive the most unobstructed sunlight post-development which will benefit grasslands and the wildflowers. Grassy meadows will be developed as follows [guided by the creation of meadows (NBDC, 2022b)]:

- Grassland areas along the bank slopes will be marked as no-go areas during construction, to prevent inadvertent damage to these areas. Areas will be marked by wooden stakes and the scrub within these areas will be removed. Any fast-growing, weedy species will also be removed. Scrub and weed removal will be undertaken at any time the species are noted within in these areas between March and August, being careful not to unnecessarily remove sods of grass.
- At the top of the banks limestone gravel available on site will be placed over the area and loosely worked into the upper soil layer to create a substrate suitable for calcareous grassland species, including the bee orchids.
- Once suitably prepared, the 'turf' supporting mixed mosaic grassland on the site (Figure 2-1) will be lifted and placed primarily on the slope, keeping similar soil profile in terms of depth. Excess turf can be laid on the top of the banks.
- The areas will be kept moist (watered if needed) to allow the seed bank to germinate and to support naturally colonising grass and herbaceous species.
- The area will be cut/mowed once a year in September. Where the grass needs to be kept shorter for safety and security reasons, then areas can be mowed every 4-6 weeks during the growing season. Given the small areas and the location (on slopes and tops of banks), mowing with a scythe may be more practical. The mowed material must be removed from all grassy areas (can be used as mulch on hedgerows and treelines without grassy verges) within the first week after mowing.



- The grasses and wildflowers will propagate on their own once the substrates and conditions are suitable. Species diversity can be boosted through collecting and spreading of green hay or collecting seed from the wild (see (NBDC, 2022a). Local sources are available in the semi natural grasslands around the River Barrow, and the knapweed that occurs along the western boundary of proposed development site.

It can take up to 5 years for the calcareous grassland to reach good diversity.

2.2 Installing Sand Martin Nesting Wall

Sand martins typically nest in vertical faces of sand banks/cliffs along rivers, but are not limited by sand type or the presence of lakes/rivers. Sand martins are known to use quarries for nesting, even operational faces of quarries, and have some tolerance to anthropogenic activity. Sand martins were observed in and around the site although no nesting behaviour was confirmed; at best some exploratory behaviour of the quarry face at Kilcarrig Quarry to the south was noted during surveys completed as part of the application for the development.

A sand martin nesting wall is therefore included on site and will be constructed as per the Office of Public Works' 'How to build a Nesting Wall for Sand Martins: Step-by-Step Guide' (OPW, 2021) along the southern boundary of the site (Figure 2-3). The wall will be 2.8m high, 4.75m long and 1.9m wide.

The guide (OPW, 2021) lays out the procedure to develop a wall and details the following steps:

1. Pre-prepare the nest chamber entrance tunnels in cavity blocks using plastic tubes and cement. One tunnel is needed for every nest cavity: around 140.
2. Dig and lay foundations for the wall.
3. Build nesting wall using a double row of cavity blocks up to 1.5m height. The wall is completed to 2.8m using the pre-made nest chambers with the outer row having the entrance tunnels and the inner row the nest chamber.
 - a. Line the nest chamber with approximately 5 cm of builder's sand so that it is level with the bottom of the tunnel.
 - b. Close off the back of the nest chambers with a 9x1" timber plank fixed securely in place.
4. Leave a passageway (to enable access to the nest chambers) and then build the back wall.
5. Put roof over the structure to make it weatherproof, by covering the top of the nesting wall with waterproof membrane and capping stones.
6. Fix sheets of steel to the bottom 1.5m of the wall with masonry fixings; the smooth surface will make it difficult for predators to climb up to the nest entrances.

2.3 Creating Permanent Pond

Frog spawn was observed in the ephemeral ponds and newts are considered present through eDNA analysis. Both species are known to use garden ponds and field ponds so are not limited by the size or shape of the water body. The National Road Authority Key Cards as presented in 'Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes' (TII, 2008, republished 2025) provide information on enhancement measures and scheduling of works, management and monitoring as relevant to amphibian species.

In determining an adequate area for amphibians and newts the following was considered (from 'Herpetofauna Worker's Manual (Gent, *et al.*, 1998, revised 2003)):



- The pond is small (approximately 20-25m²), exposed to sun and has shallow sloped sides that warm quickly and a deeper middle (50-100cm depth).
- The pond will be planted with local native emergent and submerged vegetation.
- The pond can be managed to prevent drying out.
- The surrounds of the pond and its edge can be secured from trampling pedestrians / stock animals
- Log piles and other debris is within the vicinity of the pond to provide for hibernation sites.
- South facing banks are present with dense vegetation and patches of open ground.

The pond will be established as follows, and will have regard to Irish Pond Manual: A Guide to the Creation and Management of Ponds (O'Rourke, et al., 2024):

- The area will be marked as a no-go area during construction.
- The pond area will be excavated and shaped during construction phase when access to machinery will be available.
- The pond will be lined with appropriate pond liner
- Planting of emergent and submerged vegetation will commence once the pond has accumulated enough water.
- Planting will be completed as part of the landscaping activities
- Hibernacula / refugia will be established in the vicinity and surrounds of the pond.

In terms of establishing and managing the pond, the following is relevant:

- Autumn to early winter should be used for any necessary restoration / management. No more than a third of the water body should be cleared annually of overgrown vegetation and / or silt.
- Amphibian-proof fencing can be considered to prevent frogs from entering the biogas plant working areas if amphibians are noted to move into operational areas.

2.4 Other Ecological Enhancements and Benefits

2.4.1 Refugia Piles and Hibernacula Piles

Refugia piles and hibernacula (hibernation sites) will be created. These provide sheltering locations for a wide range of wildlife, including reptiles, amphibians, small mammals and invertebrates. Refugia piles are produced by piling natural materials such as logs, sticks and leaves; that can be supported by additional materials such as non-leaching rubble and bricks to form a structure with many cracks and crevices for sheltering. Hibernacula are produced in a similar way, but set into the ground in a shallow pit and topping with soil to enclose the structure and creating a more stable microclimate suitable for hibernating species. These structures will be installed near the amphibian pond in accordance with the Reptile Habitat Management Handbook (*Edgar, et al.*, 2010).



A proportion of the timber that may on occasion fall from / need to be discretely removed from trees at the site or can be salvaged from forestry felling in the surrounding area (substantial pieces of timber-tree trunk/branches) and brash (smaller scrub and branches taken from trimming smaller branches and hedgerows) from site or salvaged from forestry felling will provide good local source material. Logs of different sizes can be stacked on top of each-other or positioned vertically in a pile. It is important to ensure that some logs remain damp and do not dry out by part-burying (some) logs and placing in a partly shaded location on site. Log piles should be set within existing vegetation (hedgerows, treelines, retained scrub habitat) so that there is immediate connectivity to surrounding habitats. These piles will be used by arthropods as the timber decays, and by amphibians, reptiles and small mammals preying on these the arthropods or seeking shelter.

The key design features:

- A sunny position, but not prone to drying out
- Well-drained site, not prone to flooding
- Orientation so that the long-side faces south
- Minimal public disturbance
- Size at least 4 m long, by 2 m wide by 1 m high

2.4.2 Creating Pollinator Habitats

With the aim of diversifying the hedgerows for pollinators, and the creation of calcareous meadows which will also support wildflowers for pollinators, consideration is needed for the creation of adequate supporting habitat for pollinators. For example, the solitary bees tend to nest within 300m of food sources and if adequate nesting sites are not available, they will not be active in these areas. The measures below consider only the existing enhancement measures and how these can be modified to further support pollinators.

- Bumblebees nest on or close to the surface of the ground and need well-protected sites (NBDC, 2022c). The diversification of grassy verges (Section 2.5) will provide good nesting opportunity for bumblebees, which in turn will aid in the pollination of on-site flowers.
- Solitary bees make up 80% of Irelands bee species. Mining bees burrow into the ground and cavity nesting bees use existing holes in wood or stone walls (NBDC, 2022c). South facing slopes, faces and level ground of the existing quarry faces / banks provide opportunity for the mining bees. These will be maintained by clearing vegetation encroachment from the areas in late autumn.
- For cavity nesting bees, drill holes into the larger pieces of wood to provide nesting opportunity for these species. Drill with the wood grain to a depth of 10cm and with holes of varying diameter (4-10mm). These wooden structures will be placed about 1-2.5m above ground with a south-facing aspect (NBDC, 2022c).
- The pond area, once established, will be further enhanced for hoverflies by providing for shallower edges with wet muddy area, wet moss and / or submerged woody debris (NBDC, 2022c).



3. SCHEDULE OF IMPLEMENTATION & MONITORING

Commencing in year 1 of operation the status of the habitats created, the sand martin nesting wall and the amphibian pond will be checked as per Table 3-1. Monitoring will be undertaken by a qualified ecologist appointed by the developer/operator and recommendations made by the qualified ecologist will be implemented as soon as possible and under supervision of an ecologist where required. Following these monitoring visits, a short status report will be prepared. This will identify any necessary actions to ensure the success of the BEMP, which will be implemented on foot of the report findings.

Table 3-1: Biodiversity enhancement measures and objectives

Measure	Target Species/ Habitat	Implementation Timeline	Monitoring	Ongoing Management
Creating grasslands (calcareous and wet grassland)	General grassland floristic species, orchids and greater knapweed. Improved floristic diversity.	Designate no-go areas before construction commences. Remove soil profile from the grassland mosaic before site preparation commences. After construction implement actions under Section 2.1 as soon as it is safe to do so.	Monthly during the growing season (April to August)	Cut/mow once a year in September in long grass areas every 4-6 weeks in short meadows with mower or scythe. Remove weeds by hand during the growing season, with care not to disturb soil turf.
Sand martin nesting wall	Sand martin	During construction.	Years 1, 2, 3, 5, 10, 15, 20, 25, 29. Consider establishing Webcam	Report findings to the NPWS & NBDC.
Creating permanent ponds for frogs and newts	Frogs and newts Will also providing water for pollinators and other small animals	Designate no-go area before construction commences. Complete excavation of pond during construction when safe to do so. Planting can commence as soon as water is present within the pond. Section 2.1 and Section 2.5.3 should be implemented in a mosaic with existing shrub around the pond.	Annually in January to ensure pond can support spawning. Annually in September to action management measures.	Annual clearing of any excessive vegetation growth and silt in autumn (late September to October)
Refugia Piles and Hibernacula Piles	Herpetofauna Also benefit the insectivorous mammals and birds	After construction of foundations as soon as it is safe to do so	Years 1, 5, 10, 15, 20, 25, 29	Add material / construct additional feature if completely decayed. Report findings to the NBDC & NPWS.



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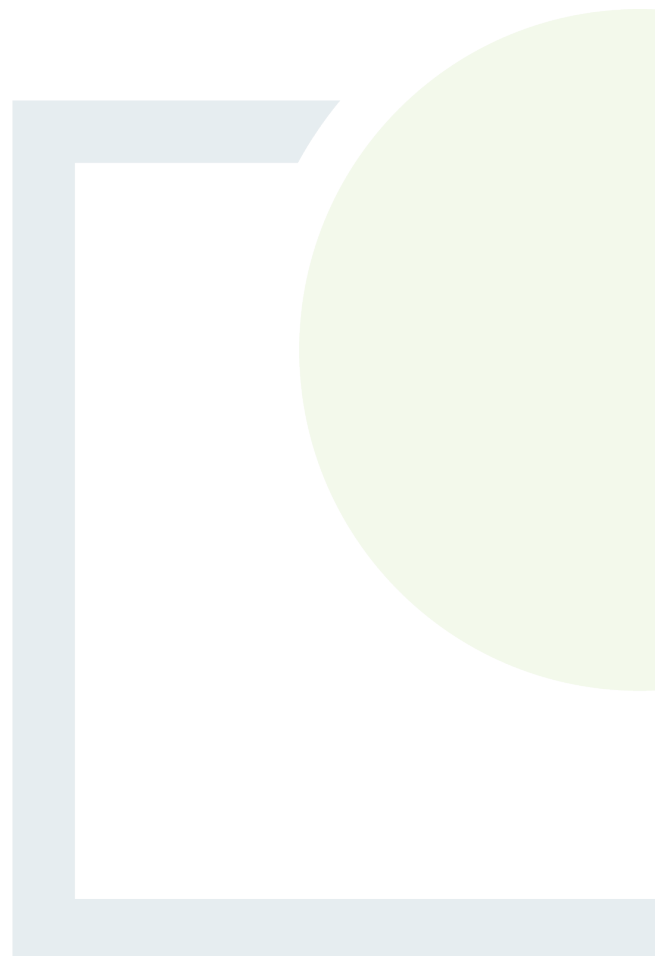




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APPENDIX 11.5

NPWS Consultation



MEMO:

Update on Ecological Surveys and Project Scope for Powerstown Bioenergy

Date: 16 June 2026

To: NPWS Representatives, including:

- Brian O'Connor Local Ranger
- Hazel Doyle District Conservation Officer
- Síofra Quigley: Division Ecologist, Eastern Region

NPWS Reference No.: G Pre00370/2025

Subject: Follow-up on the Pre-Application Meeting with NPWS dated 15 January 2026

Greengate Biogas 001 Limited is applying to An Coimisiún Pleanála for consent for a commercial anaerobic digestion (AD) plant at Powerstown, County Carlow, referred to as the proposed development. The proposed development is designed to process up to 663,000 tonnes per annum (tpa) of agricultural residues including cattle and pig slurries, farmyard straw manures (e.g. cattle and horse) and poultry manure to produce biomethane, biogenic carbon dioxide (biogenic CO₂) and solid and liquid digestate (digestate). Greengate Biogas 001 Ltd. proposes to redevelop the site of a partially restored quarry, located in Powerstown, Milford, Co. Carlow, as Powerstown Bioenergy. A proposed gas pipeline to convey biomethane will connect Powerstown Bioenergy into the Gas Network Ireland (GNI) grid at Clogrennan, Co. Carlow. An assessment of the pipeline route is included in this EIAR for Powerstown Bioenergy. GNI will be responsible for obtaining development consent for the pipeline as a Statutory Undertaker.

Powerstown Bioenergy is covered by the provisions of the Renewable Energy Directive (European Union, 2023) (known as RED III). Under the European Union (Renewable Energy) Regulations 2025 as amended, there is a limited request for information (RFI) stage. The Applicant will not be permitted to submit any new information in response to a RFI, the Applicant can clarify or point to information contained within the application. Pre application scoping is an important stage in ensuring the information contained in the EIAR and NIS addresses any concerns for prescribed bodies.

Introduction

As part of the consent application, an EIAR and NIS are being prepared to support the planning application. Fehily Timoney and Company (FT) is preparing both documents of behalf of the Applicant. As part of the scoping process, FT submitted two scoping letters to NPWS in April and November 2025 and FT and the Applicant met with NPWS in January 2026.

Following e-mail correspondence with Brian O'Connor from the NPWS, a memo has been prepared to inform NPWS on:

- 1) Progress of ecological assessments since the pre-application scoping meeting in January 2026 and clarity on ecological queries raised at the pre-application meeting
- 2) Provide update on the changes to the proposed project as presented to NPWS at the pre-application meeting.

For clarity, the presentation and the minutes of the previous meeting are attached and referenced.

General feedback on minuted items

- **Presence of Annex I Habitats within the potential air quality ZOI**

Assessments, such as air quality assessments, reliant on the Article 17 habitat mapping have proceeded based on the 2019 habitat maps, given the 2025 habitat mapping was not available at the time of modelling.

Additional habitat surveys were completed during May 2026 on semi-natural and natural habitats, specifically the grasslands along the R448 public road. Relevés completed over these grasslands showed no links to Annex I habitats and there are no Annex I habitat receptors within the air quality ZOI. This has been fully modelled by an independent air quality consultant, Dr. Jovanna Arndt, a Principal Environmental Consultant in the Air Quality & Climate section of AWN Consulting.

- **Bat derogation licensing and the Cardinal Moran Bridge crossing over the River Barrow**

Subsequent to meeting NPWS, the Applicant met with Carlow County Council Roads Department for pre application scoping. Carlow County Council advised that the Applicant would not get permission to cross the Cardinal Moran Bridge within the curtilage of the R448, nor would permission be granted to cross the bridge using a steel duct affixed to the parapet. Therefore, it is proposed to assess the use a trenchless construction method such as horizontal direction drilling (HDD) under the River Barrow for the gas pipeline. This is proven technology and a suit of mitigations and controls will be in place to ensure no adverse impact to the River Barrow and aquatic habitats and species supported in the catchment. Avoiding the bridge by HDD also avoids disturbance to potential roosting bats. Therefore, there will be no need for a bat derogation license in terms of this crossing.

- **Status of nearby buildings as bat roosts**

An external and internal inspection was completed of the buildings in early March 2025. None of the structures within the site boundary are suitable for bat roosts.

Locations A and C were surveyed but outside the disturbance zone of influence, given their distance from the perimeter and elevation from the base of the site (deeper parts of the quarry). Of the structures within 50m of the site (Locations B and D), there was potential evidence of use at one building of six structures only (at location B), which, on a precautionary basis, is recorded as moderately suitable roost, although it is occupied by cats and dogs. One building of five structures assessed at Location D was equally rated because internal inspections could not be completed (occupied and owner was not home to provide entry), but there was no evidence of use from the external inspection. These structures lie along the southern boundary of the site along an existing road and active residences.



Locations of roost inspections

- Species-specific queries

Greater knapweed was confirmed along sections of the R448 adjacent to site, not within the site, and will not be affected by the proposed development. It is proposed to collect seeds from the plants, in line with the 'How-

to-Guide' published by National Biodiversity Data Center's (NBDC) under the All-Ireland Pollinator Plan support local conservation efforts.

Orchids

Habitat verification surveys and the additional habitat surveys completed in May 2026 uncovered two additional locations of bee orchids (bringing the total to three donor sites) within the proposed development site where bee orchids were present. Another orchid was also confirmed present with the bee orchids at one of these locations, recorded as the pyramidal orchid based on available characteristics (inflorescences were absent at the time of surveys). Both orchid species will be rescued from the three locations (donor sites) and transplanted to prepared receptor areas on site, along the northern boundary of the site at the top of banks and slopes, where these are shallow and stable and outside of the development footprint.

No basal thyme was recorded during the second follow-up surveys.

Hedgehogs were not confirmed on site, but the Biodiversity Chapter has considered them present on a precautionary basis. The habitats that are most likely to support hedgehogs (the edges along hedgerows and tree lines and scrub) on site will be retained.

Of the sites surveyed (the 300m stretches of river/stream centered around the watercourse crossings), the Cardinal Moran Bridge at the River Barrow was the only potential suitable nesting site for wagtail and dipper, but none were observed around the bridge during any of the ecological surveys.

No other raptors, other than the previously record kestrel and buzzard, were recorded during the final bird surveys.

Despite sand martins being active at the proposed development site, in the neighbouring Kilcarrig Quarry to the south and at the known nesting site approximately 270m east of the proposed development site adjacent to the L3045, no nesting behavior was observed, only investigation of cavities by sand martins at Kilcarrig Quarry and prospecting for mud at the proposed development site. A sand martin wall has been included as part of the biodiversity enhancement measures.

Targeted reptile surveys were completed with reptile sheets placed out and inspected up to twice a week if weather was suitable over April and May 2026. No reptiles were recorded using the site despite quarries being suitable for the species.

The site provides limited habitat for invertebrates generally. Invertebrates use the site opportunistically (pools when they are available), but the more significant habitats, including habitats for pollinators will mostly be retained (hedgerows and tree lines and scrub).

It is not proposed to remove any of the existing hedgerows, trimming will be required at the westerly entrance to facilitate sightlines and for the installation of the proposed fencing along the L3045. The hedgerows here are overgrown and have reduced the width of the path. Hedge cutting will not be carried out during the period 1st March to 31st August, inclusive.

- **Mitigation and management**

The Applicant will control a fleet of ten tankers to transport feedstock and digestate to and from farms to the proposed development. They will be double-skinned, subject to regular maintenance and designed specifically for the task. They will operate on a full-time basis. The proposed development will have an automated weighbridge and only vehicles which are registered on the system will have access at the gate and over the weighbridge.

The existing linear ecological features will be managed but the anticipated planting and enrichment will be limited due to the limited space along the boundary.

Regarding the need to remove and upgrade culverts and associated in-stream works, this will no longer be needed at the EPA watercourse crossings. This is now only potentially necessary for the land drains that are being crossed by the gas pipeline (pending final inspections of the existing culverts). These land drains were dry during May 2026 surveys and will not support white-clawed crayfish. Mitigation considers that activities are first and foremost completed when the drains are dry. If there is water within the drains, then over-pumping will be completed with full consideration of the IFI (2016) guidelines for construction activities in watercourses.

Concluding remarks

The previous comments and queries raised by NPWS during the pre-application meeting have been addressed through additional surveys, amendments to the project design, avoidance of important receptors and better integration of biodiversity enhancement into the site. This has been carried over into the Biodiversity Chapter of the EIAR compiled in support of the application for consent.

MEETING AGENDA – POWERSTOWN BIOGAS

Pre Application Consultation Meeting with NPWS

NPWS Reference G Pre00370/2025

Location: MS Teams
Date: 15/01/26
Time: 14:00-16:00

Invitees	Initials
Charles Kane (Greengate Biogas)	CK
Bernie Guinan (Fehily Timoney and Company)	BG
Tanya Ruddy (Fehily Timoney and Company)	TR
Rita Mansfield and Barbara Kasl (Fehily Timoney and Company)	RM BK
NPWs: - Brian O'Connor Local Ranger - Hazel Doyle District Conservation Officer - Síofra Quigley: Division Ecologist, Eastern Region	BOC HD SQ
Apologies Edward Lilleystone (Greengate BioGas)	

Item	Agenda	Action
1.0	Introduction, roundtable	
2.0	Presentation shared to guide the meeting PIM https://uss.ftco.ie/DMS/view_document.aspx?ID=1254210&Latest=true Sharepoint P24188-FT-EGN-ZZ-PP-EN-0003.pptx	
3.0	TR presented the proposed development and included: - Agenda - Objectives, specifically the likely requirement for mandatory scoping under REDIII, and project background - Existing development & site status (existing quarrying activities, lowered ground level topography, surrounding hedgerows and tree-lines) - Surrounding land uses (agriculture, quarries, landfill) - Existing servitudes and access to site - Proposed development (site layout, surface water management, biomethane and biogenic methane production, feedstocks and digestate) - Gas pipeline which is part of the project but not part of the application for consent (1 no. river crossing, 3 no. tributary crossings, 2 no. drain crossings) - Regulatory approvals for the projects (licenses and authorisations required, emphasising the fact that there will be no process water emissions)	

	EIAR and status of studies undertaken to date, public consultation and stakeholder engagement undertaken	
3.1	Concluded the introduction to the project. Opened the floor for questions related to the proposed development before RM commenced her presentation	
3.2	SQ Requested clarity on the ground level of the site and if what ground works may be involved before the development proceeds? Tr : No infilling is proposed and the ground level will remain as is aside from some levelling works. Groundworks will be limited to preparing the site for construction of the project and may require the removal of some material from site c. 20,000 t.	
3.3	RM Presented the current status of the ecological studies and covered: - Designated sites (river Barrow & River Nore SAC and Cloghrick Wood pNHA), including aquatic QI species and known status/distribution within the SAC. - Extent of 1:100 year floodline and associated bird records for floodlands - Desktop information pertaining to the biodiversity chapter: i. Birds, specifically Sand Martin (known nesting site 280m east of site), Barn Owl, Kestrel, Yellowhammer and Kingfisher. ii. Existing records of badger, fox and rabbits iii. Knapweed and consideration of creating on-site habitat as part of compensation areas to help with local conservation efforts of the species. iv. Queried NPWS regarding sources for green-hay for potentially establishing calcareous-based grassland in selected pockets on site as part of biodiversity enhancement. - Zones of Influence Zol (habitat loss, groundwater, air quality, noise). i. No surface water - water discharge only under 1:30 year flood even, else contained. Referred to a slide on the process water pond layout. ii. Stated that the 50-70dB limits will be used for disturbance levels as per the (Cutts et al wetland bird guidance) and for the noise Zol unless NPWS had other limits (no alternative limits suggested). Provided example of preliminary AQ model output where nDep is below critical loads for known Annex I habitats	
3.4	RM Queried the timeline on the mapping for the 2025 Article 17 reporting in terms of the Air Quality modelling and Zol? SQ&HD Uncertain when this will be published.	
3.5	Continued with presentation detailing surveys undertaken and current findings: - Habitats – bee orchid relocation will form part of mitigation - Mammals: badger sett being used by rabbits. No mammal receptors identified. - Bat roost, activity surveys and static deployment – data still needs to be analysed but species observed along the River Barrow would form part of populations that may use site. Limited and poor corridors on site for bats. - One tree with bat roost potential was shown to be unoccupied by bats. This tree will not be removed. - River Barrow bridge (proposed for pipeline crossing) showed one to two bats roosting in bridge; species could not be isolated from species using the corridor (Daubenton's Bat, Leisler's Bat, Brown Long-eared bat, Common Pipistrelle,	

	Soprano Pipistrelle). Limited suitability for roosting and occasional and intermittent use as day-roost.	
3.6	RM Raised a query about the derogation licence and timeframe (when should the application for derogation be completed) given that the pipeline is not part of the application for consent. SQ Queried if the pipeline was part of the project. TR Stated that it is part of the project, but not part of the application for consent. SQ & HD Disturbance to any bat roost requires derogation licence. TR Queried the transferability of the derogation licence as Gas Networks Ireland will be applying for consent and completing the activities. SQ Thinks it is transferable. It is understood that there may be variations in activities as the project evolves, but the derogation licence application should be completed before the application is closed. A full survey of species using the roost will be needed.	
3.7	RM Continued with the presentation, surveys undertaken and current findings: • Birds. Data included deposition of wintering/breeding birds, transects/vantage points, fly-overs/on site. No significant flight lines / directions followed. • Sand martin most significant species noted on site, prospecting around muddy pools. No nest holes observed on site. Also recorded from the neighbouring quarry to the south • Amphibians – frog spawn confirmed, newt DNA confirmed in ephemeral pools. Permanent habitat compensation will be considered. • Final slide on the small tributary/drainage crossing of the pipeline. Presented a summary of mitigation considerations and areas for biodiversity enhancement Also indicated areas on site that would be available for biodiversity enhancement	
4.0	Questions and answers TR Presented drone imagery of the site. BG Opened the floor for questions related to the project. Sent apologies as she had prior 15:30 commitment. SQ How active is the current quarry? TR The current quarry is very quiet, receiving/releasing c. 1 load a week as needed. Permitted to accept up to 5000 tonnes/annum in backfill materials SQ As there is no potential RFI under the REDIII application process, the survey effort has to be sufficient. Winter bird surveys must be completed monthly and breeding bird surveys must be completed as per guidelines. RM confirmed winter and breeding bird surveys were carried out monthly for the seasons with VPs and transects surveys BOC Queried the Knapweed location? RM – historically we know it grows there but hadn't spotted it locally	

RM	Clarified that it was not noted on or near site, but is known to be present in the area and it would be great to incorporate habitat on site for the species and possibly seed the site to aid with local conservation efforts of the species	
BOC	Noted on clarification and agreed that the Powerstown area is a stronghold for Knapweed and it is rare in other parts of carlow.	
BOC	Provided some potential locations for green-hay for calcareous grassland establishment, including potentially the slopes of the SAC across the road. The closer the source site the better.	
RM	Thanked BOC for suggestions. The site across the road required land-owner permission and wanted to know if there were any potential sources under NPWS jurisdiction?	
NPWS	No sites came to mind.	
BOC	Queried management of grassland to ensure the site doesn't revert back to scrub.	
RM	Yes, management to retain the grassland can and will be implemented.	
BOC	Sought clarity on the temporary and permanent sites for the translocation of bee orchids?	
RM	Temporary sites will need to be confirmed. Permanent locations will be established on site in habitat areas established as part of biodiversity enhancement.	
SQ	Queried reference to several years of monitoring removing the bee orchids? How would this be achieved on site in light of the planned development and construction on site?	
RM	Beed orchids will be translocated to a designated protected location on site and the remainder of the site will be surveyed routinely pre and during construction for any other plants.	
SQ	Quarries tend to be good habitats for reptiles. Were targeted reptile surveys completed?	
HD	Added that hibernacula be considered.	
RM	Surveys were completed. No signs were observed on site.	
HD	Queried invasive species along the pipeline?	
RM	None within the footprint where interaction may occur with the species.	
HD	Queried presence of Japanese Knotweed?	
RM	Only one location was picked up east of the site and not along the gas pipeline.	
HD	Queried wagtail and dipper surveys and suitability for species along the proposed pipeline crossings	
RM	Yes, the surveys encompassed these species. Some nesting suitability was confirmed around the River Barrow crossing but no evidence of nesting observed.	
HD	Has the annex I potential of the grassland slopes of the River Barrow opposite the site (area referred to by BOC earlier in minutes) been assessed.	
RM	we can progress on the assumption that it is Annex I equivalent habitat.	
SQ	Iterated that status is needed to inform impacts from air quality emissions. What concentrations are expected?	

TR	Stated that air quality modelling will be completed and only preliminary findings are available.
SQ	Queried if the lighting plan is available?
RM	Not yet.
TR	Provided details on lighting requirements and iterated that the site is lower than the neighbouring lands which will provide some screening
SQ	Is lighting 24/7?
TR	Yes it will be in the discrete operational areas needed during nighttime operation. Ecologists will give input as the project develops further.
RM	Definitely provide for protection of light in corridors and biodiversity enhancement areas on site.
HD	Queried noise levels and if these would also be 24/7?
TR	Identified noise sources, including the motors on the digestion tanks which will be operating 24/7 on site. Stated that the noise model is being developed.
SQ	Was site suitable for sand martin nesting?
RM	No, it was not suitable. Could be upgraded with some effort to be more suitable for nesting.
SQ	Reminder that the emissions from the project must be considered cumulatively with other activities related to agriculture and traffic, including future developments/projects.
RM & TR	Noted
HD	Queried the newt observations.
RM	They were not observed on site despite searching. Only confirmed to have been on site through eDNA analysis.
HD	How many bats were noted to use the River Barrow bridge as a roost?
RM	One to two individuals, but species could not be distinguished against background activity in the corridor, which is a known significant bat corridor.
SQ	Questioned the presence of buildings on site?
TR	Explained that there is one flat-roofed substation-type building on site.
SQ	What about the buildings along the road? From street view these look like they may be suitable for roosting bats.
RM	Bat activity surveys still need to be completed.
HD	Queried the tanker numbers and size?
TR	They can be approximated to the size of milk trucks. 10 trucks per hour and 120 per day.
HD	Queried wheel washing of trucks.
TR	Stated that the trucks wheels and trucks are cleaned after each off-load at the site by hot pressure washers at the unloading facilities.
	Biosecurity procedures will be in place according to DAFM and the existing biosecurity measures on farms will be complied with.
SQ	What happens with the used wash water

TR	Collected from the washing area and returned to process water.
SQ	Commented that badger do move around and are attracted to land-fill sites (neighbouring land to the north) and the mitigation should allow for a pre-construction survey for badger in the event they return to site.
RM	We have that included in our badger mitigation.
BOQ	Have insects been looked at? Specifically queried the Dingy Skipper, and whether consideration is given to range-restricted species/
RM	Ecologists do record any findings of invertebrates sighted during any ecological surveys and nothing noteworthy was observed. Survey was completed for any potential suitable habitat for Marsh Fritillary.
TR	Also added that the site has approval for backfilling and that this supports the paucity of significant species / habitats on site as it would have gone through an approval process.
SQ	Is there potential for bare soil patches for mining bees in the proposed development?
RM	Yes there is.
BOC	Any peregrine noted to use site or breeding there.
RM	No. Kestrel was not flying over, but no peregrines were recorded on site or flying over site.
BOC	Stated that Basal thyme might be present I the area and should be considered.
RM	Was not picked up on site.
HD	Queried hedgehog surveys and if any were found?
RM	Was completed as part of mammal surveys and no signs were noted on site.
HD	Queried if tanks were bunded? [Quality of HD sound deteriorated and HD commenced with typing into the Teams Meeting]
TR	Explained that the tanks (constructed of concrete and steel) area established in a bunded area that will have the volume to contain a combined spill event from tanks.
HD	Clarified query by chat: Are tankers bunded? I was asking about the 120 tankers carrying the animal manures and then the liquified substance? If the tankers were punctured?
TR	Explained that the loading and unloading will be at dedicated areas with hoses connected to the tankers and is designed to mitigate spills at these locations.
	Greengate will be managing and maintaining the fleet.
	Needed confirmation but it is expected that the new tankers will be double-skinned to contain spills.
HD	"Would be ideal if fleet bunded or "double skinned"
SQ	Are there plans to update the existing hedgerows?
RM	Yes, there will be a landscape plan to include this.
TR	The ecologists will provide input into the landscape management plan.
SQ	Consideration must be given to using native and local species, species that flower at different tie of the year and interspersing with tree as the latter improves these features for bats.

TR	Noted. The perimeter may be limited and too narrow for tree planting but will be investigated.	
SQ	Noted.	
BOC	Was curious about the grassland management and prevention of scrubbing of grasslands, i.e. where grassland reverts to scrub land.	
RM	Stated that they have implemented successfully at other projects and will be happy to share material on the subject matter with BOC.	
BOC	Would appreciate information on the subject matter.	
HD	Queried if any culverts/water crossings need to be taken out, White-clawed Crayfish would need to be considered etc and siltation mitigated against.	
RM	If the culverts need to be removed and reinstated due to confined headroom in the existing road for the gas pipeline (not expected), then all works will be done in accordance with IFI guidelines and biosecurity protocols. If this is done, we will opt for a sump and pump option in the tributaries and drains rather than straw bales which tend to wash away.	
TR	Summed up and queried if NPWS would like to have a follow up meeting given the timeframes involved with the application process?	
SQ	A second meeting is not necessary, but NPWS are available and happy to meet if needed.	
TR	Who will receive the scoping report for comment at mandatory scoping stage?	
SQ	The new process is not yet clear.	
RM	The publication of procedural items are imminent. Also stated that there is likely to be a follow up with NPWS and the Board regarding the scoping for the NIS after the AA screening has been compiled.	
SQ	Unclear on process but is under the impression that the consultation between the Board and NPWS might be independent of the applicant. Insinuated that board will write back to us and no meetings.	
RM	Note that the NIS will be compiled on a precautionary basis and the only the River Barrow and River Nore SAC will screen in. The fly-overs of birds over site show no significant movement from potential significant bird areas and SPA SCIs are not affected by project.	
HD	Do the smaller water crossings/culverts have the capacity/structural load for 120 tankers per day? Were surveys needed to determine this?	
TR	The trucks will disperse from site to various feedstocks at the surrounding agricultural lands and not all the trucks will be crossing all the culverts. Shows against a slide of the area.	
	The traffic assessment has considered / is considering the traffic load on surrounding roads and road infrastructure	
RM	Added that the county is responsible for checking and maintaining the load bearing capacity of culverts	
TR & RM	Thanked NPWS for their time and input, appreciating their busy schedules.	
TR	Closed the meeting at 15:55.	

From: Housing Manager DAU
Sent: Wednesday, December 17, 2025 10:35 AM
To: Powerstown Biogas
Subject: Fw: RE: Updated Consultation - Powerstown Biogas

Good morning Tanya,

On behalf of the Department of Housing, Local Government and Heritage, I acknowledge receipt of your email.

I have forwarded your email to the local National Parks and Wildlife Service staff for directly reply.

Regards,

Brian Bone
Executive Officer

An Roinn Tithíochta, Rialtais Áitiúil agus Oidhreachta
Department of Housing, Local Government and Heritage

Aonad na nIarratas ar Fhorbairt
Development Applications Unit

Oifigí an Rialtais, Bóthar an Bhaile Nua, Loch Garman, Contae Loch Garman, Y35 AP90
Government Offices, Newtown Road, Wexford, Co Wexford, Y35 AP90

From: Powerstown Biogas [REDACTED]
Sent: Tuesday 16 December 2025 12:45
To: Housing Manager DAU [REDACTED]
Cc: Brian O'Connor (Housing) [REDACTED]
Subject: RE: Updated Consultation - Powerstown Biogas

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Dear Brian,

Thank you for your response. A colleague of yours, Brian O Connor- Conservation Ranger North Carlow has ben in contact to arrange a meeting with us in respect of the project. I have cc'd Brian here for convenience.

Please see attached the first scoping letter email, we had some updates to the scope of the EIAR in the period between round 1 and round 2 which was mainly to do with utility corridors. We also started pre planning with the local authority but have since had a SID pre application meeting with An Coimisiún Pleanála hence 2nd round of scoping.

We are keen to meet with NPWS to discuss the scope of the biodiversity chapter.

Kind Regards
Tanya

From: Housing Manager DAU <[REDACTED]>
Sent: Wednesday 19 November 2025 14:40
To: Powerstown Biogas <[REDACTED]>
Subject: FW: Updated Consultation - Powerstown Biogas
Importance: High

Good afternoon Tanya,

I refer to my earlier email concerning your recent consultation.

Your letter, a copy of which is attached, states:

'Having previously written to your department on 02 April 2025 and received no response, Greengate Biogas 001 Ltd. on the advice of An Coimisiún Pleanála requests a scoping meeting with NPWS in respect of the proposed development'.

After searching our records there is no indication that the Development Applications Unit received any correspondence dated 2 April 2025 concerning the Proposed Anaerobic Digestion (AD) plant at Powerstown, County Carlow. Could you please forward a copy of that email, along with any supporting documentation that was attached?

I look forward to hearing from you.

Regards,

Brian Bone
Executive Officer

An Roinn Tithíochta, Rialtais Áitiúil agus Oidhreachta
Department of Housing, Local Government and Heritage

Aonad na nIarratas ar Fhorbairt
Development Applications Unit

Oifigí an Rialtais, Bóthar an Bhaile Nua, Loch Garman, Contae Loch Garman, Y35 AP90
Government Offices, Newtown Road, Wexford, Co Wexford, Y35 AP90

From: Housing Manager DAU [REDACTED]
Sent: Wednesday 19 November 2025 10:22
To: Powerstown Biogas [REDACTED]
Cc: Housing Qcsofficer [REDACTED]
Subject: RE: Updated Consultation - Powerstown Biogas

Your Ref: P24188-FT-EN-ZZ-LT-EN-0007

Our Ref: G Pre00370/2025

(Please quote in all related correspondence)

Good morning Tanya,

On behalf of the Department of Housing, Local Government and Heritage, I acknowledge receipt of your recent consultation.

Please note, the Development Applications Unit (DAU) is the coordinating unit for the Department of Housing, Local Government and Heritage coordinating responses/submissions from National Parks and Wildlife Service, National Monuments Service, Architectural Heritage and Underwater Archaeology Unit.

All correspondence in relation to pre-planning consultations is to be issued to the DAU. Duplicates of this correspondence should not be sent to other email addresses, such as the Department's Nature Conservation or National Monuments Service email addresses, as this causes unnecessary confusion.

In the event of observations, you will receive a co-ordinated heritage-related response by email from the DAU.

The normal target turnaround for pre-planning and other general consultations is six weeks from the date of receipt. In relation to general consultations from public bodies under the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 to 2011, the Department endeavours to meet deadline dates where requested.

If you have not heard from the DAU and wish to receive an update, please email: manager.dau@npws.gov.ie

Regards,

Brian Bone
Executive Officer

An Roinn Tithíochta, Rialtais Áitiúil agus Oidhreachta
Department of Housing, Local Government and Heritage

Aonad na nIarratas ar Fhorbairt
Development Applications Unit

Oifigí an Rialtais, Bóthar an Bhaile Nua, Loch Garman, Contae Loch Garman, Y35 AP90
Government Offices, Newtown Road, Wexford, Co Wexford, Y35 AP90

From: Powerstown Biogas [REDACTED]
Sent: Tuesday 18 November 2025 16:24
To: Housing Manager DAU [REDACTED]
Cc: Housing Qcsofficer [REDACTED]

Subject: Updated Consultation - Powerstown Biogas

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Dear Sir Madam,

Please see attached letter regarding the Proposed Anaerobic Digestion (AD) plant at
Powerstown, County
Carlow

Comments on the scope of the EIAR can be submitted by email to powerstownbiogas@ftco.ie.

Please confirm receipt.

Kind regards,

Tanya Ruddy
for and on behalf of Fehily Timoney and Company Ltd

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