



Cush Wind Farm
Phase II

Environmental Impact Assessment Report

Annex 5.11: Marsh Fritillary Survey Report

Cush Wind Limited



Marsh Fritillary Survey Report

Cush Wind Farm Phase II

Cush Wind Limited

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	21 October 2026	Sinéad Clifford	Dr Jonathon Dunn	
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Basis of Report

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1.0 Introduction

SLR Environmental Consulting (Ireland) Ltd was commissioned to carry out a marsh fritillary *Euphydryas aurinia* survey to support the environmental impact assessment of the proposed Cush Wind Farm Phase II (the 'project').

1.1 Marsh Fritillary

Marsh fritillary is protected under Annex II of the EU Habitats Directive [92/43/EEC]. It is classified as Vulnerable in Ireland in the Ireland Red List No. 4¹.

In the most recent Article 17 report², its overall conservation status is assessed as Favourable, with an improved trend, representing an improvement from the unfavourable-inadequate assessment in 2019.

The species can be observed on the wing May-June annually. In August, larvae can be observed as well as the communal webs they spin on vegetation. Devil's bit scabious *Succisa pratensis* is the food plant for the larvae. As such, its presence is among the criteria that can indicate habitat suitability for the species.

Marsh fritillary requires an open grassy habitat with an abundance of devil's bit scabious. The ideal sward height is from 12-25cm tall with the presence of structured vegetation that provides localised protection from the weather.

The primary threats to marsh fritillary include habitat deterioration through overgrazing and undergrazing, habitat fragmentation, and drainage of fen habitats, which are often closely associated with the species.

2.0 Methodology

2.1 Statement of Authority

Dedicated surveys for marsh fritillary butterfly were undertaken and this report written by associate ecologist Sinéad Clifford MCIEEM in the summer of 2025.

Sinéad has worked in the environmental sector since 2015 and joined SLR Consulting in 2021. She holds a BSc in Wildlife Biology from Institute of Technology Tralee, and a Certificate (Distinction) in Ecological Consultancy from Ecology Training UK (formerly Acorn Ecology). Sinéad has strong field skills, and regularly carries out bat, ornithological, botanical and mammalian surveys. She has extensive experience in undertaking marsh fritillary surveys, both habitat condition assessment and larval web surveys. In addition, she has vast experience managing bat surveys for large scale projects, including wind energy developments. She is also an experienced GIS user, having produced multiple maps and species distribution models. She is proficient in using ArcGIS, QGIS, and Arc Field Maps software. Sinéad has prepared a wide variety of ecological reports, including biodiversity chapters for Environmental Impact Assessment Reports (EIAR), Ecological Impact Assessments (EclA), Appropriate Assessment (AA) screening reports, Natura Impact Statements (NIS), and bat reports.

¹ Regan, E.C., Nelson, B., Aldwell, B., Bertrand, C., Bond, K., Harding, J., Nash, D., Nixon, D., & Wilson, C.J. (2010) Ireland Red List No. 4 – Butterflies. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Ireland.

² <https://www.npws.ie/sites/default/files/publications/pdf/article-17-report-2025-volume-1.pdf>



2.2 Desk Study

Desk study resources are detailed in full in Chapter 5 of the EIAR. A desk study was undertaken to identify potential suitability for marsh fritillary, including previous records of the species overlapping the Project Site.

The following online and other resources were accessed as part of the desk study, searching for all relevant records up to 20km radius of the site boundary:-

- *Satellite imagery;*
- *Environmental Protection Agency (EPA) maps;*
- *National Biodiversity Data Centre (NBDC) database;*
- *National Parks and Wildlife Services (NPWS);*
- *NPWS data request (data received on 03/09/2026);*

2.3 Habitat Suitability Survey

The survey areas were reviewed using the habitat survey findings. The PB4 cutover bog was largely unvegetated; the UGL corridor was dominated by heavily grazed GA1 improved agricultural grassland, BL3 buildings and artificial surfaces, and BC1 arable crops; and the haul route accommodation works were dominated by artificial habitats, namely GA2 amenity grassland, and BL3 buildings and artificial surfaces. During the collation of data for each habitat type, devil's-bit scabious was not recorded along the underground electricity line or at the haul route accommodation works. The detailed habitat-condition survey was therefore focused on vegetated areas within the wind farm site survey area where devil's bit scabious was noted.

The habitat suitability assessment was undertaken 10th- 11th July 2025 based on the methodology outlined in the National Biodiversity Data Centre's monitoring scheme (NBDC, 2023). This guidance recommends at least 20 stopping points for a small site (<1 ha) more than 40 stopping points for a medium-sized site (1-5 ha) and more than 50 stopping points for a large site (>5 ha). As the site is >5ha, 53 predetermined stops were made along two zig-zag transects. These transects (each a sub-site) were walked, crossing through the survey area.

At each stopping-point the vegetation height was measured to the top of the leaves. In a quadrat of 1m², the following were recorded³:

- Vegetation height:
 - A = <12cm
 - B = 12-25cm;
 - C = 25-50; and
 - D = >50cm.
- Presence of devil's-bit scabious was assessed based on one of the following abundance categories:
 - A = 1-2 plants;
 - B = 3-9 plants;
 - C = 10+ plants; and

³ <https://biodiversityireland.ie/app/uploads/2021/11/Marsh-Fritillary-Habitat-Condition-Form.pdf>



- D = No plants.
- Structured vegetation, low (<25 cm tall)
 - Mark with an 'X' if there is presence of any steps in vegetation or ground that provide localised protection from elements at ground level.
- Low invading scrub with a cover of >10%
 - Tick if low invading scrub (e.g. birch, gorse, bog myrtle)
 - <25 cm tall and >10% cover present.
 - Do not include scrub that is an integral part of the habitat (e.g. Juniper in Juniper heath systems).
- Evidence of stock grazing signs (e.g. tracks, poach marks, dung).
 - Tick if present

Using the recorded data, an estimate of the cover (%) of tall (>0.5 m) scrub for the whole site is determined, and a category of suitability assigned based on Table 2-1 below.

Table 2-1 Habitat Condition – Categories of Suitability

Category	Code	Criteria
Good Condition Habitat	GC	>20% frequency of Category B/C Scabious abundance growing in 12-25 cm tall swards and <10% cover of tall scrub (>0.5 m tall)
Suitable (Under-grazed) Habitat	SU	>20% frequency of Category B/C Scabious abundance growing in >25 cm tall swards and <20% frequency of Category B/C Scabious abundance growing in 12-25 cm tall swards
Suitable (Over-grazed) Habitat	SO	>20% frequency of Category B/C Scabious abundance growing in <12 cm tall swards and <20% frequency of Category B/C Scabious abundance growing in 12-25 cm tall swards
Unsuitable Habitat	US	<5% frequency of Category B/C Scabious abundance growing in >25 cm tall swards

The survey area is shown in Figure 01.

2.4 Larval Web Survey

A larval web survey was undertaken on 25th – 26th August 2025. While no suitable habitat was identified during the habitat condition assessment, a larval web survey was undertaken of the area where devil's-bit scabious had been recorded as a precautionary measure. This involved surveying 1m either side of a 312m transect (Transect 1a, as shown in Figure 2, Appendix A) for larval webs and any evidence of feeding by marsh fritillary. The location of these, if present, were recorded using GPS⁴.

⁴ <https://biodiversityireland.ie/app/uploads/2021/11/Marsh-Fritillary-Larval-Survey-Form.pdf>



- The following data was recorded:
- Date of visit:
- Site/sub-site (if applicable):
- Number of occupied webs found:
- Length of transect (metres):
- Area of suitable habitat (hectares):
- Population size/estimated pop.size (webs):

Abundance of Devil's-bit Scabious over the site surveyed:

- Widespread and abundant
- Frequent
- Patchy (locally abundant)
- Patchy sparse
- Rare

Average vegetation height:

- <5cm
- 5 to 12cm
- 12 to 25cm
- >25cm

Animal poaching

- No livestock hoof marks
- Hoof marks confined to tracks
- Some poaching of wetter areas
- Majority of site poached

The survey area is shown in Figure 02.

2.5 Limitations

No limitations were encountered that materially affected the scope or reliability of the survey findings.



3.0 Results

3.1 Desk Study

Records of 30 marsh fritillary were yielded from the desk study. These records were distributed across the 10km grid squares that overlap the site, N00, N01, N10, N11. The most recent record is from 13/09/2024. As the scale of these records is a 10km hectad, it wasn't possible to identify the exact record location.

3.2 Habitat Condition Survey

The results of the habitat condition survey are presented below.

3.2.1 Transect Results – Habitat Condition Survey

There was an absence of devil's bit scabious, the food-plant for marsh fritillary across transect 1 except for stop 18 (ITM 608081.14, 710663.87,). The invasion of low scrub and history of commercial peat cutting has resulted in a lack of structured vegetation.

There was no devil's bit scabious recorded at transect 2. Low scrub was dense in this area, and there was an absence of structured vegetation here also.

The data collected to inform the habitat condition assessment are presented below in **Table 3-1** to **Table 3-5**.



Table 3-1 Habitat Condition Survey – Transect Attributes

Attribute	Transect 1	Transect 2
Tall Scrub Cover (%)	Rare (0-5%)	Rare (0-5%)
Management Observations (e.g. enclosed, recently grazed or cut, peat cutting, burning, etc.)	No grazing evident. However, the site has been intensively managed for peat cutting historically. As such, there is minimal vegetation across most of the areas or, where present, is invaded by scrub and Molinia.	No grazing evident. However, the site has been intensively managed for peat cutting historically. As such, there is minimal vegetation across most of the areas or, where present, is invaded by scrub and Molinia.
Aspect and Slope Description	North-facing. Flat throughout	North-facing. Flat throughout
Exposure	Very exposed with minimal shelter along the southern boundary	Very exposed with minimal shelter along the southern boundary

Table 3-2 Transect 1 – Survey results

	Transect 1														
	Stop Number														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Vegetation Height	A = <12 cm	A = <12 cm	A = <12 cm	A = <12 cm	A = <12 cm	A = <12 cm	A = <12 cm	A = <12 cm	A = <12 cm	A = <12 cm	A = <12 cm	A = <12 cm	A = <12 cm	A = <12 cm	A = <12 cm
Devil's-bit Scabious abundance	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
Structured vegetation	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No



	Transect 1														
	Stop Number														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Low invading scrub	No	No	Yes	Yes	Yes	None	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes
Evidence of stock grazing	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No

Table 3-3 Transect 1 – Survey results

	Transect 1														
	Stop Number														
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Vegetation Height	B = 12-25 cm	B = 12-25 cm	A = <12 cm	A = <12 cm	A = <12 cm	A = <12 cm	B = 12-25 cm	A = <12 cm	A = <12 cm	B = 12-25 cm	B = 12-25 cm	B = 12-25 cm	B = 12-25 cm	B = 12-25 cm	B = 12-25 cm
Devil's-bit Scabious abundance	D	D	A	D	D	D	D	D	D	D	D	D	D	D	D
Structured vegetation	No	No	Yes	No	No	No	No	No	Yes	Yes	No	No	No	No	No
Low invading scrub	Yes	Yes	No	No	Yes	No	Yes	Yes	No	Yes	No	Yes	No	Yes	Yes



	Transect 1														
	Stop Number														
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Evidence of stock grazing	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No

Table 3-4 Transect 1 – Survey results

	Transect 1								
	Stop Number								
	31	32	33	34	35	36	37	38	39
Vegetation Height	B = 12-25 cm	B = 12-25 cm	B = 12-25 cm	B = 12-25 cm	B = 12-25 cm	B = 12-25 cm	B = 12-25 cm	B = 12-25 cm	B = 12-25 cm
Devil's-bit Scabious abundance	D	D	D	D	D	D	D	D	D
Structured vegetation	Yes	No	No	No	No	No	No	Yes	No
Low invading scrub	No	Yes	Yes	Yes	No	Yes	No	Yes	No
Evidence of stock grazing	No	No	No	No	No	No	No	No	No



Table 3-5 Transect 2 – Survey results

	Transect 2													
	Stop Number													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Vegetation Height	A = <12 cm	A = <12 cm	A = <12 cm	A = <12 cm	A = <12 cm	A = <12 cm	A = <12 cm	A = <12 cm	A = <12 cm	A = <12 cm	A = <12 cm	A = <12 cm	A = <12 cm	A = <12 cm
Devil's-bit Scabious abundance	D	D	D	D	D	D	D	D	D	D	D	D	D	D
Structured vegetation	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No
Low invading scrub	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Evidence of stock grazing	No	No	No	No	No	No	No	No	No	No	No	No	No	No

Table 3-6 Habitat Condition - Data Analysis – Transect 1

Metric	Value	Metric	Value
Mean vegetation height (cm)	A = <12 cm	% Frequency of Category B/C Scabious in <12 cm swards	0%
% Frequency of Scabious	3%	% Frequency of Category B/C Scabious in >25 cm swards	0%



Metric	Value	Metric	Value
% Frequency of Scabious Category A	3%	% Frequency of Structured Vegetation	13%
% Frequency of Scabious Category B	0%	% Frequency of Low Invading Scrub	62%
% Frequency of Scabious Category C	0%	% Frequency of Stock Grazing Signs	0%
% Frequency of 12-25 cm Swards	46%	Tall (>0.5 m) Scrub Cover (%)	0-5%
% Frequency of Category B/C Scabious in 12-25 cm Swards	0%		

Table 3-7 Habitat Condition - Data Analysis – Transect 2

Metric	Value	Metric	Value
Mean vegetation height (cm)	A = <12 cm	% Frequency of Category B/C Scabious in <12 cm swards	0%
% Frequency of Scabious	0%	% Frequency of Category B/C Scabious in >25 cm swards	0%
% Frequency of Scabious Category A	0%	% Frequency of Structured Vegetation	7%
% Frequency of Scabious Category B	0%	% Frequency of Low Invading Scrub	79%
% Frequency of Scabious Category C	0%	% Frequency of Stock Grazing Signs	0%
% Frequency of 12-25 cm Swards	0%	Tall (>0.5 m) Scrub Cover (%)	0%
% Frequency of Category B/C Scabious in 12-25 cm Swards	0%		



3.2.2 Suitability

Based on the criteria outlined in Table 2-1 the survey sites are assessed as 'unsuitable habitat'.



3.3 Larval Web Survey

While no suitable habitat was recorded during the habitat condition survey, a larval web survey was undertaken as a precautionary measure.

The results of the larval web survey are presented in **Table 3-8**.

No larval webs, larvae, nor evidence of feeding by the species were recorded during the survey.

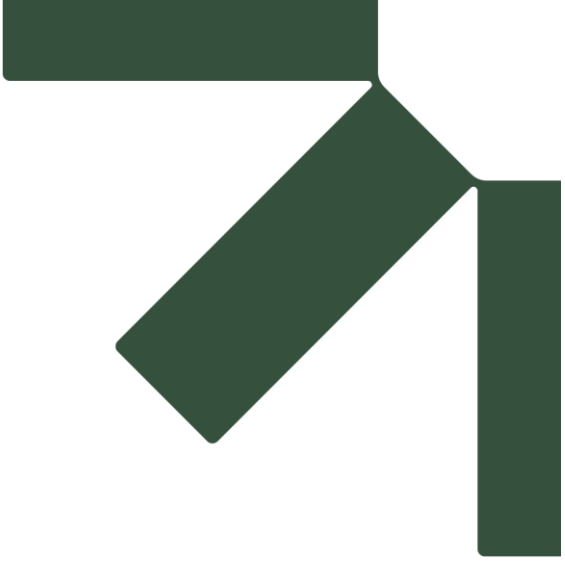
Table 3-8 Larval web survey

Attribute	Data
Survey	Larval Web Survey
Site	Cush Wind Farm Phase II
Date	25th – 26th August 2025
Sub-Site	Transect 1a
Number of occupied webs found	0
Length of transect (m)	312m
Area of suitable habitat (ha)	0ha
Population size/estimated population size (webs)	0
Abundance of devil's bit scabious	Rare
Average vegetation height	5-12cm
Animal poaching	No livestock hoof marks

4.0 Conclusion

The survey area was classified as unsuitable for marsh fritillary. While devil's bit scabious was recorded, this was restricted to a single isolated area at the western boundary of the Project boundary. The lack of structured vegetation, history of peat harvesting, and scrub and Molinia encroachment have all limited the suitability of the Site. No larval webs, larvae, nor evidence of feeding by the species were recorded during surveys.





Appendix A Figures

Marsh Fritillary Survey Report

Cush Wind Farm Phase II

Cush Wind Limited

SLR Project No.: 501.065723.00001

22 October 2026

608000

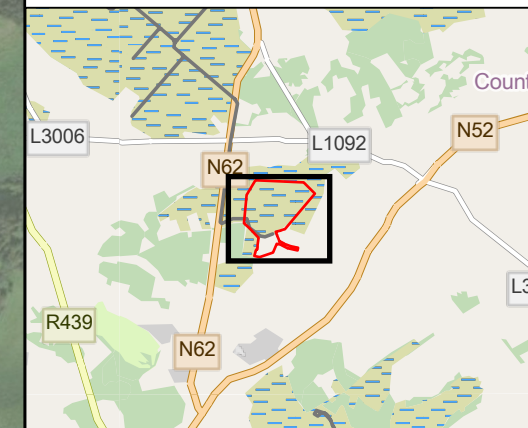
608500

609000



LEGEND

Planning Boundary

Turbine Layout

CUSH WIND FARM
MARSH FRITILLARY REPORT
HABITAT CONDITION SURVEY AREA

FIGURE 1.1

Scale	1:5,000 @ A3	Date	OCTOBER 2026
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711000

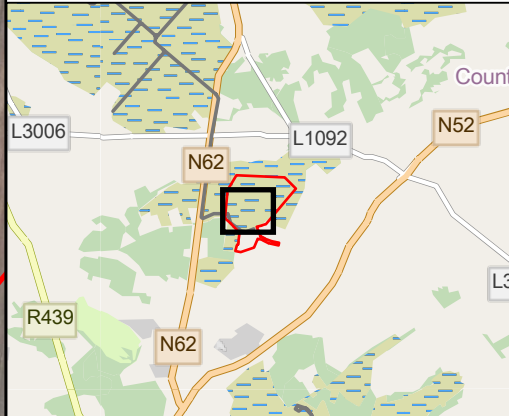
710500

501.065723.00001.0041.0 Habitat Condition Survey Area



LEGEND

-  Planning Boundary
-  Turbine Layout
-  Transect Stop Location
-  Transect 1
-  Transect 2

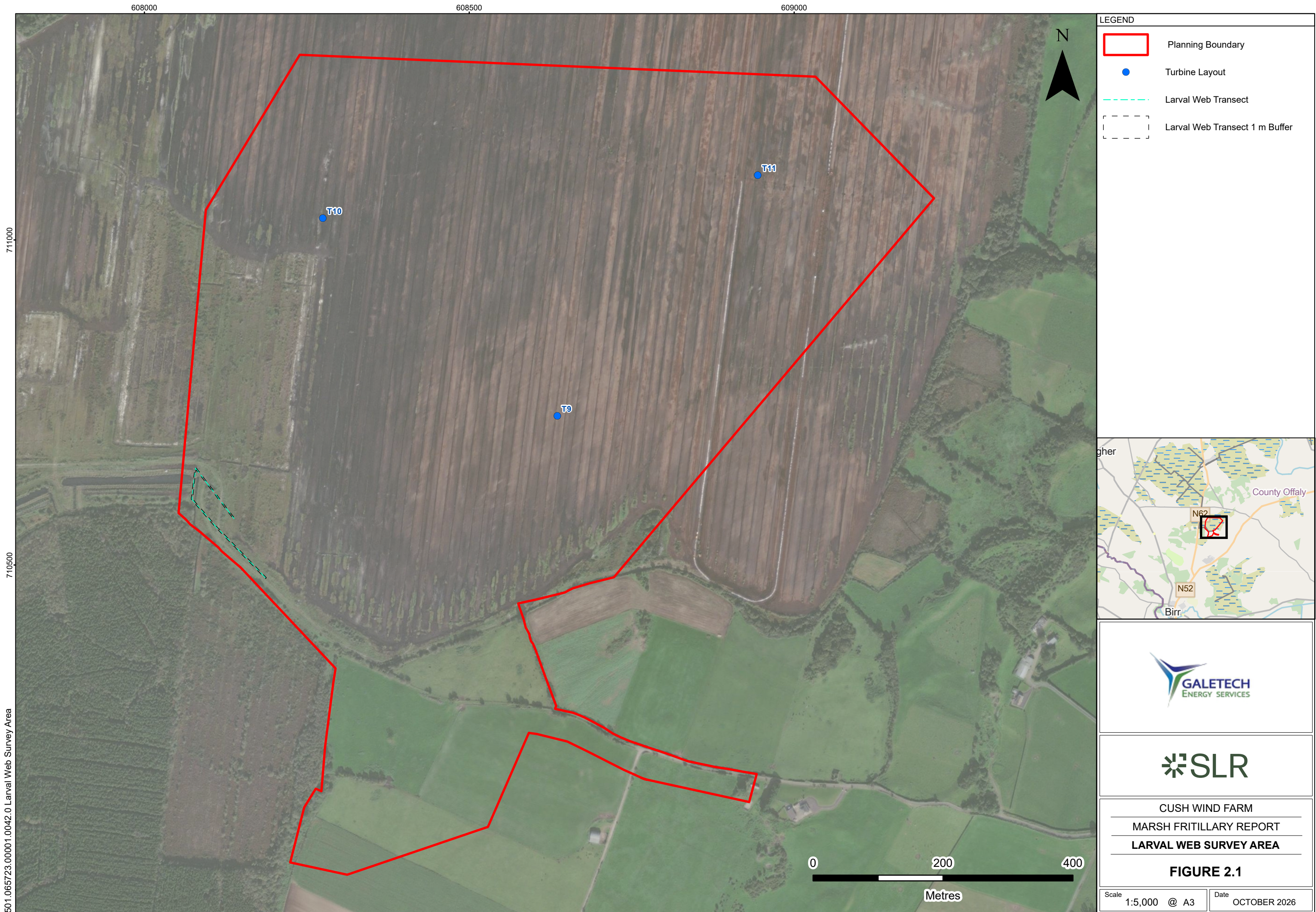


CUSH WIND FARM
MARSH FRITILLARY REPORT
HABITAT CONDITION SURVEY AREA

FIGURE 1.2

Scale 1:2,500 @ A3 Date OCTOBER 2026

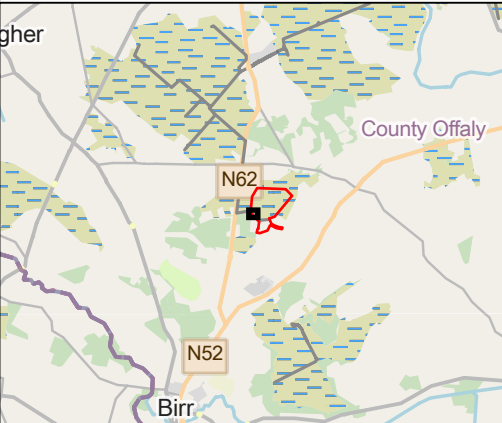
501.065723.00001.0041.0 Habitat Condition Survey Area





LEGEND

	Planning Boundary
	Larval Web Transect
	Larval Web Transect 1 m Buffer



CUSH WIND FARM
MARSH FRITILLARY REPORT
LARVAL WEB SURVEY AREA

FIGURE 2.2

Scale	1:750 @ A3	Date	OCTOBER 2026
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501.065723.00001.0042.0 Larval Web Survey Area



Making Sustainability Happen