3FMProject

Bringing
Dublin Port
To 2040

Environmental Impact Assessment Report

Appendix 7.2

Volume 3 Part 3

COMHLACHT CHALAFORT ÁTHA CLIATH
DUBLIN PORT COMPANY

RPS
A TETRA TECH COMPANY

Third & Final
Masterplan
Project

Appendix 7.2 Terrestrial Ecology

Contents

National Biodiversity Data Centre Records within 1 km of the 3FM Project 2024

Species name	Record count	Date of last record	Title of dataset	Designation
Common Frog (Rana temporaria)	14	14/03/2023	Amphibians and reptiles of Ireland	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex V || Protected Species: Wildlife Acts
Smooth Newt (Lissotriton vulgaris)	1	06/04/2020	Amphibians and reptiles of Ireland	Protected Species: Wildlife Acts
Arthurdendyus triangulatus	4	07/05/2020	New Zealand Flatworm (Arthurdendyus triangulatus) Database	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> High Impact Invasive Species
Autumn Lady's-tresses (Spiranthes spiralis)	1	31/08/2023	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Threatened Species: Near threatened
Butterfly-bush (Buddleja davidii)	34	12/02/2024	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Medium Impact Invasive Species
Canadian Fleabane (Conyza canadensis)	1	12/07/2012	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Medium Impact Invasive Species
Evergreen Oak (Quercus ilex)	2	30/08/2020	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Medium Impact Invasive Species
False-acacia (Robinia pseudoacacia)	1	20/06/2021	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Medium Impact Invasive Species
Giant-rhubarb (Gunnera tinctoria)	1	28/06/2020	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> High Impact Invasive Species || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
Glebionis segetum	1	12/08/2021	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Threatened Species: Near threatened
Himalayan Honeysuckle (Leycesteria formosa)	2	07/09/2021	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Medium Impact Invasive Species

APPENDIX 7.2.1

Species name	Record count	Date of last record	Title of dataset	Designation
Indian Balsam (Impatiens glandulifera)	24	19/06/2023	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> High Impact Invasive Species || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
Japanese Knotweed (Fallopia japonica)	33	23/11/2022	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> High Impact Invasive Species || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
Japanese Rose (Rosa rugosa)	1	24/09/2018	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Medium Impact Invasive Species
Lesser Centaury (Centaurium pulchellum)	3	01/09/2023	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Threatened Species: Endangered
Milk Thistle (Silybum marianum)	1	10/10/2020	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Threatened Species: Near threatened
Narrow-leaved Ragwort (Senecio inaequidens)	12	07/07/2023	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Medium Impact Invasive Species
Nuttall's Waterweed (Elodea nuttallii)	2	31/07/2009	National Invasive Species Database	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> High Impact Invasive Species || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
Pale Flax (Linum bienne)	7	31/05/2023	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Threatened Species: Near threatened
Pampas-grass (Cortaderia selloana)	1	15/01/2019	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Medium Impact Invasive Species
Ragweed (Ambrosia artemisiifolia)	1	06/09/2022	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Medium Impact Invasive Species
Sea-buckthorn (Hippophae rhamnoides)	15	08/08/2022	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Medium Impact Invasive Species || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)

APPENDIX 7.2.1

Species name	Record count	Date of last record	Title of dataset	Designation
Slender Thistle (Carduus tenuiflorus)	1	13/08/2018	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Threatened Species: Near threatened
Small Cudweed (Filago minima)	1	12/07/2012	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Threatened Species: Near threatened
Spanish Bluebell (Hyacinthoides hispanica)	2	15/04/2022	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
Sycamore (Acer pseudoplatanus)	11	22/02/2024	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Medium Impact Invasive Species
Three-cornered Garlic (Allium triquetrum)	7	21/03/2024	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Medium Impact Invasive Species || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
Traveller's-joy (Clematis vitalba)	5	23/07/2021	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Medium Impact Invasive Species
Wild Clary (Salvia verbenaca)	3	28/07/2023	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Threatened Species: Least concern
Dark Green Fritillary (Argynnis aglaja)	1	31/12/1956	Butterflies of Ireland pre-2022	Threatened Species: Vulnerable
Grayling (Hipparchia semele)	2	30/08/1983	Butterflies of Ireland pre-2022	Threatened Species: Near threatened
Marsh Fritillary (Euphydryas aurinia)	2	27/05/2020	Butterflies of Ireland pre-2022	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex II || Threatened Species: Vulnerable
Small Heath (Coenonympha pamphilus)	8	02/06/2021	Butterflies of Ireland pre-2022	Threatened Species: Near threatened
Wall (Lasiommata megera)	10	26/08/2010	Irish Butterfly Monitoring Scheme	Threatened Species: Endangered
Andrena (Melandrena) nigroaenea	1	04/05/2008	Bees of Ireland	Threatened Species: Vulnerable
Colletes (Colletes) similis	1	17/08/2009	Bees of Ireland	Threatened Species: Near threatened

APPENDIX 7.2.1

Species name	Record count	Date of last record	Title of dataset	Designation
Large Red Tailed Bumble Bee (Bombus (Melanobombus) lapidarius)	14	05/08/2023	Bees of Ireland	Threatened Species: Near threatened
Moss Carder-bee (Bombus (Thoracombus) muscorum)	11	04/05/2020	Bees of Ireland	Threatened Species: Near threatened
Neat Mining Bee (Lasioglossum (Evylaeus) nitidiusculum)	1	22/07/2008	Bees of Ireland	Threatened Species: Vulnerable
Endive Pellia (Pellia endiviifolia)	1	14/09/2007	Bryophytes of Ireland	Threatened Species: Least concern
Greasewort (Aneura pinguis)	3	14/09/2007	Bryophytes of Ireland	Threatened Species: Least concern
Jagged Germanderwort (Riccardia chamedryfolia)	2	25/02/2012	Bryophytes of Ireland	Threatened Species: Least concern
White Snail (Theba pisana)	1	30/08/2020	National Invasive Species Database	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Medium Impact Invasive Species
Baltic Bryum (Bryum marratii)	2	14/09/2007	Bryophytes of Ireland	Threatened Species: Least concern
Bird's-claw Beard-moss (Barbula unguiculata)	1	14/09/2007	Bryophytes of Ireland	Threatened Species: Least concern
Bryum dichotomum	2	14/09/2007	Bryophytes of Ireland	Threatened Species: Least concern
Bryum pseudotriquetrum var. pseudotriquetrum	3	25/02/2012	Bryophytes of Ireland	Threatened Species: Least concern
Cylindric Beard-moss (Didymodon insulanus)	1	14/09/2007	Bryophytes of Ireland	Threatened Species: Least concern
Fallacious Beard-moss (Didymodon fallax)	1	14/09/2007	Bryophytes of Ireland	Threatened Species: Least concern
Fertile Feather-moss (Drepanocladus polygamus)	4	14/09/2007	Bryophytes of Ireland	Threatened Species: Least concern
Hornschuch's Beard-moss (Pseudocrossidium hornschuchianum)	1	14/09/2007	Bryophytes of Ireland	Threatened Species: Least concern
Kneiff's Hook-moss (Drepanocladus aduncus)	5	25/02/2012	Bryophytes of Ireland	Threatened Species: Least concern
Lesser Bird's-claw Beard-moss (Barbula convoluta)	1	14/09/2007	Bryophytes of Ireland	Threatened Species: Least concern

APPENDIX 7.2.1

Species name	Record count	Date of last record	Title of dataset	Designation
Many-seasoned Thread-moss (Bryum intermedium)	2	14/09/2007	Bryophytes of Ireland	Protected Species: Flora Protection Order || Protected Species: Flora Protection Order >> Flora Protection Order 2015 Schedule B (Mosses) || Threatened Species: Endangered
Megapolitan Feather-moss (Rhynchostegium megapolitanum)	1	14/09/2007	Bryophytes of Ireland	Threatened Species: Near threatened
Olive Beard-moss (Didymodon tophaceus)	1	14/09/2007	Bryophytes of Ireland	Threatened Species: Least concern
Pointed Spear-moss (Calliergonella cuspidata)	2	25/02/2012	Bryophytes of Ireland	Threatened Species: Least concern
Redshank (Ceratodon purpureus)	1	14/09/2007	Bryophytes of Ireland	Threatened Species: Least concern
Rough-stalked Feather-moss (Brachythecium rutabulum)	1	14/09/2007	Bryophytes of Ireland	Threatened Species: Least concern
Sand Feather-moss (Brachythecium mildeanum)	2	25/02/2012	Bryophytes of Ireland	Threatened Species: Least concern
Shady Beard-moss (Didymodon umbrosus)	3	17/11/2004	Bryophytes of Ireland	Threatened Species: Vulnerable
Warne's Thread-moss (Bryum warneum)	5	14/09/2007	Bryophytes of Ireland	Protected Species: Flora Protection Order || Protected Species: Flora Protection Order >> Flora Protection Order 2015 Schedule B (Mosses) || Threatened Species: Endangered
Yellow Feather-moss (Homalothecium lutescens)	3	14/09/2007	Bryophytes of Ireland	Threatened Species: Least concern
American Mink (Mustela vison)	1	27/02/2016	Mammals of Ireland 2016-2025	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> High Impact Invasive Species || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
Brown Long-eared Bat (Plecotus auritus)	1	25/07/2013	National Bat Database of Ireland	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex IV || Protected Species: Wildlife Acts
Brown Rat (Rattus norvegicus)	3	10/10/2018	Mammals of Ireland 2016-2025	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> High Impact Invasive Species || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)

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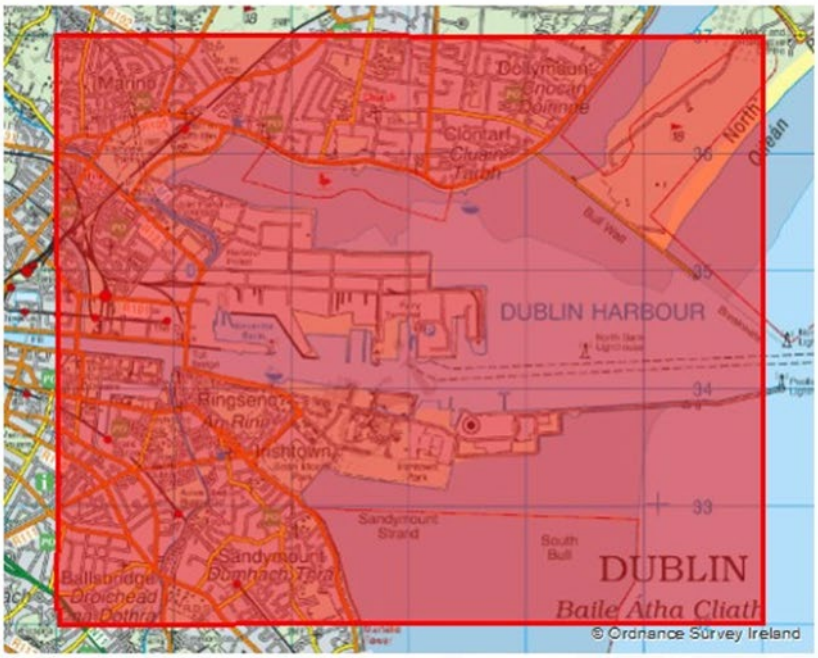
Species name	Record count	Date of last record	Title of dataset	Designation
Daubenton's Bat (Myotis daubentonii)	13	24/08/2021	National Bat Database of Ireland	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex IV || Protected Species: Wildlife Acts
Eastern Grey Squirrel (Sciurus carolinensis)	41	27/03/2023	Mammals of Ireland 2016-2025	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> High Impact Invasive Species || Invasive Species: Invasive Species >> EU Regulation No. 1143/2014 || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
Eurasian Badger (Meles meles)	5	22/07/2015	Atlas of Mammals in Ireland 2010-2015	Protected Species: Wildlife Acts
Eurasian Pygmy Shrew (Sorex minutus)	2	08/11/2015	Atlas of Mammals in Ireland 2010-2015	Protected Species: Wildlife Acts
European Otter (Lutra lutra)	7	27/02/2016	Mammals of Ireland 2016-2025	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex II || Protected Species: EU Habitats Directive >> Annex IV || Protected Species: Wildlife Acts
House Mouse (Mus musculus)	2	28/11/2015	Atlas of Mammals in Ireland 2010-2015	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> High Impact Invasive Species
Lesser Noctule (Nyctalus leisleri)	48	05/08/2020	National Bat Database of Ireland	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex IV || Protected Species: Wildlife Acts
Nathusius's Pipistrelle (Pipistrellus nathusii)	2	15/09/2020	National Bat Database of Ireland	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex IV || Protected Species: Wildlife Acts
Pine Marten (Martes martes)	1	09/02/2020	Mammals of Ireland 2016-2025	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex V || Protected Species: Wildlife Acts
Pipistrelle (Pipistrellus pipistrellus sensu lato)	1	25/07/2013	National Bat Database of Ireland	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex IV || Protected Species: Wildlife Acts
Soprano Pipistrelle (Pipistrellus pygmaeus)	9	04/06/2020	National Bat Database of Ireland	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex IV || Protected Species: Wildlife Acts
West European Hedgehog (Erinaceus europaeus)	9	01/08/2021	Hedgehogs of Ireland	Protected Species: Wildlife Acts

Species list for a User-Defined Polygon (Within)



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ECOLOGICAL SURVEY FOR BATS

3FM Project - Dublin Port Company

NI 2541 DPC 3FM Ecology
Ecological Survey for Bats
F01
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F01	Planning Application	D. McCormick	S. Lowry	J. McCrory	01/07/24

Approval for issue

S. Lowry	S. Lowry	01/07/24

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Dublin Port Company

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Contents

Figures

Appendices

1 INTRODUCTION

1.1 Introduction

RPS was commissioned by Dublin Port Company to undertake an Ecological Survey for Bats to support a planning application for the proposed 3FM Project, which is the third and final Strategic Infrastructure Development Project needed to deliver the capacity objectives of the Dublin Port Masterplan 2040.

1.2 Ecological Survey for Bats

The aim of the report is to provide a description of the bat survey methods used; to provide the detailed results of bat surveys; and to provide an interpretation of the results at the proposed development site. The Ecological Survey for Bats is used to inform the Ecological Impact Assessment (EcIA).

1.3 Legislation

All species of bats are European Protected Species (EPS) listed on Annex IV of Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora ("the Habitats Directive"), lesser horseshoe bat is also listed on Annex II. The domestic legislation, the European Communities (Birds and Natural Habitats) Regulations 2011, (S.I. No. 477 of 2011) ("the Habitats Regulations"), which implements this Directive, combined with the Wildlife Acts 1976 to 2021, ensures that individual bats and their breeding sites and resting places are fully protected.

1.4 Proposed Project

The following excerpt from Chapter 5 of the main 3FM - Environmental Impact Assessment (EIA) describes the project's six key elements:

1. Construction of a new public road and bridge called the **Southern Port Access Route (SPAR)** to link the north and south port areas.

   The route will include a new opening bridge over the River Liffey and a viaduct running parallel to the south bank of the River Liffey. The bridge will be located immediately east of Tom Clarke Bridge. The route will facilitate Heavy Goods Vehicles (HGVs), active travel users (pedestrians, cyclists, wheelers etc.), blue light services and public transport users moving to and from the South Port and Poolbeg Peninsula. The SPAR will allow the 3FM Project to be rail enabled through rapid road shunting of freight from the South Port, across the Liffey, to rail intermodal facilities in the North Port vicinity. The SPAR will have a direct connection to the Dublin Tunnel (aka Dublin Port Tunnel) via the North Port road system.

2. Construction of a **new Lift-on Lift-off (Lo-Lo) Terminal** with an annual throughput capacity of 550,000 Twenty-foot Equivalent Units (TEU) or 5.34m tonnes.

   The Lo-Lo Terminal will consist of two main components:

   A terminal located north of the ESB's Generating Station on the eastern end of Poolbeg Peninsula. The terminal will have 650m of deep water berthage dredged to a depth of -13.0m CD (Chart Datum), plus associated cargo handling areas (Dublin Port Masterplan Area N). This terminal will accommodate Lo-Lo vessels of up to 240m length overall, primarily from continental Europe, on a new open-piled

wharf. The works will require the demolition of the existing Poolbeg Oil Jetty which will be replaced by a new oil transfer facility at the eastern end of the wharf.

The terminal above will operate in conjunction with a transit container storage yard located on waterside land currently used for bulk cargo handling (Dublin Port Masterplan Area L).

3. Replacement of the existing Lo-Lo container terminal, currently operated by Marine Terminals Limited (MTL), with a **new Roll-On Roll-Off (Ro-Ro) Terminal** with an annual throughput capacity of 360,000 Ro-Ro units or 8.69m tonnes.

   The Ro-Ro Terminal will consist of two main components:

   – A terminal to be located at existing Berths 42 – 45 including provision of two berths, each with a single tier Ro-Ro ramp, plus associated cargo handling facilities (Dublin Port Masterplan Area K).

   The terminal will operate in conjunction with a transit Ro-Ro trailer yard located on Port owned land on the southern side of the Poolbeg Peninsula (Dublin Port Masterplan Area O).

   This combined terminal will accommodate Ro-Ro vessels of up to 240m length, primarily from continental Europe.

4. Provision of a **325m diameter ship turning circle** in the river channel north of Pigeon House Harbour, dredged to a depth of -10.0m CD.

   The ship turning circle will enable safe navigation and efficient manoeuvring of vessels up to 240m in length. The boundary with Masterplan Area M (47A Hardstand) will comprise a vertical steel combi-wall. The construction of the Turning Circle will require the demolition of the existing Sludge Jetty.

5. Construction of a **Maritime Village** at Pigeon House Road and Berth 41.

   This village will accommodate local rowing, sailing, and boat clubs and will provide a significantly enhanced public realm and facilities on the waterside. It will also accommodate the relocation of Port Harbour Operations from the North Port.

   The 3FM Project will require the demolition of the existing Poolbeg Yacht & Boat Club and the Stella Maris Rowing Club buildings, to make way for the proposed SPAR. The existing facilities will be replaced by the construction of the Maritime Village which will have a significantly larger footprint including the hinterland to Berth 41 (currently part of the existing Lo-Lo Container Terminal operated by MTL).

6. Construction of **Community Gain** elements

   Integrating Dublin Port with Dublin City and its people is a core objective of the Masterplan for Dublin Port. Development of proposed new public amenities on the Poolbeg Peninsula as part of the 3FM Project will provide **community gain** and contribute towards integrating the port with the city. Proposed new public amenities include:

   Enhanced **recreational amenity** through:

   - **7.0km of new or upgraded Active Travel Path** (cycle, pedestrian, wheelers etc.) **and 4.9km of new or upgraded footway** across the North Port, SPAR and Poolbeg Peninsula, which will link with the 1.4km Liffey Tolka Greenway in the North Port, and from there to the 4.0km Tolka Estuary Greenway currently under construction by Dublin Port. DPC will also provide Dublin City Council

with a €5 million contribution for future upgrading of the existing coastal path along the southern perimeter of the Poolbeg Peninsula.

- Development of a **sailing, rowing and maritime campus** (Maritime Village) adjacent to the existing Poolbeg Yacht and Boat Club in consultation with local yacht and boating clubs, including a public slipway and facilities for maritime skills training.
- Provision of recreational space in the form of **Port Park and Wildflower Meadow** (2.5ha), and **Coastal Park** (1.6ha)
- Provision of a 1.1ha extension to **Irishtown Nature Park**.

Enhanced **public realm** through:

- Development of a new **public plaza** as a key part of the Maritime Village.
- Extensive **boundary softening** works adjacent to the development sites forming part of the 3FM Project.

Community support through:

- Establishment of a new €2 million **Community Benefit Fund** for Education, Heritage & Maritime Training Skills projects within the Poolbeg area. The initial capital for the Fund will be administered by DPC in consultation with local stakeholders.

Heritage & Biodiversity enhancements through:

- Commissioning a new **Public Access Feasibility Study** regarding the Great South Wall so as to identify improved public interpretation, accessibility, facilities and conservation possibilities.
- Provision of up to €1 million **funding to implement the study recommendations**.
- Construction of an additional permanent marine structure (dolphin) to **expand the available habitat and range of the Dublin Port Tern Colonies**.
- Provision of Interpretative Markers to delineate the alignment of the Great South Wall (GSW)

Other significant ancillary works include:

- Improvements to the existing road network in both the North and South Port, linking and providing access to the port terminals, including new signal-controlled junctions and a new roundabout on Pigeon House Road;
- Improved pedestrian access from Irishtown to the proposed Maritime Village; and
- Demolition of the existing Poolbeg Oil Jetty and Sludge Jetty.

The location of the proposed project and planning application boundary are illustrated in Plate 1 below.

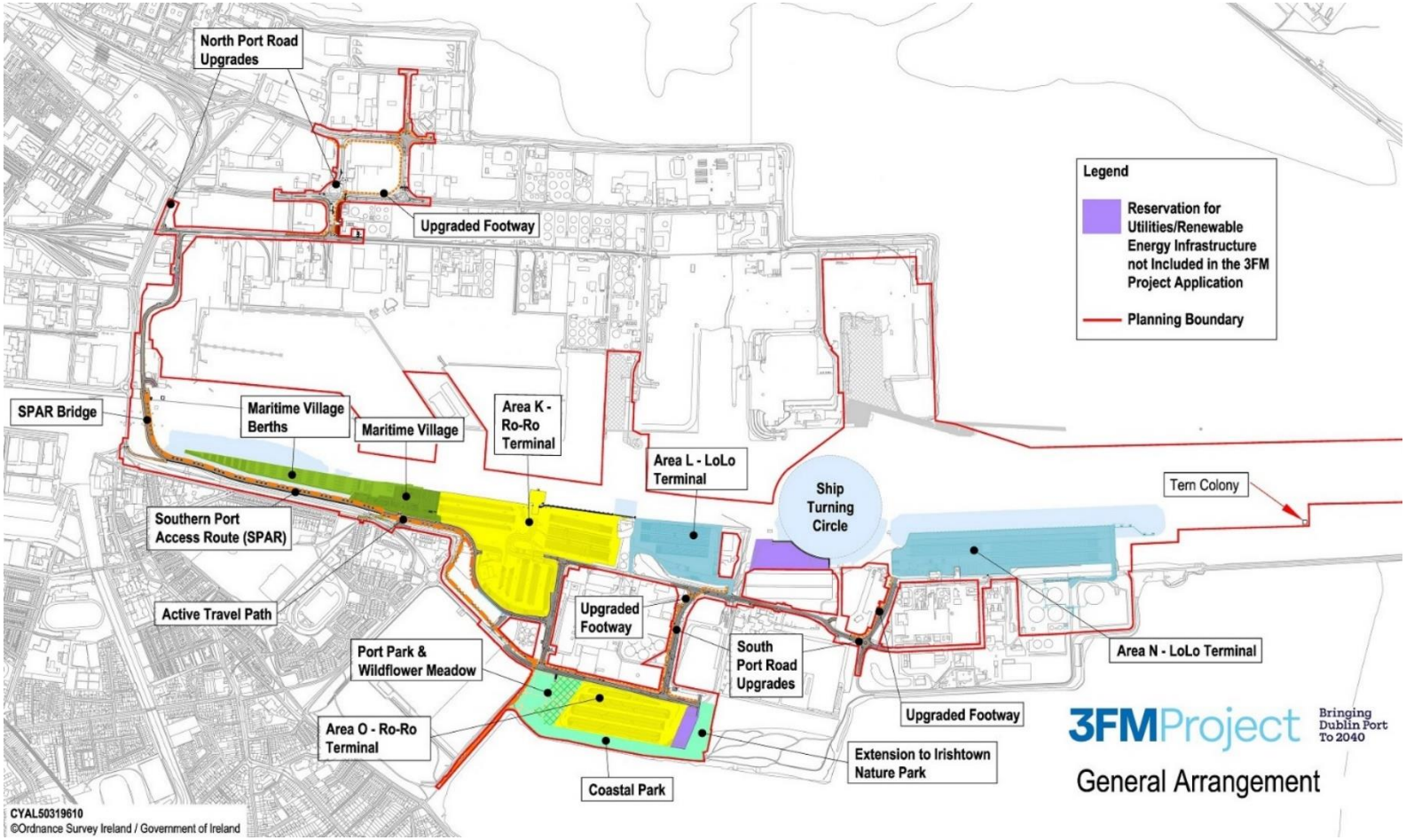


Plate 1 showing the 3FM Project General Arrangement Plan

2 METHODOLOGY

2.1 Statement of Authority

The report has been approved for issue by James McCrory, Technical Director of Ecology with RPS. James also assisted with bat surveys in 2024. James holds a BA (Hons) in Natural Sciences (Mod) Botany and a MSc in Habitat Creation and Management. James is a Chartered Environmentalist (CEnv), a Chartered Ecologist (CEcol), a Chartered Biologist (CBiol) and a full member of the Chartered Institute of Ecology and Environmental Management (CIEEM) and the Royal Society of Biology (MRSB). James is a former member of the CIEEM Irish Section Committee and CIEEM Policy Review Group in Ireland and a member of the CIEEM technical working group updating the Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland. James currently sits on the CIEEM technical working group for EcIA accreditation across the Institutes practitioner network.

The report has been reviewed and edited by Suzanne Lowry, a Senior Associate of Ecology within RPS. Suzanne holds a BSc (Hons) in Biological Sciences, a MSc in Environmental Management and has over 20 years of experience in the field of ecology and environmental consultancy. Suzanne has extensive experience of project management and co-ordination, ecology field survey and technical report writing. Suzanne is an Associate member of the Chartered Institute of Ecology and Environmental Management (CIEEM).

David McCormick, lead author and bat surveyor in 2024, is a Senior Ecologist with RPS and holds a BSc (Hons) in Physical Geography and English and an MSc in Ecological Management and Conservation Biology. He has over 12 years of experience of ecological field survey including peatland and wetland habitats, mammal, amphibian, and invertebrate survey and is a protected species license holder. David is an associate member of the Chartered Institute of Ecology and Environmental Management (CIEEM).

Conor Finlay, assisted with bat surveys in 2024, is an Ecologist with RPS and holds a BSc (Hons) in Environmental Science, a MSc in Ecological Management and Conservation Biology with over three years of experience in ecological consultancy. Conor has experience of habitat, mammal, reptile, and bird survey and is a protected licence holder. Conor is a Qualifying member of the CIEEM and a volunteer with the Northern Ireland Amphibian and Reptile Group.

Joe Baird, lead bat surveyor in 2022 and 2023, is an Ecologist with RPS and holds a BSc (Hons) in Environmental Biology, is currently working towards a MSc in Environmental Management with GIS and has over five years of experience in environmental and ecological consultancy. Joseph has in-house training in bat ecology and bat survey.

Dave Welsh, assisted with bat surveys in 2022 and 2023, is a Principal Ecologist with RPS and holds a BSc (Hons) in Marine Science, a MSc in Ecological Management and Conservation Biology with over eight years of experience in ecological consultancy. Dave has extensive experience of habitat, mammal, amphibian, reptile and invertebrate survey and is a protected species license holder. Dave is an Associate member of the CIEEM and a former volunteer with the Northern Ireland Bat Group and Northern Ireland Badger Group.

The information prepared and provided is true and accurate at the time of issue of this report and has been prepared and provided in accordance with the CIEEM Code of Professional Conduct (CIEEM, 2019). We confirm that the professional judgement expressed herein is the true and bona fide opinion of our professional ecologists.

2.2 Preliminary Ecological Appraisal for Bats

A Preliminary Ecological Appraisal for Bats (PEAB) comprising of consultation, a desk study and site walkover has been completed for the proposed project. The aim of the site walkover was to observe, assess and record the potential suitability of the site of the proposed project to support bat roosting habitat, commuting habitat and/or foraging habitat. Habitat features were classified as none, negligible, low, moderate or high in accordance with Bat Conservation Trust (BCT), Good Practice Guidelines (Collins, 2023).

2.3 Preliminary Roost Assessment of Structures

A Preliminary Roost Assessment (PRA) of structures within the site was carried out during daylight hours in September and October 2022. The PRA of structures was updated in January, April and May 2024 to include additional areas, namely Plots K and L, as well small numbers of existing buildings in Area O to which accessed was previously denied. These additional (2024) assessments were undertaken in accordance with Collins (2023). An external inspection survey of structures was undertaken from the ground to look for potential and actual bat entry/exit points, evidence of bat roosts and signs of bat related activity to determine the presence of bats or likely presence of bats.

2.4 Emergence Surveys of Structures

Emergence/re-entry surveys of structures were carried out to watch, listen and records bats exiting or entering potential roosts. The surveys were carried out by two surveyors in May and June 2024. The surveys were carried out when weather conditions were forecast to consist of temperatures >10 °C with little or no precipitation, and low or negligible wind speed. The date, times & meteorological conditions of each emergence survey are recorded. Survey methodology is in accordance with Collins (2023).

Night Vision Aids (NVAs) consisting of NightFox Whisker Night Vision Binoculars were used to record bats. Elekon Batlogger M bat detectors with real time full spectrum recording, an integrated Global Positioning System (GPS) and temperature logger were paired with each camcorder and used to record bat echolocation calls. The NVA equipment was deployed and monitored by two surveyors during the course of the survey.

2.5 Preliminary Roost Assessment of Trees

A Preliminary Roost Assessment (PRA) of trees was carried out during daylight hours between June 2022 and October 2022. The PRA of trees was updated in January, April and May 2024 to include additional areas, namely Plots K and L.

A detailed external inspection of trees was undertaken from ground level to identify Potential Roost Features (PRFs) that could be used by roosting bats. Bats rely on the presence of disease and decay; damage; and associations in trees to provide suitable roosting habitat. These three forms of PRF result in the development of a variety of different features that can provide preferred roost sites for bat species (Andrews, 2018 and Collins, 2023).

- Disease and decay PRFs include woodpecker holes, squirrel holes, knot holes, pruning cuts, tear outs, wounds, cankers, compression forks and butt rots.

- Damage PRFs include lighting strikes, hazard beams, subsidence cracks, shearing cracks, transverse snaps, welds, lifting bark, desiccation fissures and frost cracks.
- Association PRFs include fluting and ivy with stem diameters in excess of 50 mm.

Trees were classified as having negligible, low, moderate or high suitability for roosting bats in accordance with the Bat Conservation Trust, Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th Edition) (Collins, 2023). The aim of the PRA is to determine if further Tree Climbing PRF Inspection Surveys are required.

2.5.1 Timing

The optimal period for the undertaking of bat roost surveys is May to August and it is noted that bats use different roosts at different times throughout this period. Therefore, in ideal survey conditions roost surveys would be spread out across this period. The survey effort was within the optimal survey window and provides robust and adequate data to determine presence/absence.

2.5.2 Visibility

It is acknowledged that conducting roost surveys on trees is particularly difficult due to the presence of full foliage and often obscured views to some parts of any given tree. As many of the trees surveyed were located along the active travel path, within Irishtown Nature Reserve and alongside roads, surveyors were not limited with their views during the surveys. Every effort was made to ensure surveyors gained the best possible safe vantage point for each tree.

2.6 Bat Activity Surveys

Bat Activity Surveys were carried out to determine the assemblage of bat species within the site; the nature of bat behaviour; and the spatial distribution of bat activity within the site.

A total of six walked transects detailed in Table 3.5.1 were undertaken: three in 2022; one in 2023; and, two in 2024. In 2022 and 2023, survey methodology follows the Bat Conservation Trust's, Good Practice Guidelines (3rd Edition) (Collins, 2016). In 2024, survey methodology follows the Bat Conservation Trust's, Good Practice Guidelines (4th Edition) (Collins, 2023).

There are 12 observation/listening stops where the surveyor stands for three-minute duration.

In Collins (2016), the surveyor begins walking at sunset whereas in Collins (2023) the survey also begins at sunset, but the surveyor remains stationary at his/her start point for 30 minutes, before beginning the walked survey. As such the survey window is longer in 2024. In 2024, the May survey began at stop 1 and finished at stop 12, and vice versa in June. O

The walked transects were surveyed to record and determine the level of bat activity within part of the site of the proposed project. The location of transects was determined by site access, health and safety considerations and suitable habitat features for bats. The surveys were carried out when weather conditions were forecast to consist of sunset temperatures of 10 °C or above with little or no precipitation, and low winds. Elekon Batlogger M bat detectors with real time full spectrum recording, an integrated Global Positioning System (GPS) and temperature logger were used to record bat echolocation calls for later sound analysis using Bat Explorer Software. The number of bats, bat species, bat behaviour and the direction of flight of each bat was also recorded where possible.

To undertake analysis of data collected during bat activity surveys, bat echolocation calls were transformed into a Bat Activity Index (BAI) providing an indicator of the overall bat activity at the site. The BAI is expressed as the number of bat passes per unit of time. A single bat pass is defined as 'one ten second recording file which contains at least one bat call'. The BAI standardizes the relative bat activity despite variation in the length of recording each night, bat behaviour or individual bat abundance. The BAI therefore enables determination of temporal, spatial and species-specific patterns of bat activity within the site. It is not possible however to accurately determine the number of individual bats recorded to estimate the abundance of bats as it is difficult to distinguish between multiple passes of a single bat and single passes of multiple bats.

3 RESULTS

3.1 Preliminary Ecological Appraisal for Bats

The National Biodiversity Data Centre (NBDC) records highlighted 74 historical records of 6 bat species within the (customised polygon) 1km^2 buffer search area. These are brown long-eared bat *Plecotus auratus* (1 No.), Daubenton's Bat *Myotis daubentoniid* (13 No.), Leisler's Bat *Nyctalus leisleri* (48 No.), Nathusius's Pipistrelle *Pipistrellus nathusii* (2 No.), soprano pipistrelle *Pipistrellus pygmaeus* (9 No.), and common pipistrelle *Pipistrellus pipistrellus* (1 No.).

Bat Conservation Ireland records search highlighted 898 historical records of bats within 5km of the site boundary. The records dating from 1999 include 7 historical bat root locations. Records returned include the following species: pipistrellus sp., common pipistrelle, soprano pipistrelle, brown long-eared bat, Leisler's bat, whiskered bat, natterer's bat *Myotis nattereri and* Daubenton's bat.

A common pipistrelle roost record was identified on private property, located at Pigeon House Road, Ringsend, County Dublin. Several ad-hoc records were recorded of common pipistrelle and Leisler's bat from consultancy surveys located around the Irishtown Nature Reserve within the site boundary. Other locations near the site that had higher bat activity records include areas surrounding Sean Moore Park located approximately 300m southwest of the site boundary of common pipistrelle, Leisler's bat and Myotis spp. records (2020), Ringsend Park and surrounding areas located approximately 100m west of common pipistrelle, soprano pipistrelle and Leisler's bat (2020) and Shelley Banks Road of common pipistrelle (2020).

The NBDC bat landscapes habitat suitability index for the site is 17.44 for all bat species. The index ranges from 0 to 100 with 0 being least favourable and 100 most favourable for bats. The therefore has low suitability to provide habitat for bats. Table 3.1.1 below presents the habitat suitability index for the site for all species combined and for individual bat species.

Table 3.1.1 The suitability index for different bat species

All Bats	17.44
Pipistrellus pygmaeus	34
Plecotus auritus	26
Pipistrellus pipistrellus	33
Rhinolophus hipposideros	0
Nyctalus leisleri	29
Myotis mystacinus	11
Myotis daubentonii	8
Pipistrellus nathusii	3
Myotis nattereri	13

The site itself consists of majority hardstanding around the port area with intermittent linear scrub and treelines, dry meadows and grassy verges, amenity grassland, dense scrub, and immature woodland. Older broadleaved woodland, scrub and grassy glades are found at Irishtown Nature Reserve immediately adjacent the project at Area O. Foraging opportunities within 250 m consist of mainly urban habitat and gardens with some parkland including Seamore Park and Ringsend Park. River Liffey and the River Dodder provides a suitable commuting route linking the site to the wider landscape. Elm Park Golf Club, Herbert Park, UCD and tributaries of the Liffey in the wider landscape provide suitable foraging habitat for bats.

Based on historical records, the site has potential to be within the Core Sustenance Zone (CSZ) of the following bat species: common pipistrelle, soprano pipistrelle and Leisler's bat. The CSZ is defined as the area surrounding a communal bat roost within which habitat availability and quality will have a significant influence on the resilience and conservation status of the bat colony (Collins, 2023).

In accordance with Collins (2023), the dominant suitability score with regards potential flight paths and foraging habitats is *none*; here reflecting the expansive areas of buildings and hardstanding without vegetation to generate/shelter insect populations available to foraging bats.

With the intermittent availability of treelines, scrub and recolonising bare ground, suitability score increases to *negligible* and *low*. *Negligible* here refers to non-standard bat behaviour where no obvious habitat features occur. *Low* refers to suitable but isolated habitat that could be used by small numbers of bats.

The only habitat scoring *moderate* suitability is confined to the southern site boundary. Here, linear scrub, scrub grassland and scattered trees occur in tandem with the existing pedestrian pathway connecting Sean Moore Park and Irishtown Nature Reserve. Habitat maps are presented within the main EIA chapter to which this report is an Appendix.

Irishtown Nature Reserve was within the confines of an earlier iteration of the project red line boundary and as such is included in the bat activity transect survey.

3.2 Preliminary Roost Assessment of Structures

A map illustrating the site boundary and the affected structures on the site can be found in Figures 1.2 - 1.3 Structure Locations. The PRA of structures is presented in Table 3.2.1 below.

Table 3.2.1: Preliminary Roost Assessment of Structures

Structure No.	Date	Photo	Description	Evidence of Bats	Bat Suitability
S1	22.09.22		Poolbeg Boat Club building, concrete walls with tin sheet style roofing.	No	Negligible
S2	22.09.22		Poolbeg Boat Club temporary storage structures – consisting of stacked shipping containers with stairs, window and tin roof sheeting creating a sheltered porch/ entrance.	No	Negligible

Table 3.2.1: Preliminary Roost Assessment of Structures

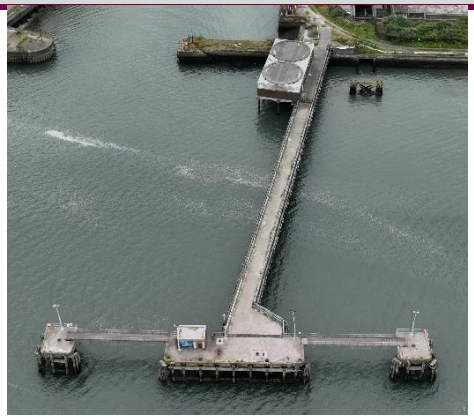
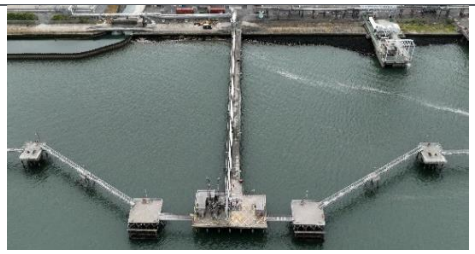
S3			Turning Circle Sludge Jetty and associated tanks		
S3A	14.10.22		Small flat roof concrete building on end of jetty.	No	All Negligible
S3B			Storage Tank building. Flat roofed building and garage door, at end of jetty at the location of the proposed turning circle.		
S4	14.10.22		Poolbeg Power station Jetty, No potential features on strictures along the jetty.	No	**Negligible**

Table 3.2.1: Preliminary Roost Assessment of Structures

S5	14.10.22		ESB Reception Building - brick building with large window across the front and flat roof with small tile peak. Building id very well maintained.	No	**Negligible**
S6	14.10.22		Garage style building north of pigeon house road. Building currently being used for garage/storage purposes and as a community group meeting space in part of the building. Felt roofing across the building and concrete with pebble dash walls.	No	**Negligible**
S7	14.10.22		Kinsale Concrete Structures – Large storage bins and tall steel frame buildings with tin sheet cladding and roofing.	No	**Negligible**
S8	09.05.24	 Plate (S8) a  Plate (S8) b	Bisset engineering building (Plate a) – garage style / workshop comprising a steel framed building with concrete walls, with tin cladding and roofing. The building and immediate surrounds had been inaccessible until May 2024. Potential roost access points occur at three locations on the building's southwest facing exterior (Plate b) principally where the wall and roof facia meet. Other roost access points include fissures and larger openings in the concrete. The gap between the wall and roof facia could be used by individual bats opportunistically. The other fissures/openings could lead to better roost spaces supporting more than one individual bat.	Yes	Southwest facing **Low – Moderate** Northeast facing **Low**

Table 3.2.1: Preliminary Roost Assessment of Structures

		 Plate (S8) c	A single bat dropping was found on the same exterior. The building has good foraging opportunities immediately south with extended foraging and commuting corridors southwest to Sean Moore Park and east to Irishtown Nature Park. The exterior lighting pictured in Plate b is no longer operational. These potential access points on the building's southwest facing exterior were scored *low* to *moderate* and as such subject to emergence survey. In contrast, the northeast facing wall exterior is well-lit by artificial lighting. There was **no** evidence of bats. However, the gap between the wall and roof facia (pictured in Plate c) could be used by individual bats opportunistically. As such, this side of the building scored *low*, and was subject to emergence survey.		
S9	24.04.24		Corrugated metal sides and roofing. In use.	No	**Negligible**

Table 3.2.1: Preliminary Roost Assessment of Structures

S10	24.04.24	 	Seatruck building comprising brick walls and flat concrete roof. There are several small openings (at five locations) where the wall and roof meet. As such this building was considered further. Nighttime observations showed this building and surrounds to be extremely well lit. The immediate surrounds to 300 m are devoid of suitable vegetation cover to sustain high abundances of flying insect prey. The nearest substantive location is Ringsend Park c. 450 m southeast, and beyond the River Liffey. As such, these roost opportunities were downgraded from *low* suitability to *negligible*.	No	**Negligible**
S11	09.05.24		DM Mechanical & Pipe Installations. An assemblage of fixed corrugated roofed buildings, portable cabin and shipping containers.	No	**Negligible**
S12	09.05.24		Dublin Port Company Operations Centre. A flat roofed building with a cladded wall exterior. A continuous narrow void occurs where the cladding meets the roof fascia beneath which bats could access. However, as per S10 this is an extremely hostile environment for bats. It is extremely exposed and the immediate locality sparsely vegetated. As such, these	No	**Negligible**

Table 3.2.1: Preliminary Roost Assessment of Structures

		roost opportunities were downgraded from *low* suitability to *negligible*.		
S13		Marine Terminals Limited (Peel Ports Dublin Building) prefabricated office building	No	**Negligible**
S14		MTL (Peel Ports Dublin Building) – prefabricated office building and ancillary prefabricated buildings	No	**Negligible**
S15a		MTL – first of two large ancillary corrugated metal 'shed' structures.	No	**Negligible**
S15b		MTL – second of two large ancillary corrugated metal 'shed' structures.	No	**Negligible**

Table 3.2.1: Preliminary Roost Assessment of Structures

S16a	16.05.24		Rushfleet Containers – concrete walls and flat roofed office building.	No	**Negligible**
S16b	16.05.24		Rushfleet – ancillary workshop building. Full metal structure.	No	**Negligible**
S17a, S17b and S17c	04.01.24		Hammond Lane Metal Recycling - three consecutive small ancillary buildings including a pump house. These are flat -roofed concrete structures.	No	**Negligible**
S18	04.01.24		Hammond Lane Metal Recycling – a large steel frame building, concrete walls with corrugated cladding and roofing.	No	**Negligible**

Table 3.2.1: Preliminary Roost Assessment of Structures

S19	04.01.24		Hammond Lane Metal Recycling – a concrete block building with corrugated cladding and roofing.	No	**Negligible**
S20	14.06.24		Hammond Lane Metal Recycling – large, actively used workshop. Both roof and walls comprising corrugated steel or iron.	No	**Negligible**
S21	14.06.24		Hammond Lane Metal Recycling – garage style / workshop style steel frame building with concrete wall with tin cladding and roofing.	No	**Negligible**
S22	14.06.24		Hammond Lane Metal Recycling – a steel and concrete structure for metal processing/shredding.	No	**Negligible**
S23	09.05.24		Two auxiliary buildings side by side c. 30m north-northeast of the Bissett building (S8). Both comprising concrete walls each with a flat concrete roof. The smaller building has large cracks in the southeast facing exterior walls suitably sized that could be used by individual bats opportunistically. The larger building is negligible.	No	**Low**

Table 3.2.1: Preliminary Roost Assessment of Structures

3.3 Preliminary Roost Assessment of Trees

No PRFs were found during the ground level survey of those trees affected by the proposed project. As such, no further surveys were required.

3.4 Emergence Surveys of Structures

Emergence surveys of structures were carried out to watch, listen and records bats exiting or entering potential roosts at two affected buildings namely S8 and S23. These structures scored *low* and *low - medium* respectively for potential roost suitability. These buildings are described and pictured in Table 3.2.1. The potential roost entry points and respective vantage points are pictured in Plate 3.4.1 below.

The surveys were carried out by two surveyors in May and June 2024. The dates, times & meteorological conditions of emergence surveys of structures are presented in Table 3.4.1 below. The May emergence survey at S8 was comprised of five vantage points (four of which were automated using Nightfox Whisker Night Vision Binoculars and one with a surveyor observing).

No bats were seen emerging from the potential entry points at S8 or S23 during the surveys.

Table 3.4.1: Dates, Times & Metrological Conditions of Emergence Survey

Date	Structure Ref.	Suitability	Sunset	Start Time	Finish Time	Temp.°C (Start-Finish)	Weather Conditions
23/05/24	S8 (Southwest facing)	Low - Medium	21.31	21.15	23.30	12 - 13	Breezy, patchy cloud, dry
	S8 (Northwest facing)	Low					
17/06/24	S8 (Southwest facing)	Low - Medium	21.55	21:40	23:40	15 - 14	Calm, overcast, dry, light drizzle during the closing 10 min. of survey
	S23 (Southeast facing)	Low					

Plate 3.4.1: showing buildings S8 & S23, roost feature locations and night vision vantage points

3.5 Bat Activity Surveys

Six transect surveys were undertaken comprising one pre-dawn activity survey and five dusk activity surveys. The details of dates, times and weather conditions at the time of bat surveys are presented in Table 3.5.1 below. The full results of bat activity surveys can be found in Appendix I. Maps illustrating the spatial distribution of bat species and the direction of flight recorded during surveys can be found in Figures 2 - 7 Bat Activity Surveys.

Table 3.5.1: Dates, Times & Metrological Conditions of Bat Activity Surveys

Date	Sunset	Sunrise	Start Time	Finish Time	Temp. °C	Weather Conditions
23/06/2022*	22:04	-	22:00	23:45	18	Cloudy, dry, still
25/07/2022	21:37	-	21:30	23:15	16	Cloudy, dry, still
26/08/2022	-	6.22	04:45	06:20	14	Cloudy, dry, still
18/05/2023	21:29	-	21:15	23:00	17	Cloudy, dry, light breeze
21/05/2024**	21.25		21.25	23.37	15	Clear, dry, light breeze
17/06/2024	21.55		21.55	23.56	15	Calm, overcast, dry, light drizzle during the closing 10 min. of survey

*Collins, 2016; **Collins, 2023

A total of 560 bat passes were recorded over approximately 11 hours of survey comprising surveys in June, July and August 2022; May 2023; and May and June 2024.

The following bat species were recorded during activity surveys: common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, a *Pipistrelle* sp. (50kH), and Leisler's bat *Nyctalus leisleri*.

There is a notable increase in bat activity in May and June 2024 compared to previous years. This may be in part due to a change of methodology to Collins (2023). In 2024, survey began at sunset but with the surveyor recording for 30 minutes before beginning the transect. As such, the surveyor is in the vicinity of the Sean Moore Park for more prolonged period after which all bats (certainly common species) will likely have emerged.

In 2024, the May survey began at stop 1 finishing at stop 12, and vice versa in June (see Figure 1.1). This may in part explain differences in total bat passes per night in May and June (207 and 164 respectively).

The lowest recorded activity was during the pre-dawn activity survey in August 2022 with just 24 bat passes per night.

Common pipistrelle was the most common species on site with over 66% of the total bat passes recorded belonging to this species. The highest number of bat passes for this species was recorded in May 2024 (64.55 bpph); the lowest in May 2023 (11.43 bpph). Common pipistrelle and soprano pipistrelle were observed foraging together along the coastal path connecting Sean Moore Park and Irishtown Nature Reserve during the 2024 May and June surveys.

Individual bats were heard above the streetlighting at stops 5, 6 and 7 possibly using the linear woodland and other vegetation here above which to forage or commute.

Leisler's bat contributed to 26% of the total number of bat passes. The highest number of bat passes were in May 2023 (26.29 bpph), no Leisler's bats were recorded during the July 2022 survey.

Soprano pipistrelle contributed to only 5% of the total number of bat passes with the highest number recorded in June 2024 (6.45 bpph).

No more than two bats of the same species were observed together. Some recordings comprise three bats, two common pipistrelle and one Leisler's bat and vice versa. One or two common pipistrelles was frequently observed foraging back and forth along the pedestrian path connecting Sean Moore Park and Irishtown Nature Reserve. These habitats scored *moderate* in the PEAB.

Chart 3.5.1 below illustrates the overall bat species composition during the entire bat survey season. A summary of the overall bat activity at the site expressed as a BAI per night and a BAI per hour can also be found below in **Tables 3.5.1** and **3.5.2** with corresponding chart namely **Chart 3.5.2** and **3.5.3.**

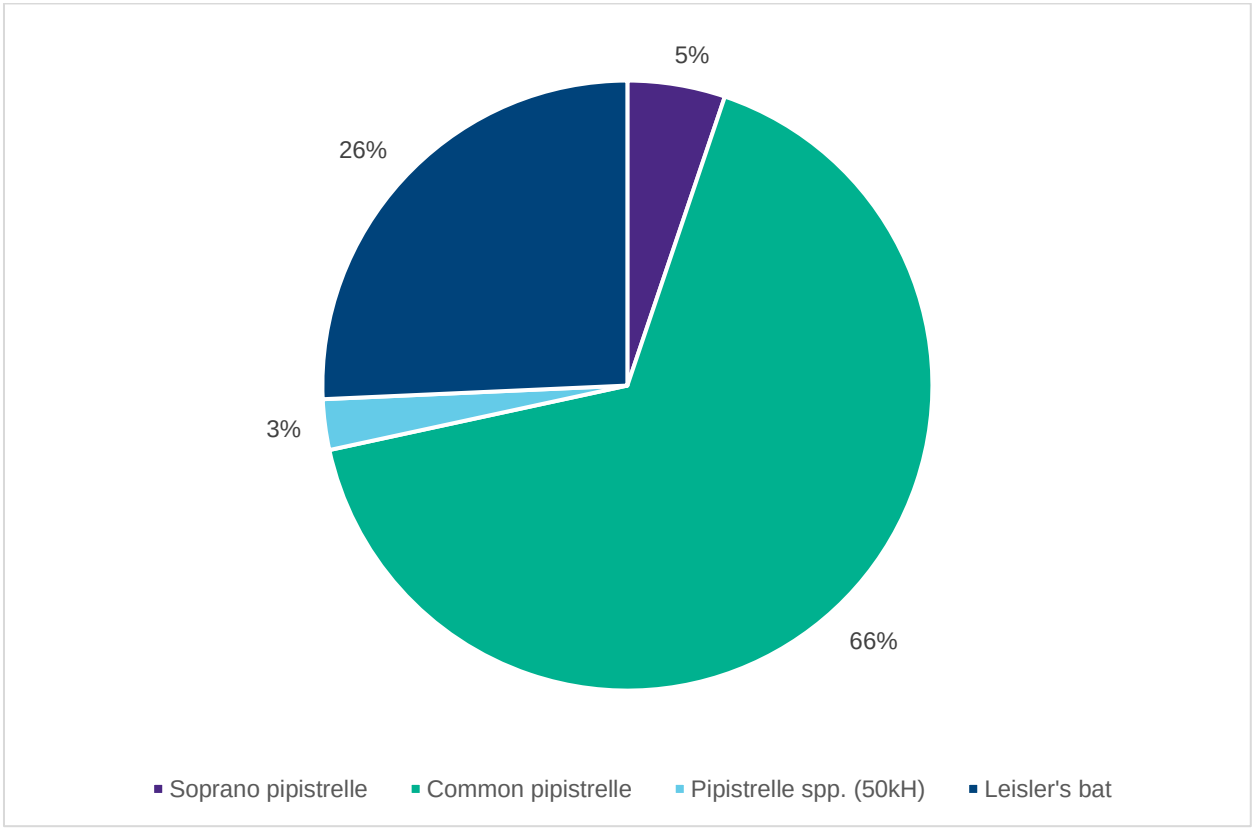


Chart 3.5.1: Overall Bat Species Composition recorded during six Bat Activity Surveys between June 2022 and June 2024.

Table 3.5.1: Bat Activity Index (Bat Passes per Night)

Date	Common pipistrelle	Leisler's bat	Soprano pipistrelle	Pipistrelle sp. (50kH)	Total No. of Bat Passes/Night
23/06/2022	49	18	8	2	77
25/07/2022	33	0	2	0	35
26/08/2022	21	2	1	0	24
18/05/2023	20	46	2	0	68
23/05/2024	142	41	3	6	192
17/06/2024	107	37	13	7	164
	372	**144**	**29**	**15**	**560**

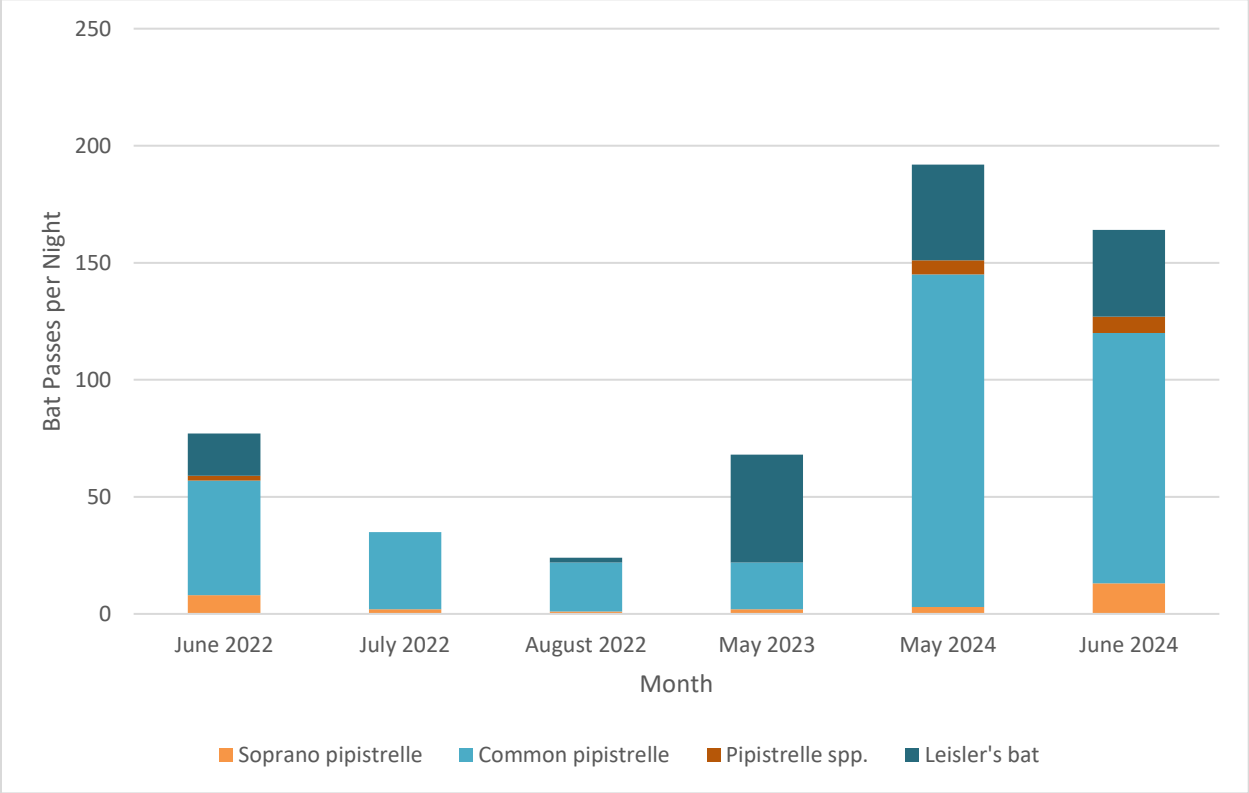


Chart 3.5.2: Bat Activity Index (Bat Passes per Night)

Table 3.5.2: Bat Activity Index (Bat Passes per Hour)

Date	Common pipistrelle	Leisler's bat	Soprano pipistrelle	Pipistrelle spp. (50kH)	Total No. of Bat Passes/Hour
23/06/2022	28.00	10.29	4.57	1.14	44.00
25/07/2022	18.86	0.00	1.14	0.00	20.00
26/08/2022	14.00	1.33	0.67	0.00	16.00
18/05/2023	11.43	26.29	1.14	0.00	38.86
23/05/2024	64.55	18.64	1.36	2.73	87.27
17/06/2024	53.06	18.35	6.45	3.47	81.32
	189.89	**74.89**	**15.33**	**7.34**	**287.45**

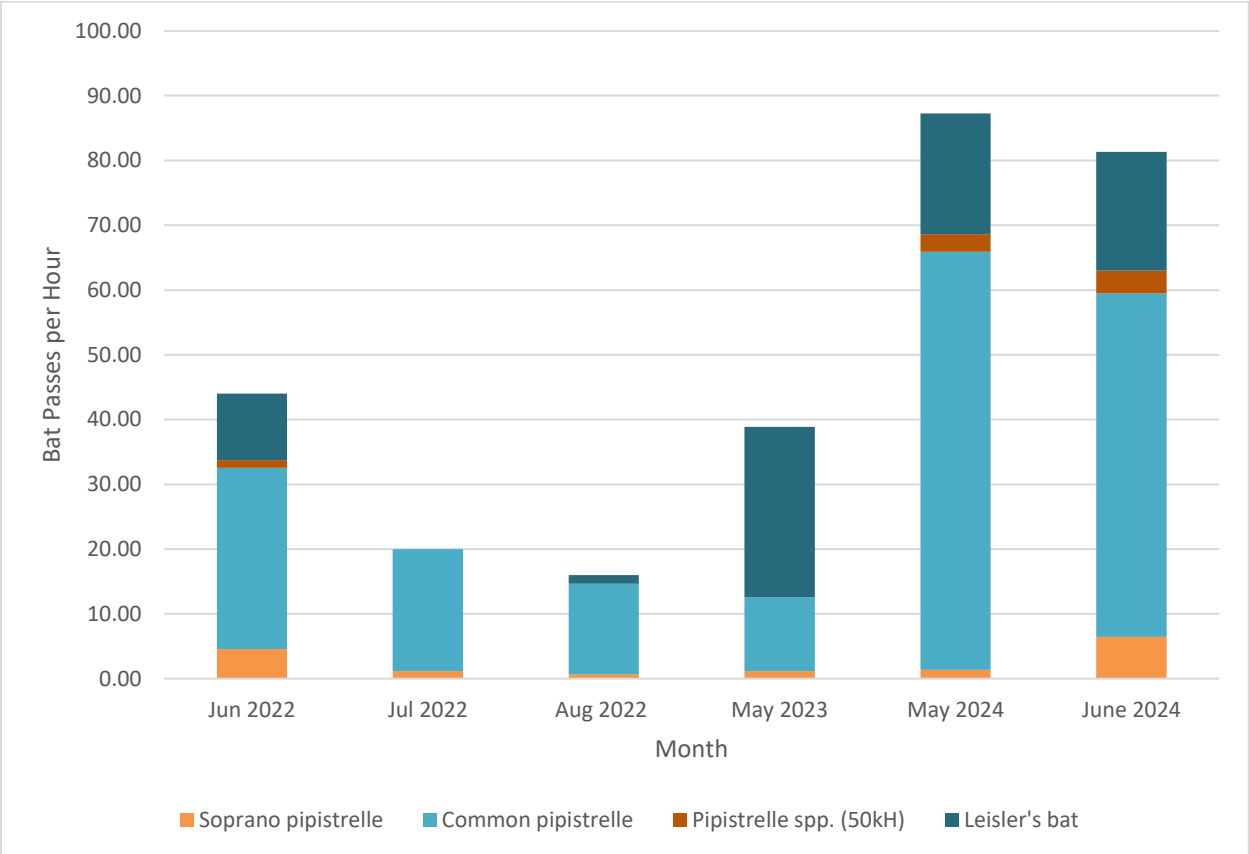


Chart 3.5.3: Bat Activity Index (Bat Passes per Hour)

4 DISCUSSION & ANALYSIS OF RESULTS

None of the trees and structures that will be impacted by the proposed development were found to support roosting bats.

A total of six bat activity surveys were undertaken: three in 2022; one in 2023; and, two in 2023. Bat activity, not unsurprisingly, had a strong association with wooded areas at Sean Moore Park and Irishtown Nature Reserve. These areas no longer fall within the 3FM red line boundary and as such will be unaffected by the proposed works.

However, the red line boundary does encompass the linear scrub, grassland and scattered tree corridor alongside the coastal path connecting Sean Moore Park and Irishtown Nature Reserve. There is no existing artificial lighting along this path. This linear scrub, grassland and scattered tree vegetation occurs along the existing bund / embankment separating this public pathway from the adjacent Glass Bottle Site.

Under current proposals, a new park namely 'Port Park & Wildflower Meadow' will be developed between the existing Glass Bottle Site, to the west, and the proposed Area O – Ro-Ro terminal to the east (see Plate 4.1 below). As such, the existing path between Sean Moore Park coastal and the new Port Park will be upgraded to a resin bound active travel pathway surface. New lighting will be installed as per the proposed light plan (Roads and Footways Proposed Lighting – Sheets 8 & 16). To facilitate suitable access to the new Port Park, part of the said linear scrub, grassland and scattered tree corridor will be removed at the Pembroke Cove corner end of the new Port Park.

Low flying common pipistrelle had the strongest association with this corridor, with two bats on occasion seen foraging together. Leisler's bat also showed some association with this corridor, with again on occasion two bats occurring simultaneously. Both common and soprano pipistrelle are known to be tolerant of artificial lighting at night with regards to commuting and foraging (ILP, 2023).

Whilst the proposed lighting will discourage low flying common (and soprano) pipistrelle bats commuting/foraging beneath this lighting. Commuting/foraging is anticipated to resume away from the central pathway along the top the adjacent bund where lux levels fall below <1, or indeed above the lighting columns.

It is also noted the provision of a new linear coastal park c. 25m wide along beyond this bund as part of the Glass Bottle Site development to buffer that development from the existing coastal pathway thus broadening this corridor in perpetuity.

Plate 4.1: Landscape Drawing No. 33-P-001G screenshot showing the proposed Port Park & Wildflower Meadow in the context of the exiting coastal path and grassland-scrub-scattered tree corridor connecting Sean Moore Park and Irishtown Nature Reserve

5 RECOMMENDATIONS

The Lighting Strategy for the proposed development will be designed in accordance with the Institution of Lighting Professionals (ILP) Guidance Notes for the Reduction of Obtrusive Light (ILP, 2021) and Bats and Artificial Lighting in the UK (ILP 2023).

New lighting along the upgraded pathway connecting Sean Moore Park and the new Port Park & Wildflower Meadow will be suitably designed to provide adequate lighting for pedestrians whilst been considerate to foraging and commuting bats.

The use of Breathable Roof Membrane (BRM) will be avoided in proposed new buildings. Anecdotal evidence has shown that bats can become entangled in the fibre weave of BRMs (BCT 2014) and it is therefore not suitable for use in areas that could potentially affect bats. It is recommended that traditional hessian reinforced bitumen felt is used as this poses less risk to bats.

6 REFERENCES

BCT (2014) *Bats and Breathable Roofing Membranes - Update of Findings*, 17 December 2014, Bat Conservation Trust, London, viewed October 2015

Collins, J. (ed.) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd edn), The Bat Conservation Trust, London.

Collins, J. (ed.) (2023) *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (4rd edn), The Bat Conservation Trust, London.

http://www.bats.org.uk/news.php/254/bats_and_breathable_roofing_membranes_update_of_findings_%20>.

ILP (2021) *The Reduction of Obtrusive Light*, Guidance Note 01/20, Institution of Lighting Professionals, Warwickshire.

ILP (2023) *Bats and Artificial Lighting at Night*, Guidance Note 08/23, Institution of Lighting Professionals, Warwickshire.

Marnell, F., Kelleher, C. & Mullen, E. (2022) *Bat mitigation guidelines for Ireland v2*. Irish Wildlife Manuals, No. 134. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage, Ireland.

Figures

Legend

- Red Line Boundary
- Bat Activity Survey Transect Route And Recording Stops

rps
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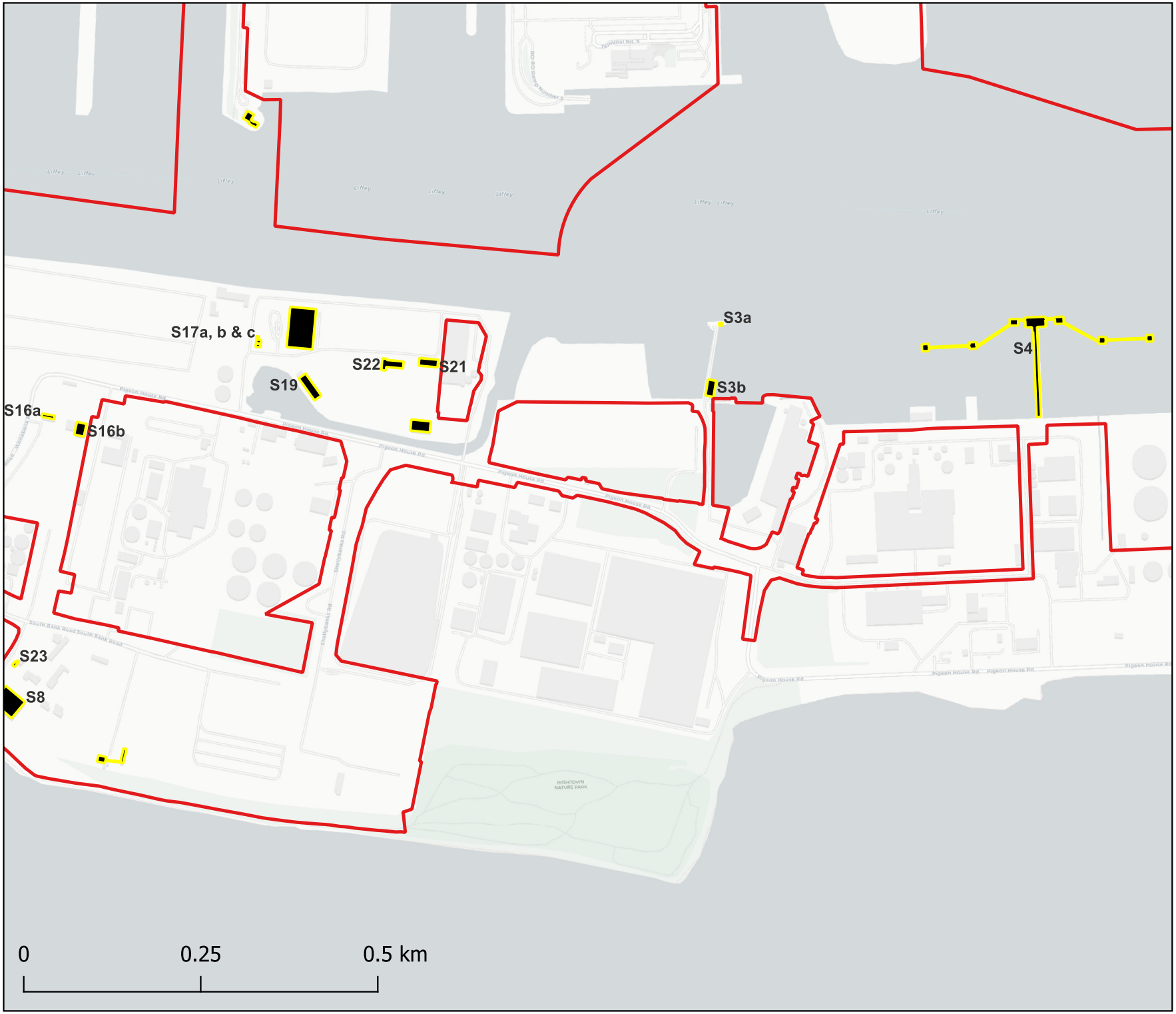
Client: Dublin Port Company

Project: 3FM

Title: Structure Locations

Figure No. 1.1

Project No.	Date	Revision
NI2541	10.07.23	D01



Legend

- Red Line Boundary
- Structures

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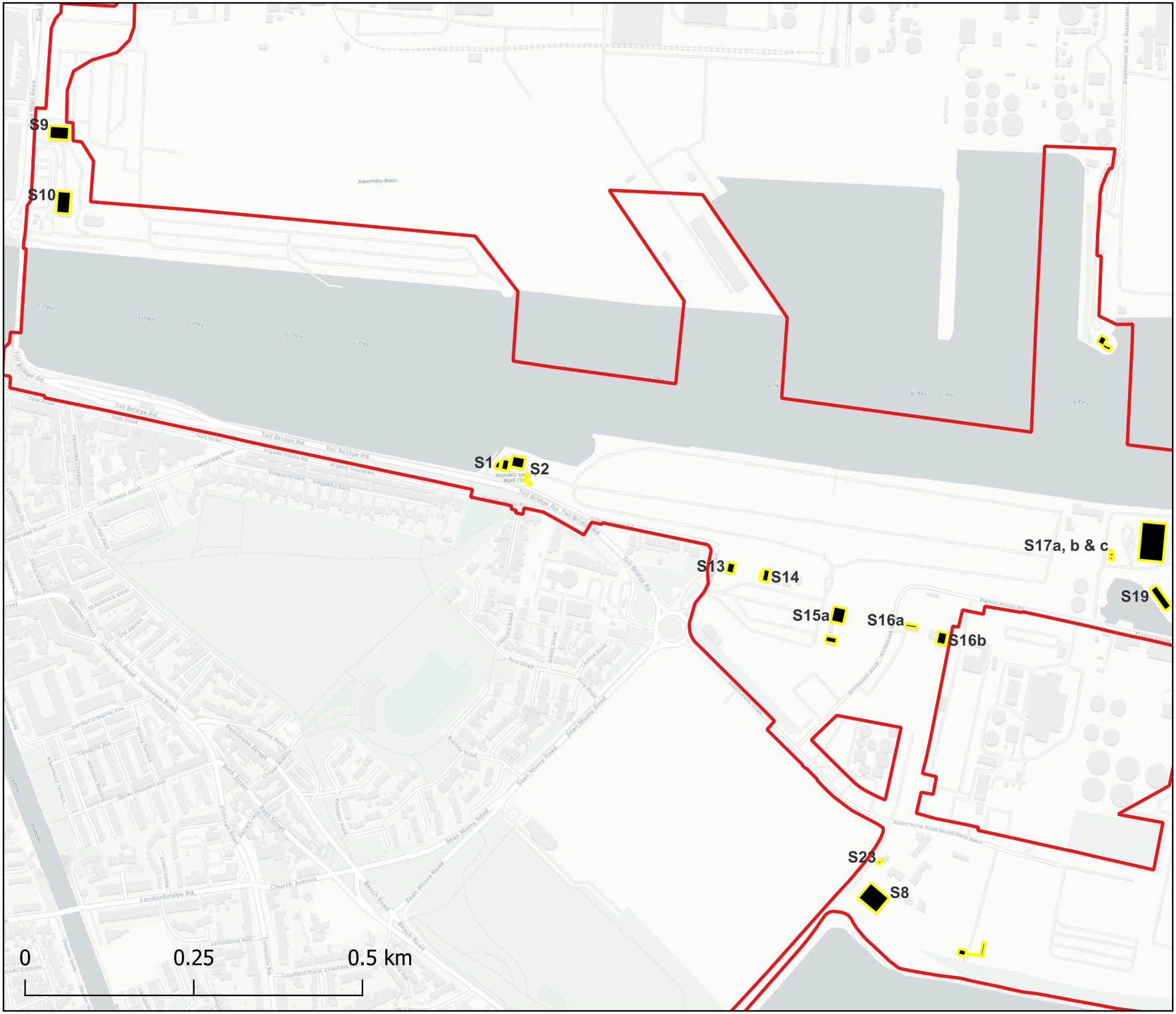
Client: Dublin Port Company

Project: 3FM

Title: Structure Locations

Figure No. 1.2

Project No.	Date	Revision
NI2541	10.07.23	D01



Legend

- Red Line Boundary
- Structures

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Project: 3FM

Title: Structure Locations

Figure No. 1.3

Project No.	Date	Revision
NI2541	10.07.23	D01

Legend

- Nyctalus leisleri
- Pipistrellus pygmaeus
- Pipistrellus pipistrellus
- Bat Activity Transect
- Stops

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PROJECT: 3FM

TITLE: Bat Activity Survey
23.06.22

FIGURE: 2.1

Drawn by	Revision	Project Number
FH	D01	NI2541
Date		
17.11.22		

Legend

- Nyctalus leisleri
- Pipistrellus pygmaeus
- Pipistrellus pipistrellus
- Bat Activity Transect
- Stops

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PROJECT: 3FM

TITLE: Bat Activity Survey
23.06.22

FIGURE: 2.2

Drawn by	Revision	Project Number
FH	D01	NI2541
Date		
17.11.22		

Legend

- Nyctalus leisleri
- Pipistrellus pygmaeus
- Pipistrellus pipistrellus
- Bat Activity Transect
- Stops

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PROJECT: 3FM

TITLE: Bat Activity Survey 23.06.22

FIGURE: 2.3

Drawn by	Revision	Project Number
FH	D01	NI2541

Date: 17.11.22

Legend

- Nyctalus Leisleri
- Pipistrellus pygmaeus
- Pipistrellus pipistrellus
- Bat Activity Transect
- Stops

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CLIENT: Dublin Port Company

PROJECT: 3FM

TITLE: Bat Activity Survey
25.07.22

FIGURE: 3.1

Drawn by	Revision	Project Number
FH	D01	NI2541
Date		
17.11.22		

Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend

- Nyctalus Leisleri
- Pipistrellus pygmaeus
- Pipistrellus pipistrellus
- Bat Activity Transect
- Stops

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PROJECT: 3FM

TITLE: Bat Activity Survey
25.07.22

FIGURE: 3.2

Drawn by	Revision	Project Number
FH	D01	NI2541
Date		
17.11.22		

Legend

- Nyctalus Leisleri
- Pipistrellus pygmaeus
- Pipistrellus pipistrellus
- Bat Activity Transect
- Stops

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CLIENT: Dublin Port Company

PROJECT: 3FM

TITLE: Bat Activity Survey
25.07.22

FIGURE: 3.3

Drawn by	Revision	Project Number
FH	D01	NI2541
Date		
17.11.22		

Legend

- Pipistrellus pipistrellus
- Pipistrellus pygmaeus
- Bat Activity Transect
- Stops

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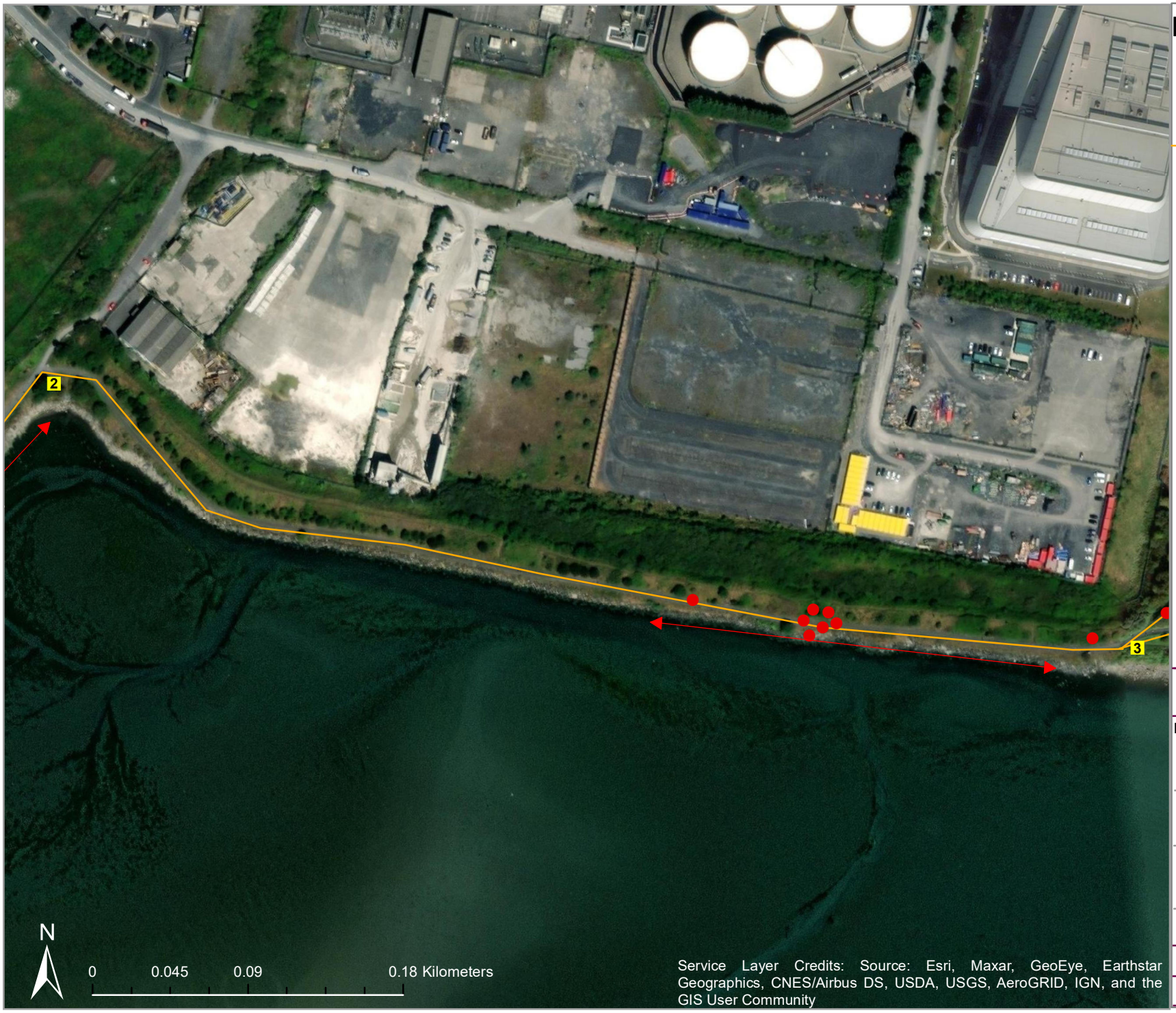
Dublin Port Company

PROJECT: 3FM

TITLE: Bat Activity Survey
28.08.22

FIGURE: 4.1

Drawn by	Revision	Project Number
FH	D01	NI2541
Date		
17.11.22		



Legend

- Pipistrellus pipistrellus
- Pipistrellus pygmaeus
- Bat Activity Transect
- Stops

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PROJECT: 3FM

TITLE: Bat Activity Survey
28.08.22

FIGURE: 4.2

Drawn by	Revision	Project Number
FH	D01	NI2541
Date		
17.11.22		

Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend

- Pipistrellus pipistrellus
- Pipistrellus pygmaeus
- Bat Activity Transect
- Stops

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PROJECT: 3FM

TITLE: Bat Activity Survey
28.08.22

FIGURE: 4.3

Drawn by	Revision	Project Number
FH	D01	NI2541
Date		
17.11.22		

Legend

- Nyctalus leisleri
- Pipistrellus pygmaeus
- Pipistrellus pipistrellus
- Bat Activity Transect
- Stops

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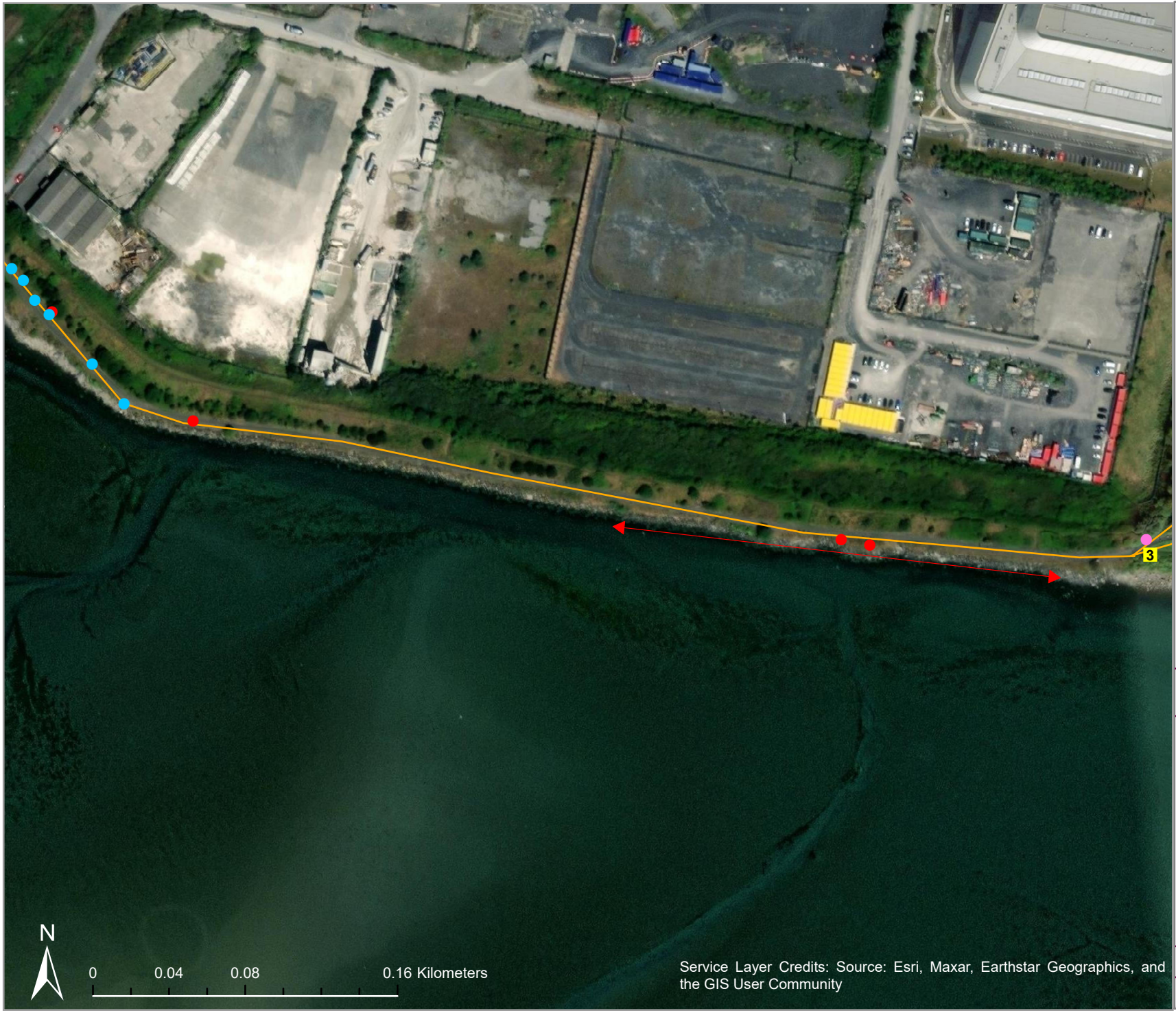
PROJECT: 3FM

TITLE: Bat Activity Survey
18.05.23

FIGURE: 5.1

Drawn by	Revision	Project Number
FH	D01	NI2541
Date		
17.11.22		



Legend

- Nyctalus leisleri
- Pipistrellus pygmaeus
- Pipistrellus pipistrellus
- Bat Activity Transect
- Stops

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PROJECT: 3FM

TITLE: Bat Activity Survey
18.05.23

FIGURE: 5.2

Drawn by	Revision	Project Number
FH	D01	NI2541
Date		
17.11.22		

Legend

- Nyctalus leisleri
- Pipistrellus pygmaeus
- Pipistrellus pipistrellus
- Bat Activity Transect
- Stops

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PROJECT: 3FM

TITLE: Bat Activity Survey
18.05.23

FIGURE: 5.3

Drawn by	Revision	Project Number
FH	D01	NI2541

Date
17.11.22

Legend

- Red Line Boundary
- Bat Activity Transect Route and Recording Stops
- Nyctalus leisleri
- Pipistrellus pipistrellus

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Project: 3FM

Title: Bat Activity Survey
23.05.24

Figure No. 6.1

Project No.	Date	Revision
NI2541	10.07.23	D01

Legend

- Red Line Boundary
- Bat Activity Transect Route and Recording Stops
- Nyctalus leisleri
- Pipistrellus pipistrellus
- Pipistrellus pygmaeus
- Pipistrellus spec.

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Project: 3FM

Title: Bat Activity Survey
23.05.24

Figure No. 6.2

Project No.	Date	Revision
NI2541	10.07.23	D01

Legend

- Red Line Boundary
- Bat Activity Transect Route and Recording Stops
- Nyctalus leisleri
- Pipistrellus pipistrellus
- Pipistrellus pygmaeus
- Pipistrellus spec.

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Title: Bat Activity Survey
23.05.24

Figure No. 6.3

Project No.	Date	Revision
NI2541	10.07.23	D01

Legend

- Red Line Boundary
- Bat Activity Transect Route
- Nyctalus leisleri
- Pipistrellus pipistrellus
- Pipistrellus pygmaeus
- Pipistrellus spec.

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Client: Dublin Port Company

Project: 3FM

Title: Bat Activity Survey
17.06.24

Figure No. 7.1

Project No.	Date	Revision
NI2541	10.07.23	D01

Legend

- Red Line Boundary
- Bat Activity Transect Route
- Pipistrellus pipistrellus
- Pipistrellus spec.

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Project: 3FM

Title: Bat Activity Survey
17.06.24

Figure No. 7.2

Project No.	Date	Revision
NI2541	10.07.23	D01

Legend

- Red Line Boundary
- Bat Activity Transect Route
- Nyctalus leisleri
- Pipistrellus pipistrellus
- Pipistrellus spec.

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Client: Dublin Port Company

Project: 3FM

Title: Bat Activity Survey
17.06.24

Figure No. 7.3

Project No.	Date	Revision
NI2541	10.07.23	D01

Appendix I
Bat Activity Survey Results

Table A1.1: Bat Activity Survey Results

Timestamp	Temperature (°C)	Species	Note	Latitude [WGS84]	Longitude [WGS84]
23/06/2022 22:01	21	Nyctalus leisleri		53.335358	-6.21278
23/06/2022 22:01	21	Nyctalus leisleri		53.335358	-6.21278
23/06/2022 22:01	21	Nyctalus leisleri		53.335366	-6.212618
23/06/2022 22:02	21	Nyctalus leisleri		53.335437	-6.212558
23/06/2022 22:02	21	Nyctalus leisleri		53.335574	-6.212365
23/06/2022 22:02	21	Nyctalus leisleri		53.335695	-6.212226
23/06/2022 22:02	21	Nyctalus leisleri		53.335798	-6.212052
23/06/2022 22:03	21	Nyctalus leisleri		53.335817	-6.212028
23/06/2022 22:03	21	Nyctalus leisleri		53.335948	-6.211846
23/06/2022 22:04	21	Nyctalus leisleri		53.336286	-6.211343
23/06/2022 22:24	20	Nyctalus leisleri		53.335807	-6.197188
23/06/2022 22:24	20	Nyctalus leisleri		53.335808	-6.197187
23/06/2022 22:24	20	Nyctalus leisleri		53.335812	-6.197194
23/06/2022 22:25	20	Nyctalus leisleri		53.335798	-6.197192
23/06/2022 22:25	20	Nyctalus leisleri		53.335799	-6.197192
23/06/2022 22:26	21	Pipistrellus spec.		53.335802	-6.197202
23/06/2022 22:28	21	Nyctalus leisleri		53.335777	-6.197224
23/06/2022 22:30	20	Nyctalus leisleri		53.335506	-6.195811
23/06/2022 22:53	19	Pipistrellus pipistrellus		53.336328	-6.194686
23/06/2022 22:53	19	Pipistrellus pipistrellus		53.336326	-6.194759
23/06/2022 22:55	19	Pipistrellus pipistrellus		53.336166	-6.196271
23/06/2022 22:55	19	Pipistrellus pipistrellus		53.336134	-6.196419
23/06/2022 22:56	19	Pipistrellus pipistrellus		53.336095	-6.196548
23/06/2022 22:56	19	Pipistrellus pipistrellus		53.336059	-6.196661
23/06/2022 22:56	19	Pipistrellus pipistrellus		53.336146	-6.196439
23/06/2022 22:57	19	Pipistrellus pipistrellus		53.336218	-6.19616
23/06/2022 22:58	19	Pipistrellus pygmaeus		53.336453	-6.196487
23/06/2022 22:58	19	Pipistrellus pygmaeus		53.336474	-6.19656
23/06/2022 22:58	19	Pipistrellus spec.		53.336468	-6.196664
23/06/2022 22:58	19	Pipistrellus pygmaeus		53.336478	-6.196702
23/06/2022 22:58	19	Pipistrellus pygmaeus		53.336484	-6.196717
23/06/2022 22:58	19	Pipistrellus pygmaeus		53.336484	-6.196717
23/06/2022 22:58	19	Pipistrellus pygmaeus		53.336487	-6.196724
23/06/2022 22:58	19	Pipistrellus pipistrellus		53.336489	-6.196725
23/06/2022 22:59	19	Pipistrellus pipistrellus		53.336492	-6.196726
23/06/2022 23:00	19	Pipistrellus pipistrellus		53.336482	-6.197382
23/06/2022 23:00	19	Pipistrellus pipistrellus		53.336473	-6.197474
23/06/2022 23:00	19	Pipistrellus pipistrellus		53.336481	-6.197503

Timestamp	Temperature (°C)	Species	Note	Latitude [WGS84]	Longitude [WGS84]
23/06/2022 23:00	19	Pipistrellus pipistrellus		53.336476	-6.19754
23/06/2022 23:00	19	Pipistrellus pipistrellus		53.336476	-6.197546
23/06/2022 23:00	19	Pipistrellus pipistrellus		53.336462	-6.197612
23/06/2022 23:01	19	Pipistrellus pipistrellus		53.336458	-6.197662
23/06/2022 23:13	19	Pipistrellus pipistrellus		53.336238	-6.205073
23/06/2022 23:13	19	Pipistrellus pipistrellus		53.336247	-6.20512
23/06/2022 23:13	19	Pipistrellus pipistrellus		53.336253	-6.205133
23/06/2022 23:13	19	Pipistrellus pipistrellus		53.336268	-6.20519
23/06/2022 23:14	19	Pipistrellus pipistrellus		53.336284	-6.205401
23/06/2022 23:14	19	Pipistrellus pipistrellus		53.336293	-6.205521
23/06/2022 23:15	19	Pipistrellus pipistrellus		53.336473	-6.206688
23/06/2022 23:15	19	Pipistrellus pipistrellus		53.336486	-6.206775
23/06/2022 23:17	19	Pipistrellus pipistrellus		53.336648	-6.208187
23/06/2022 23:18	19	Pipistrellus pipistrellus		53.337235	-6.209196
23/06/2022 23:18	19	Pipistrellus pipistrellus		53.337272	-6.209229
23/06/2022 23:19	19	Pipistrellus pygmaeus		53.337235	-6.209982
23/06/2022 23:19	19	Pipistrellus pygmaeus		53.337235	-6.209982
23/06/2022 23:19	19	Pipistrellus pipistrellus		53.337235	-6.209982
23/06/2022 23:20	19	Pipistrellus pipistrellus		53.337145	-6.210107
23/06/2022 23:20	19	Pipistrellus pipistrellus		53.33709	-6.210181
23/06/2022 23:20	19	Pipistrellus pipistrellus		53.337076	-6.210199
23/06/2022 23:20	19	Pipistrellus pipistrellus		53.337024	-6.210276
23/06/2022 23:20	19	Pipistrellus pipistrellus		53.336884	-6.210485
23/06/2022 23:21	19	Pipistrellus pipistrellus		53.336842	-6.210542
23/06/2022 23:21	19	Pipistrellus pipistrellus		53.336834	-6.210515
23/06/2022 23:21	19	Pipistrellus pipistrellus		53.336833	-6.210523
23/06/2022 23:21	19	Pipistrellus pipistrellus		53.33673	-6.210709
23/06/2022 23:23	19	Pipistrellus pipistrellus		53.336266	-6.211455
23/06/2022 23:25	19	Pipistrellus pipistrellus		53.335405	-6.212761
23/06/2022 23:25	19	Pipistrellus pipistrellus		53.335375	-6.212808
23/06/2022 23:25	19	Pipistrellus pipistrellus		53.335318	-6.212978
23/06/2022 23:26	19	Nyctalus leisleri		53.33537	-6.213117
23/06/2022 23:26	19	Pipistrellus pipistrellus		53.33537	-6.213117
23/06/2022 23:28	19	Pipistrellus pipistrellus		53.336391	-6.213204
23/06/2022 23:28	19	Pipistrellus pipistrellus		53.336391	-6.213204
23/06/2022 23:37	19	Pipistrellus pipistrellus		53.336569	-6.21668
23/06/2022 23:37	19	Pipistrellus pipistrellus		53.336528	-6.216621
23/06/2022 23:37	19	Pipistrellus pipistrellus		53.336462	-6.216583
23/06/2022 23:38	19	Pipistrellus pipistrellus		53.336178	-6.216169

Timestamp	Temperature (°C)	Species	Note	Latitude [WGS84]	Longitude [WGS84]
25/07/2022 22:41	16	Pipistrellus pipistrellus		53.33592	-6.19937
25/07/2022 22:41	16	Pipistrellus pipistrellus		53.335898	-6.199495
25/07/2022 22:42	16	Pipistrellus pipistrellus		53.33593	-6.199932
25/07/2022 22:43	16	Pipistrellus pipistrellus		53.335942	-6.2
25/07/2022 22:44	16	Pipistrellus pipistrellus		53.335927	-6.20035
25/07/2022 22:44	16	Pipistrellus pipistrellus		53.335925	-6.200367
25/07/2022 22:49	16	Pipistrellus pipistrellus		53.336248	-6.204595
25/07/2022 22:49	16	Pipistrellus pipistrellus		53.336252	-6.204678
25/07/2022 22:49	16	Pipistrellus pipistrellus		53.336243	-6.204747
25/07/2022 22:49	16	Pipistrellus pipistrellus		53.336243	-6.204807
25/07/2022 22:49	16	Pipistrellus pipistrellus		53.336238	-6.204837
25/07/2022 22:49	16	Pipistrellus pipistrellus		53.336255	-6.20487
25/07/2022 22:49	16	Pipistrellus pipistrellus		53.336275	-6.204997
25/07/2022 22:50	16	Pipistrellus pygmaeus		53.336308	-6.205352
25/07/2022 22:50	16	Pipistrellus pygmaeus		53.336308	-6.205352
25/07/2022 22:50	16	Pipistrellus pipistrellus		53.336377	-6.205885
25/07/2022 22:50	16	Pipistrellus pipistrellus		53.33639	-6.206033
25/07/2022 22:51	16	Pipistrellus pipistrellus		53.33638	-6.206143
25/07/2022 22:52	16	Pipistrellus pipistrellus		53.336628	-6.2078
25/07/2022 22:52	16	Pipistrellus pipistrellus		53.336635	-6.20791
25/07/2022 22:55	16	Pipistrellus pipistrellus		53.337083	-6.210192
25/07/2022 22:56	15	Pipistrellus pipistrellus		53.336697	-6.210772
25/07/2022 22:58	16	Pipistrellus pipistrellus		53.335988	-6.2119
25/07/2022 22:59	16	Pipistrellus pipistrellus		53.335767	-6.212325
25/07/2022 22:59	16	Pipistrellus pipistrellus		53.335742	-6.212292
25/07/2022 22:59	16	Pipistrellus pipistrellus		53.33574	-6.212335
25/07/2022 23:00	16	Pipistrellus pipistrellus		53.335757	-6.212398
25/07/2022 23:00	16	Pipistrellus pipistrellus		53.335783	-6.212395
25/07/2022 23:00	16	Pipistrellus pipistrellus		53.335747	-6.212347
25/07/2022 23:01	16	Pipistrellus pipistrellus		53.335727	-6.212278
25/07/2022 23:01	16	Pipistrellus pipistrellus		53.335765	-6.212278
25/07/2022 23:01	16	Pipistrellus pipistrellus		53.335738	-6.212302
25/07/2022 23:02	16	Pipistrellus pipistrellus		53.335798	-6.212393
25/07/2022 23:02	16	Pipistrellus pipistrellus		53.335752	-6.212427
25/07/2022 23:02	16	Pipistrellus pipistrellus		53.335755	-6.21242
26/08/2022 04:49	18	Nyctalus leisleri			
26/08/2022 04:51	17	Nyctalus leisleri		53.329766	-6.208758

Timestamp	Temperature (°C)	Species	Note	Latitude [WGS84]	Longitude [WGS84]
26/08/2022 05:06	17	Pipistrellus pygmaeus		53.335989	-6.211965
26/08/2022 05:06	17	Pipistrellus pipistrellus		53.335997	-6.211948
26/08/2022 05:07	17	Pipistrellus pipistrellus		53.336432	-6.211175
26/08/2022 05:16	17	Pipistrellus pipistrellus		53.336146	-6.204259
26/08/2022 05:18	17	Pipistrellus pipistrellus		53.336061	-6.203591
26/08/2022 05:18	17	Pipistrellus pipistrellus		53.33602	-6.203471
26/08/2022 05:18	17	Pipistrellus pipistrellus		53.336014	-6.20339
26/08/2022 05:18	17	Pipistrellus pipistrellus		53.33598	-6.20342
26/08/2022 05:18	17	Pipistrellus pipistrellus		53.335983	-6.203427
26/08/2022 05:18	17	Pipistrellus pipistrellus		53.336006	-6.20343
26/08/2022 05:18	17	Pipistrellus pipistrellus		53.33603	-6.203401
26/08/2022 05:21	17	Pipistrellus pipistrellus		53.335858	-6.200561
26/08/2022 05:22	17	Pipistrellus pipistrellus		53.336023	-6.200083
26/08/2022 05:28	16	Pipistrellus pipistrellus		53.336208	-6.196209
26/08/2022 05:28	17	Pipistrellus pipistrellus		53.336204	-6.196156
26/08/2022 05:28	16	Pipistrellus pipistrellus		53.336212	-6.196101
26/08/2022 05:28	17	Pipistrellus pipistrellus		53.336203	-6.19609
26/08/2022 05:29	17	Pipistrellus pipistrellus		53.336203	-6.19609
26/08/2022 05:29	17	Pipistrellus pipistrellus		53.336214	-6.19563
26/08/2022 05:30	17	Pipistrellus pipistrellus		53.336234	-6.194659
26/08/2022 05:40	16	Pipistrellus pipistrellus		53.337458	-6.19314
26/08/2022 05:41	16	Pipistrellus pipistrellus		53.337443	-6.193217
18/05/2023 21:20	17	Nyctalus leisleri			
18/05/2023 21:21	17	Nyctalus leisleri			
18/05/2023 21:22	17	Nyctalus leisleri			
18/05/2023 21:23	17	Nyctalus leisleri		53.335681	-6.212377
18/05/2023 21:25	17	Nyctalus leisleri		53.335668	-6.212372
18/05/2023 21:25	17	Nyctalus leisleri		53.335689	-6.212316
18/05/2023 21:25	17	Nyctalus leisleri		53.33566	-6.212376
18/05/2023 21:26	17	Nyctalus leisleri		53.335692	-6.212435
18/05/2023 21:26	17	Nyctalus leisleri		53.335691	-6.212434
18/05/2023 21:27	17	Nyctalus leisleri		53.335687	-6.212445
18/05/2023 21:28	17	Nyctalus leisleri		53.335689	-6.212452
18/05/2023 21:28	17	Nyctalus leisleri		53.335688	-6.212447
18/05/2023 21:28	17	Nyctalus leisleri		53.335687	-6.212445
18/05/2023 21:28	17	Nyctalus leisleri		53.335684	-6.212442
18/05/2023 21:30	17	Nyctalus leisleri		53.335676	-6.212415
18/05/2023 21:30	17	Nyctalus leisleri		53.335723	-6.2122

Timestamp	Temperature (°C)	Species	Note	Latitude [WGS84]	Longitude [WGS84]
18/05/2023 21:33	17	Pipistrellus pipistrellus		53.337169	-6.210048
18/05/2023 21:41	17	Pipistrellus pipistrellus		53.335953	-6.202806
18/05/2023 21:56	16	Pipistrellus pipistrellus		53.338045	-6.193007
18/05/2023 22:10	16	Nyctalus leisleri		53.336299	-6.197012
18/05/2023 22:14	16	Pipistrellus pipistrellus		53.336481	-6.197473
18/05/2023 22:14	16	Pipistrellus pipistrellus		53.336487	-6.197509
18/05/2023 22:14	16	Pipistrellus pipistrellus		53.336498	-6.197544
18/05/2023 22:14	16	Pipistrellus pipistrellus		53.336495	-6.197555
18/05/2023 22:15	16	Pipistrellus pipistrellus		53.336499	-6.197547
18/05/2023 22:15	16	Pipistrellus pipistrellus		53.336502	-6.197548
18/05/2023 22:15	16	Pipistrellus pipistrellus		53.3365	-6.197546
18/05/2023 22:15	17	Pipistrellus pipistrellus		53.336501	-6.197551
18/05/2023 22:15	17	Pipistrellus pipistrellus		53.336532	-6.197615
18/05/2023 22:16	17	Pipistrellus pipistrellus		53.336576	-6.19809
18/05/2023 22:16	17	Pipistrellus pipistrellus		53.33657	-6.198434
18/05/2023 22:17	17	Pipistrellus pygmaeus		53.33663	-6.198788
18/05/2023 22:17	17	Pipistrellus pipistrellus		53.336627	-6.198819
18/05/2023 22:21	16	Pipistrellus pipistrellus		53.335883	-6.200322
18/05/2023 22:24	17	Pipistrellus pygmaeus		53.335877	-6.200329
18/05/2023 22:35	16	Pipistrellus pipistrellus		53.335964	-6.202632
18/05/2023 22:40	16	Pipistrellus pipistrellus		53.336577	-6.207695
18/05/2023 22:41	16	Nyctalus leisleri		53.336643	-6.208173
18/05/2023 22:41	16	Nyctalus leisleri		53.33682	-6.208546
18/05/2023 22:41	16	Nyctalus leisleri		53.336985	-6.208843
18/05/2023 22:42	16	Pipistrellus pipistrellus		53.33715	-6.208975
18/05/2023 22:43	16	Nyctalus leisleri		53.337113	-6.209017
18/05/2023 22:43	16	Nyctalus leisleri		53.337105	-6.209026
18/05/2023 22:43	16	Nyctalus leisleri		53.337099	-6.209038
18/05/2023 22:44	16	Nyctalus leisleri		53.337099	-6.209048
18/05/2023 22:44	16	Nyctalus leisleri		53.3371	-6.209034
18/05/2023 22:44	16	Nyctalus leisleri		53.337175	-6.209121
18/05/2023 22:45	16	Nyctalus leisleri		53.337267	-6.209209
18/05/2023 22:45	16	Nyctalus leisleri		53.337348	-6.209302
18/05/2023 22:45	16	Nyctalus leisleri		53.337353	-6.209299
18/05/2023 22:46	16	Nyctalus leisleri		53.337282	-6.209921
18/05/2023 22:46	16	Nyctalus leisleri		53.337178	-6.210063
18/05/2023 22:46	16	Nyctalus leisleri		53.337029	-6.210242
18/05/2023 22:47	16	Nyctalus leisleri		53.336855	-6.210506
18/05/2023 22:47	16	Nyctalus leisleri		53.336669	-6.210796

Timestamp	Temperature (°C)	Species	Note	Latitude [WGS84]	Longitude [WGS84]
18/05/2023 22:47	16	Nyctalus leisleri		53.33656	-6.210973
18/05/2023 22:48	16	Nyctalus leisleri		53.336347	-6.211304
18/05/2023 22:48	16	Nyctalus leisleri		53.336037	-6.211764
18/05/2023 22:49	16	Nyctalus leisleri		53.335863	-6.212028
18/05/2023 22:49	16	Nyctalus leisleri		53.335638	-6.212363
18/05/2023 22:50	16	Nyctalus leisleri		53.335411	-6.212729
18/05/2023 22:50	16	Nyctalus leisleri		53.335395	-6.212769
18/05/2023 22:50	16	Nyctalus leisleri		53.335343	-6.212878
18/05/2023 22:50	16	Pipistrellus pipistrellus		53.335343	-6.212878
18/05/2023 22:59	16	Nyctalus leisleri		53.335402	-6.214358
18/05/2023 23:00	16	Nyctalus leisleri		53.335178	-6.213862
18/05/2023 23:00	16	Nyctalus leisleri		53.335139	-6.213815
18/05/2023 23:00	16	Nyctalus leisleri		53.335109	-6.21379
21/05/2024 21:50	15	Nyctalus leisleri		53.334994	-6.21353
21/05/2024 21:51	15	Nyctalus leisleri		53.33499	-6.213521
21/05/2024 21:51	15	Nyctalus leisleri		53.335006	-6.213521
21/05/2024 21:54	15	Pipistrellus pipistrellus		53.335003	-6.213514
21/05/2024 21:54	15	Pipistrellus pipistrellus		53.335003	-6.213514
21/05/2024 21:56	15	Pipistrellus pipistrellus		53.335	-6.213526
21/05/2024 21:56	15	Pipistrellus pipistrellus		53.335	-6.213527
21/05/2024 21:58	15	Pipistrellus pipistrellus		53.33526	-6.213023
21/05/2024 21:59	15	Pipistrellus pipistrellus		53.335282	-6.213012
21/05/2024 21:59	15	Nyctalus leisleri		53.335286	-6.213017
21/05/2024 22:00	15	Nyctalus leisleri		53.335459	-6.212681
21/05/2024 22:00	15	Pipistrellus pipistrellus		53.335472	-6.212671
21/05/2024 22:00	15	Nyctalus leisleri		53.335472	-6.212671
21/05/2024 22:01	15	Pipistrellus pipistrellus		53.335475	-6.212675
21/05/2024 22:01	15	Pipistrellus pipistrellus		53.335525	-6.212589
21/05/2024 22:01	15	Pipistrellus pipistrellus		53.335542	-6.21256
21/05/2024 22:02	15	Pipistrellus pipistrellus		53.335811	-6.212157
21/05/2024 22:02	15	Pipistrellus pipistrellus		53.335882	-6.212058
21/05/2024 22:02	15	Pipistrellus pipistrellus		53.335933	-6.211965
21/05/2024 22:02	15	Pipistrellus pipistrellus		53.335997	-6.211867
21/05/2024 22:03	15	Pipistrellus pipistrellus		53.336187	-6.211592
21/05/2024 22:03	15	Pipistrellus pipistrellus		53.336261	-6.211474
21/05/2024 22:03	15	Pipistrellus pipistrellus		53.336326	-6.211376
21/05/2024 22:03	15	Pipistrellus pipistrellus		53.336407	-6.211248

Timestamp	Temperature (°C)	Species	Note	Latitude [WGS84]	Longitude [WGS84]
21/05/2024 22:05	15	Nyctalus leisleri		53.337109	-6.210209
21/05/2024 22:06	15	Pipistrellus pipistrellus		53.337433	-6.209754
21/05/2024 22:06	15	Pipistrellus pipistrellus		53.337431	-6.209754
21/05/2024 22:06	15	Pipistrellus pipistrellus		53.337441	-6.209764
21/05/2024 22:06	15	Pipistrellus pipistrellus		53.337441	-6.209764
21/05/2024 22:06	15	Pipistrellus pipistrellus		53.337442	-6.209766
21/05/2024 22:06	15	Nyctalus leisleri		53.337442	-6.209766
21/05/2024 22:06	15	Pipistrellus pipistrellus		53.337442	-6.209766
21/05/2024 22:07	15	Pipistrellus pipistrellus		53.337442	-6.209769
21/05/2024 22:07	15	Nyctalus leisleri		53.337442	-6.209769
21/05/2024 22:07	15	Pipistrellus pipistrellus		53.337441	-6.209774
21/05/2024 22:08	15	Pipistrellus pipistrellus		53.33744	-6.209775
21/05/2024 22:08	15	Pipistrellus pipistrellus		53.337441	-6.209769
21/05/2024 22:08	15	Pipistrellus pipistrellus		53.337444	-6.209771
21/05/2024 22:08	15	Pipistrellus pipistrellus		53.33744	-6.209772
21/05/2024 22:08	15	Pipistrellus pipistrellus		53.337444	-6.209766
21/05/2024 22:08	15	Pipistrellus pipistrellus		53.337444	-6.209766
21/05/2024 22:09	15	Pipistrellus pipistrellus		53.337439	-6.209778
21/05/2024 22:09	15	Pipistrellus pipistrellus		53.337439	-6.209778
21/05/2024 22:09	15	Pipistrellus pipistrellus		53.337439	-6.209778
21/05/2024 22:09	15	Pipistrellus pipistrellus		53.337439	-6.209784
21/05/2024 22:09	15	Pipistrellus pipistrellus		53.337439	-6.209784
21/05/2024 22:09	15	Pipistrellus pipistrellus		53.33744	-6.209784
21/05/2024 22:09	15	Pipistrellus pipistrellus		53.33744	-6.209784
21/05/2024 22:09	15	Pipistrellus pipistrellus		53.337443	-6.209782
21/05/2024 22:09	15	Pipistrellus pipistrellus	Foraging	53.337444	-6.209782
21/05/2024 22:10	15	Pipistrellus pipistrellus		53.337403	-6.209451
21/05/2024 22:10	15	Pipistrellus pipistrellus		53.337403	-6.209451
21/05/2024 22:10	15	Pipistrellus pipistrellus	Foraging	53.337395	-6.209416
21/05/2024 22:10	15	Pipistrellus pipistrellus		53.337347	-6.209308
21/05/2024 22:10	15	Pipistrellus pipistrellus		53.337347	-6.209308
21/05/2024 22:10	15	Pipistrellus pipistrellus	Foraging	53.337142	-6.209079
21/05/2024 22:11	15	Pipistrellus pipistrellus		53.337036	-6.208928
21/05/2024 22:11	15	Pipistrellus pipistrellus		53.337036	-6.208928
21/05/2024 22:11	15	Nyctalus leisleri		53.336991	-6.208852
21/05/2024 22:11	15	Nyctalus leisleri		53.336975	-6.208821
21/05/2024 22:11	15	Pipistrellus pipistrellus		53.336975	-6.208821
21/05/2024 22:11	15	Pipistrellus pipistrellus		53.336945	-6.208752

Timestamp	Temperature (°C)	Species	Note	Latitude [WGS84]	Longitude [WGS84]
21/05/2024 22:11	15	Pipistrellus pipistrellus		53.336932	-6.208731
21/05/2024 22:11	15	Pipistrellus pipistrellus		53.336908	-6.208695
21/05/2024 22:11	15	Nyctalus leisleri		53.336848	-6.208591
21/05/2024 22:12	15	Pipistrellus pipistrellus		53.336786	-6.208491
21/05/2024 22:12	15	Pipistrellus pipistrellus		53.33674	-6.208409
21/05/2024 22:12	15	Pipistrellus pipistrellus		53.336687	-6.208301
21/05/2024 22:12	15	Pipistrellus pipistrellus		53.336676	-6.208259
21/05/2024 22:12	15	Pipistrellus pipistrellus		53.336661	-6.208196
21/05/2024 22:12	16	Pipistrellus pipistrellus		53.336589	-6.207791
21/05/2024 22:12	16	Nyctalus leisleri		53.336589	-6.207791
21/05/2024 22:12	16	Pipistrellus pipistrellus	Foraging	53.336577	-6.207694
21/05/2024 22:13	16	Pipistrellus pipistrellus		53.33656	-6.207537
21/05/2024 22:13	16	Pipistrellus pipistrellus		53.33656	-6.207537
21/05/2024 22:13	16	Pipistrellus pipistrellus		53.33656	-6.207537
21/05/2024 22:13	16	Pipistrellus pipistrellus		53.336551	-6.207438
21/05/2024 22:13	16	Pipistrellus pipistrellus		53.336551	-6.207438
21/05/2024 22:13	16	Pipistrellus pipistrellus		53.336541	-6.207317
21/05/2024 22:13	16	Pipistrellus pipistrellus		53.33653	-6.207202
21/05/2024 22:13	16	Pipistrellus pipistrellus		53.336511	-6.20704
21/05/2024 22:13	16	Pipistrellus pipistrellus		53.336504	-6.206924
21/05/2024 22:14	16	Pipistrellus pipistrellus		53.336433	-6.206441
21/05/2024 22:15	16	Pipistrellus pipistrellus		53.336301	-6.205444
21/05/2024 22:15	16	Pipistrellus pipistrellus		53.336253	-6.205055
21/05/2024 22:15	16	Pipistrellus pipistrellus		53.336232	-6.204925
21/05/2024 22:15	16	Pipistrellus pipistrellus		53.336232	-6.204925
21/05/2024 22:15	16	Pipistrellus pipistrellus		53.336201	-6.204619
21/05/2024 22:15	16	Pipistrellus pipistrellus		53.336197	-6.204582
21/05/2024 22:15	16	Pipistrellus spec.		53.336197	-6.204582
21/05/2024 22:15	16	Pipistrellus pipistrellus		53.33619	-6.204486
21/05/2024 22:16	16	Pipistrellus pipistrellus		53.336175	-6.204408
21/05/2024 22:16	16	Pipistrellus pipistrellus		53.33616	-6.204319
21/05/2024 22:16	16	Pipistrellus pipistrellus		53.336145	-6.204205
21/05/2024 22:16	16	Pipistrellus pipistrellus		53.336108	-6.203929
21/05/2024 22:16	16	Pipistrellus pipistrellus		53.336093	-6.203815
21/05/2024 22:16	16	Pipistrellus pipistrellus		53.33607	-6.203678
21/05/2024 22:17	16	Pipistrellus spec.		53.336036	-6.203299
21/05/2024 22:17	16	Pipistrellus pipistrellus		53.336023	-6.203082
21/05/2024 22:17	16	Pipistrellus pipistrellus		53.336023	-6.203082

Timestamp	Temperature (°C)	Species	Note	Latitude [WGS84]	Longitude [WGS84]
21/05/2024 22:17	16	Nyctalus leisleri		53.335979	-6.202539
21/05/2024 22:17	16	Nyctalus leisleri		53.335979	-6.202539
21/05/2024 22:18	16	Pipistrellus pipistrellus		53.335978	-6.202502
21/05/2024 22:18	16	Pipistrellus pipistrellus		53.335929	-6.201985
21/05/2024 22:18	16	Pipistrellus pipistrellus		53.335906	-6.201717
21/05/2024 22:19	16	Pipistrellus pipistrellus		53.335871	-6.20138
21/05/2024 22:19	16	Pipistrellus pipistrellus		53.335848	-6.201214
21/05/2024 22:19	16	Pipistrellus pipistrellus		53.335848	-6.201214
21/05/2024 22:19	16	Nyctalus leisleri		53.335835	-6.201085
21/05/2024 22:19	16	Pipistrellus pipistrellus		53.335832	-6.200986
21/05/2024 22:20	16	Pipistrellus pipistrellus		53.335827	-6.200864
21/05/2024 22:20	16	Pipistrellus pipistrellus		53.335824	-6.200682
21/05/2024 22:20	16	Pipistrellus pipistrellus		53.335824	-6.200682
21/05/2024 22:21	16	Pipistrellus pipistrellus		53.335862	-6.200351
21/05/2024 22:21	16	Nyctalus leisleri		53.335865	-6.200351
21/05/2024 22:21	16	Nyctalus leisleri		53.335865	-6.200351
21/05/2024 22:22	16	Pipistrellus pipistrellus		53.335871	-6.200352
21/05/2024 22:23	16	Nyctalus leisleri		53.33604	-6.200097
21/05/2024 22:24	15	Nyctalus leisleri		53.336506	-6.199547
21/05/2024 22:24	15	Nyctalus leisleri		53.336543	-6.199493
21/05/2024 22:28	14	Pipistrellus spec.		53.336474	-6.19645
21/05/2024 22:28	14	Pipistrellus spec.		53.336472	-6.19645
21/05/2024 22:28	14	Pipistrellus spec.		53.336472	-6.19645
21/05/2024 22:28	14	Pipistrellus pipistrellus		53.336472	-6.196449
21/05/2024 22:28	14	Pipistrellus pipistrellus		53.336474	-6.196441
21/05/2024 22:28	14	Pipistrellus pipistrellus		53.336468	-6.196437
21/05/2024 22:29	15	Nyctalus leisleri		53.336468	-6.196449
21/05/2024 22:32	15	Pipistrellus pipistrellus		53.336331	-6.19542
21/05/2024 22:32	15	Pipistrellus pipistrellus	Foraging	53.336311	-6.1953
21/05/2024 22:39	15	Pipistrellus pipistrellus		53.337925	-6.193064
21/05/2024 22:39	15	Pipistrellus pipistrellus		53.338002	-6.193059
21/05/2024 22:39	15	Pipistrellus pipistrellus		53.338003	-6.193053
21/05/2024 22:40	16	Pipistrellus pipistrellus		53.337995	-6.193055
21/05/2024 22:44	16	Pipistrellus pipistrellus		53.338361	-6.192962
21/05/2024 22:50	16	Pipistrellus pipistrellus		53.337708	-6.189169
21/05/2024 22:50	16	Pipistrellus pipistrellus		53.337711	-6.189164
21/05/2024 22:52	16	Nyctalus leisleri		53.337678	-6.191182
21/05/2024 22:52	16	Pipistrellus pipistrellus		53.337678	-6.191182

Timestamp	Temperature (°C)	Species	Note	Latitude [WGS84]	Longitude [WGS84]
21/05/2024 22:52	16	Nyctalus leisleri		53.337675	-6.191252
21/05/2024 22:53	16	Pipistrellus pipistrellus		53.33756	-6.192591
21/05/2024 22:53	16	Pipistrellus pipistrellus		53.33756	-6.192591
21/05/2024 22:56	16	Pipistrellus pipistrellus		53.336708	-6.193882
21/05/2024 22:56	15	Nyctalus leisleri		53.336375	-6.19425
21/05/2024 22:58	16	Pipistrellus pygmaeus		53.336088	-6.194488
21/05/2024 23:00	15	Nyctalus leisleri		53.335472	-6.195038
21/05/2024 23:00	15	Nyctalus leisleri		53.335466	-6.195082
21/05/2024 23:01	15	Nyctalus leisleri		53.335448	-6.195202
21/05/2024 23:01	15	Nyctalus leisleri		53.335448	-6.195202
21/05/2024 23:01	15	Pipistrellus pipistrellus		53.335448	-6.195188
21/05/2024 23:02	16	Nyctalus leisleri		53.335451	-6.195205
21/05/2024 23:06	16	Pipistrellus pipistrellus		53.335824	-6.200712
21/05/2024 23:07	16	Pipistrellus pygmaeus		53.335844	-6.201032
21/05/2024 23:07	16	Pipistrellus pygmaeus		53.335847	-6.201079
21/05/2024 23:07	16	Pipistrellus spec.		53.335927	-6.201955
21/05/2024 23:09	16	Pipistrellus pipistrellus		53.336216	-6.204663
21/05/2024 23:09	16	Pipistrellus pipistrellus		53.336222	-6.204785
21/05/2024 23:09	16	Pipistrellus pipistrellus		53.336222	-6.204785
21/05/2024 23:09	16	Pipistrellus pipistrellus		53.336222	-6.204785
21/05/2024 23:10	16	Pipistrellus pipistrellus		53.336232	-6.204869
21/05/2024 23:10	16	Pipistrellus pipistrellus		53.336234	-6.204867
21/05/2024 23:10	16	Pipistrellus pipistrellus		53.336235	-6.204866
21/05/2024 23:10	16	Pipistrellus pipistrellus		53.336235	-6.204866
21/05/2024 23:10	16	Pipistrellus pipistrellus		53.336235	-6.204866
21/05/2024 23:10	16	Pipistrellus pipistrellus		53.336245	-6.204925
21/05/2024 23:10	16	Pipistrellus pipistrellus		53.336245	-6.204925
21/05/2024 23:10	16	Pipistrellus pipistrellus		53.336245	-6.204925
21/05/2024 23:10	16	Pipistrellus pipistrellus		53.336246	-6.204983
21/05/2024 23:10	16	Pipistrellus pipistrellus		53.336246	-6.204983
21/05/2024 23:10	16	Pipistrellus pipistrellus		53.336246	-6.204983
21/05/2024 23:10	16	Pipistrellus pipistrellus		53.336273	-6.205208
21/05/2024 23:11	16	Pipistrellus pipistrellus		53.33632	-6.205617
21/05/2024 23:11	16	Pipistrellus pipistrellus		53.33632	-6.205617
21/05/2024 23:16	16	Pipistrellus pipistrellus		53.336089	-6.211753
21/05/2024 23:16	16	Pipistrellus pipistrellus		53.336053	-6.21178
21/05/2024 23:18	16	Nyctalus leisleri		53.335349	-6.212963
21/05/2024 23:18	16	Pipistrellus pipistrellus		53.33532	-6.213004

Timestamp	Temperature (°C)	Species	Note	Latitude [WGS84]	Longitude [WGS84]
21/05/2024 23:19	16	Pipistrellus pipistrellus		53.335327	-6.213035
21/05/2024 23:19	16	Pipistrellus pipistrellus		53.335331	-6.213038
21/05/2024 23:19	16	Nyctalus leisleri		53.335331	-6.213038
21/05/2024 23:20	16	Nyctalus leisleri		53.335763	-6.213215
21/05/2024 23:20	16	Pipistrellus pipistrellus		53.335884	-6.213166
21/05/2024 23:31	16	Nyctalus leisleri	Foraging	53.33708	-6.217186
21/05/2024 23:31	16	Nyctalus leisleri		53.337073	-6.217175
21/05/2024 23:32	16	Pipistrellus pipistrellus		53.33707	-6.217191
21/05/2024 23:33	17	Pipistrellus pipistrellus		53.337061	-6.21719
21/05/2024 23:35	16	Nyctalus leisleri		53.33605	-6.215845
21/05/2024 23:36	16	Nyctalus leisleri		53.335352	-6.214148
21/05/2024 23:36	16	Nyctalus leisleri		53.335348	-6.214121
21/05/2024 23:36	16	Nyctalus leisleri		53.335348	-6.214121
21/05/2024 23:36	16	Nyctalus leisleri		53.335348	-6.214121
21/05/2024 23:36	16	Nyctalus leisleri		53.335342	-6.214122
17/06/2024 22:19	15	Pipistrellus pipistrellus		53.336711	-6.210797
17/06/2024 22:19	14	Pipistrellus pipistrellus		53.336559	-6.211014
17/06/2024 22:20	14	Nyctalus leisleri		53.336081	-6.211709
17/06/2024 22:20	14	Nyctalus leisleri		53.336081	-6.211709
17/06/2024 22:20	14	Nyctalus leisleri	Foraging	53.336035	-6.211789
17/06/2024 22:20	14	Nyctalus leisleri	Foraging	53.336035	-6.211789
17/06/2024 22:20	14	Nyctalus leisleri	Foraging	53.335796	-6.212144
17/06/2024 22:21	14	Pipistrellus pipistrellus		53.335698	-6.212296
17/06/2024 22:21	14	Nyctalus leisleri		53.335612	-6.21244
17/06/2024 22:21	14	Pipistrellus pipistrellus	Foraging	53.335266	-6.213387
17/06/2024 22:22	14	Pipistrellus pipistrellus	Foraging	53.335292	-6.213586
17/06/2024 22:22	14	Pipistrellus pipistrellus		53.335316	-6.213858
17/06/2024 22:22	14	Pipistrellus pipistrellus		53.33536	-6.214082
17/06/2024 22:25	14	Pipistrellus pipistrellus	Foraging	53.336074	-6.21575
17/06/2024 22:25	14	Pipistrellus pipistrellus		53.336134	-6.215889
17/06/2024 22:25	14	Pipistrellus pipistrellus		53.336134	-6.215889
17/06/2024 22:27	14	Nyctalus leisleri		53.336935	-6.217322
17/06/2024 22:27	14	Pipistrellus pipistrellus		53.336935	-6.217322
17/06/2024 22:27	14	Pipistrellus pipistrellus		53.337035	-6.217356
17/06/2024 22:27	14	Pipistrellus pipistrellus	Foraging	53.337123	-6.217366
17/06/2024 22:27	14	Pipistrellus pipistrellus	Foraging	53.337322	-6.217535
17/06/2024 22:28	14	Pipistrellus pygmaeus		53.337393	-6.217592

Timestamp	Temperature (°C)	Species	Note	Latitude [WGS84]	Longitude [WGS84]
17/06/2024 22:28	14	Pipistrellus pygmaeus		53.337525	-6.217727
17/06/2024 22:28	14	Pipistrellus pygmaeus		53.337583	-6.217739
17/06/2024 22:28	14	Pipistrellus pygmaeus		53.337655	-6.217761
17/06/2024 22:28	14	Pipistrellus pygmaeus		53.337705	-6.217771
17/06/2024 22:36	15	Nyctalus leisleri		53.336432	-6.213247
17/06/2024 22:37	15	Pipistrellus pipistrellus		53.336411	-6.213235
17/06/2024 22:37	15	Nyctalus leisleri		53.336411	-6.213235
17/06/2024 22:37	15	Pipistrellus pipistrellus		53.336411	-6.213235
17/06/2024 22:38	15	Pipistrellus pipistrellus		53.336359	-6.213282
17/06/2024 22:38	15	Nyctalus leisleri		53.336359	-6.213282
17/06/2024 22:38	15	Nyctalus leisleri	Foraging	53.336331	-6.213296
17/06/2024 22:38	15	Nyctalus leisleri		53.33633	-6.213296
17/06/2024 22:38	15	Nyctalus leisleri		53.336329	-6.213294
17/06/2024 22:38	15	Pipistrellus pipistrellus		53.336329	-6.213294
17/06/2024 22:39	15	Pipistrellus pygmaeus		53.336327	-6.213265
17/06/2024 22:39	15	Pipistrellus pygmaeus		53.336331	-6.213258
17/06/2024 22:39	15	Pipistrellus pipistrellus		53.336346	-6.213246
17/06/2024 22:40	15	Pipistrellus spec.		53.336352	-6.213235
17/06/2024 22:40	15	Pipistrellus pygmaeus		53.336285	-6.213205
17/06/2024 22:40	15	Pipistrellus pipistrellus		53.336285	-6.213205
17/06/2024 22:40	15	Pipistrellus pygmaeus		53.336159	-6.213141
17/06/2024 22:40	15	Pipistrellus pipistrellus		53.33613	-6.21306
17/06/2024 22:40	15	Pipistrellus pygmaeus		53.3361	-6.213043
17/06/2024 22:40	15	Pipistrellus pygmaeus		53.336042	-6.213051
17/06/2024 22:40	15	Nyctalus leisleri		53.336042	-6.213051
17/06/2024 22:40	15	Pipistrellus pipistrellus		53.335955	-6.213094
17/06/2024 22:40	15	Nyctalus leisleri		53.335955	-6.213094
17/06/2024 22:40	15	Nyctalus leisleri		53.335955	-6.213094
17/06/2024 22:40	15	Pipistrellus pygmaeus		53.335899	-6.213129
17/06/2024 22:40	15	Nyctalus leisleri		53.335899	-6.213129
17/06/2024 22:41	15	Nyctalus leisleri		53.33566	-6.213221
17/06/2024 22:41	15	Nyctalus leisleri		53.33566	-6.213221
17/06/2024 22:41	15	Pipistrellus pipistrellus		53.335552	-6.212517
17/06/2024 22:42	15	Pipistrellus pipistrellus		53.33558	-6.212459
17/06/2024 22:42	15	Pipistrellus pipistrellus	Foraging	53.335775	-6.212175
17/06/2024 22:42	14	Pipistrellus pipistrellus	Foraging	53.33591	-6.211974
17/06/2024 22:42	14	Pipistrellus pipistrellus		53.336115	-6.211683
17/06/2024 22:42	14	Pipistrellus pipistrellus	Foraging	53.336159	-6.211615

Timestamp	Temperature (°C)	Species	Note	Latitude [WGS84]	Longitude [WGS84]
17/06/2024 22:43	14	Pipistrellus pipistrellus		53.336302	-6.211393
17/06/2024 22:43	14	Pipistrellus pipistrellus		53.336407	-6.211246
17/06/2024 22:43	14	Pipistrellus pipistrellus		53.336472	-6.211125
17/06/2024 22:43	14	Pipistrellus pipistrellus		53.33675	-6.210688
17/06/2024 22:43	14	Pipistrellus pygmaeus		53.33675	-6.210688
17/06/2024 22:44	14	Pipistrellus pipistrellus		53.336906	-6.210432
17/06/2024 22:44	15	Pipistrellus pipistrellus		53.336928	-6.210395
17/06/2024 22:44	15	Pipistrellus pipistrellus		53.336928	-6.210395
17/06/2024 22:44	15	Pipistrellus pipistrellus		53.337174	-6.21008
17/06/2024 22:44	15	Pipistrellus pipistrellus		53.337209	-6.210034
17/06/2024 22:44	15	Pipistrellus pipistrellus		53.337209	-6.210034
17/06/2024 22:48	14	Pipistrellus pipistrellus		53.336152	-6.20426
17/06/2024 22:52	14	Nyctalus leisleri		53.335893	-6.19888
17/06/2024 22:54	14	Pipistrellus pipistrellus		53.335634	-6.196547
17/06/2024 22:54	14	Pipistrellus pipistrellus		53.335615	-6.196462
17/06/2024 22:56	14	Pipistrellus pipistrellus	Foraging	53.335516	-6.194837
17/06/2024 22:59	15	Pipistrellus pipistrellus		53.335805	-6.194668
17/06/2024 22:59	15	Pipistrellus pipistrellus		53.335842	-6.194634
17/06/2024 23:00	15	Pipistrellus pipistrellus	Foraging	53.335909	-6.194595
17/06/2024 23:00	15	Pipistrellus pipistrellus		53.335966	-6.194557
17/06/2024 23:00	15	Pipistrellus pipistrellus		53.336019	-6.194522
17/06/2024 23:00	15	Pipistrellus pipistrellus		53.336055	-6.1945
17/06/2024 23:00	15	Pipistrellus pipistrellus		53.336122	-6.194464
17/06/2024 23:00	15	Pipistrellus pipistrellus		53.336184	-6.194412
17/06/2024 23:00	15	Pipistrellus pipistrellus	Foraging	53.336168	-6.194415
17/06/2024 23:00	15	Pipistrellus pipistrellus		53.336168	-6.194415
17/06/2024 23:00	15	Pipistrellus pipistrellus		53.336173	-6.194403
17/06/2024 23:00	15	Pipistrellus pipistrellus		53.336174	-6.194407
17/06/2024 23:01	15	Pipistrellus pipistrellus		53.336177	-6.19441
17/06/2024 23:01	15	Pipistrellus pipistrellus		53.336177	-6.19441
17/06/2024 23:01	15	Pipistrellus pipistrellus		53.336179	-6.194411
17/06/2024 23:02	15	Pipistrellus pipistrellus		53.336179	-6.194463
17/06/2024 23:02	15	Pipistrellus pipistrellus		53.336179	-6.194462
17/06/2024 23:02	15	Pipistrellus pipistrellus	Foraging	53.33618	-6.194461
17/06/2024 23:02	16	Pipistrellus pipistrellus		53.336181	-6.194456
17/06/2024 23:02	16	Pipistrellus pipistrellus	Foraging	53.336182	-6.194455
17/06/2024 23:02	16	Pipistrellus pipistrellus		53.336186	-6.194456
17/06/2024 23:03	16	Nyctalus leisleri		53.336187	-6.194446

Timestamp	Temperature (°C)	Species	Note	Latitude [WGS84]	Longitude [WGS84]
17/06/2024 23:08	15	Pipistrellus pipistrellus		53.337723	-6.189656
17/06/2024 23:15	15	Pipistrellus pipistrellus		53.33879	-6.192716
17/06/2024 23:16	15	Pipistrellus pipistrellus		53.338935	-6.192717
17/06/2024 23:24	14	Pipistrellus pipistrellus		53.336362	-6.194345
17/06/2024 23:24	14	Pipistrellus spec.		53.336379	-6.194384
17/06/2024 23:24	14	Pipistrellus spec.		53.336371	-6.194425
17/06/2024 23:24	14	Pipistrellus spec.		53.336377	-6.194507
17/06/2024 23:25	14	Pipistrellus pipistrellus		53.336341	-6.195047
17/06/2024 23:29	15	Pipistrellus pipistrellus	Foraging	53.336269	-6.196262
17/06/2024 23:33	14	Pipistrellus pipistrellus		53.336056	-6.200047
17/06/2024 23:34	14	Pipistrellus spec.		53.335969	-6.200174
17/06/2024 23:34	14	Pipistrellus pipistrellus	Foraging	53.335969	-6.200174
17/06/2024 23:34	14	Pipistrellus pipistrellus		53.335892	-6.200338
17/06/2024 23:34	14	Pipistrellus pipistrellus		53.335888	-6.200341
17/06/2024 23:35	14	Pipistrellus pipistrellus	Foraging	53.335887	-6.200344
17/06/2024 23:35	14	Pipistrellus spec.		53.335887	-6.200344
17/06/2024 23:35	14	Pipistrellus pipistrellus		53.335886	-6.200345
17/06/2024 23:35	14	Pipistrellus spec.		53.335884	-6.200344
17/06/2024 23:38	15	Pipistrellus pipistrellus		53.335832	-6.200976
17/06/2024 23:50	14	Nyctalus leisleri		53.336108	-6.211732
17/06/2024 23:50	14	Nyctalus leisleri		53.336108	-6.211732
17/06/2024 23:51	14	Nyctalus leisleri		53.336062	-6.211803
17/06/2024 23:51	14	Nyctalus leisleri		53.335984	-6.211898
17/06/2024 23:51	14	Nyctalus leisleri		53.335716	-6.212298
17/06/2024 23:51	14	Nyctalus leisleri		53.335614	-6.212446
17/06/2024 23:51	14	Nyctalus leisleri		53.335593	-6.212482
17/06/2024 23:51	14	Pipistrellus pipistrellus		53.335444	-6.21272
17/06/2024 23:52	14	Pipistrellus pipistrellus		53.335394	-6.212811
17/06/2024 23:52	14	Pipistrellus pipistrellus		53.335386	-6.212826
17/06/2024 23:52	14	Pipistrellus pipistrellus		53.335386	-6.212826
17/06/2024 23:52	14	Nyctalus leisleri		53.335386	-6.212826
17/06/2024 23:52	14	Pipistrellus pipistrellus		53.335369	-6.21287
17/06/2024 23:52	14	Pipistrellus pipistrellus		53.335367	-6.212877
17/06/2024 23:52	14	Pipistrellus pipistrellus		53.335327	-6.212941
17/06/2024 23:53	14	Pipistrellus pipistrellus		53.335298	-6.212978
17/06/2024 23:53	14	Pipistrellus pipistrellus		53.33529	-6.212983
17/06/2024 23:53	14	Pipistrellus pipistrellus		53.335292	-6.212997
17/06/2024 23:53	14	Nyctalus leisleri		53.335289	-6.212998

Timestamp	Temperature (°C)	Species	Note	Latitude [WGS84]	Longitude [WGS84]
17/06/2024 23:53	14	Pipistrellus pipistrellus		53.335289	-6.212998
17/06/2024 23:53	14	Nyctalus leisleri		53.335287	-6.212999
17/06/2024 23:53	14	Pipistrellus pipistrellus		53.335287	-6.212999
17/06/2024 23:53	14	Pipistrellus pipistrellus		53.335286	-6.213
17/06/2024 23:54	14	Pipistrellus pipistrellus		53.335288	-6.213002
17/06/2024 23:54	14	Pipistrellus pipistrellus		53.33529	-6.212997
17/06/2024 23:54	14	Pipistrellus pipistrellus		53.33529	-6.212994
17/06/2024 23:54	14	Pipistrellus pipistrellus		53.335293	-6.212984
17/06/2024 23:54	14	Pipistrellus pipistrellus		53.335292	-6.212982
17/06/2024 23:54	14	Nyctalus leisleri		53.335292	-6.212982
17/06/2024 23:54	14	Pipistrellus pipistrellus		53.335292	-6.212982
17/06/2024 23:54	14	Nyctalus leisleri		53.335293	-6.212981
17/06/2024 23:54	14	Pipistrellus pipistrellus	Foraging	53.335298	-6.212974
17/06/2024 23:54	14	Nyctalus leisleri		53.335298	-6.212974
17/06/2024 23:55	14	Pipistrellus pipistrellus		53.335298	-6.212974
17/06/2024 23:55	14	Pipistrellus pipistrellus		53.335298	-6.212974
17/06/2024 23:55	14	Nyctalus leisleri		53.335298	-6.212974
17/06/2024 23:55	14	Pipistrellus pipistrellus		53.335303	-6.21297
17/06/2024 23:55	14	Pipistrellus pipistrellus		53.335304	-6.21297
17/06/2024 23:55	14	Nyctalus leisleri		53.335304	-6.21297
17/06/2024 23:55	14	Pipistrellus pipistrellus		53.335304	-6.21297
17/06/2024 23:55	14	Pipistrellus pipistrellus		53.335302	-6.212999
17/06/2024 23:55	14	Pipistrellus pipistrellus		53.335302	-6.212999
17/06/2024 23:55	14	Pipistrellus pipistrellus		53.335289	-6.212997
17/06/2024 23:55	14	Nyctalus leisleri		53.335289	-6.212997
17/06/2024 23:55	14	Pipistrellus pipistrellus		53.335293	-6.213003
17/06/2024 23:55	14	Pipistrellus pipistrellus		53.335293	-6.213003
17/06/2024 23:56	14	Pipistrellus pipistrellus		53.335294	-6.213002