Fferm Solar Larnog

Environmental Statement

Volume IV, Appendix 7F: Threatened Arable Plant Technical Note

November 2026

Issue Sheet

Report Prepared for Trydan Gwyrdd Cymru

Document Title

Volume IV, Appendix 7F: Threatened Arable Plant Technical Note

Disclaimer

This report has been prepared by WSP UK Ltd with all reasonable care and diligence within the terms of the contract with the Client, Trydan Gwyrdd Cymru. We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above. We accept no responsibility to third parties to whom this report, or any part, thereof is made available. Any such party relies upon the report at their own risk.

List of Contents

1. Threatened Arable Plant Technical Note 3
1.1. Project Background 3
1.2. Ecological Background 3
1.3. Methods 4
1.4. Results 5
1.5. Discussion and Recommendations 6

List of Figures

Figure 1 – Threatened Arable Plant Survey Results

1. Threatened Arable Plant Technical Note

1.1. Project Background

1.1.1. WSP has been commissioned by Trydan Gwyrdd Cymru (hereafter referred to as the 'Applicant') to undertake threatened arable plant surveys to inform the planning application of the proposed Larnog Solar Farm (the 'Proposed Development') to the south of Cosmeston (central British National Grid (BNG) reference: ST 17739 68268); hereafter referred to as the 'Site'.

1.1.2. The Site lies immediately north of the Severn Estuary and is bounded to the north by Lavernock Road (the B4267). A disused railway track runs from east to west across the Site. Cosmeston Lakes, freshwater lakes which are flooded limestone quarries, are located to the north of the Site.

1.1.3. The Site location and proposed infrastructure layout are illustrated in **Figure 1.1: Site Location Plan** and **Figure 5.1: Indicative Site Layout** of the ES, respectively.

1.1.4. For the purposes of this Technical Note, threatened arable plants refer to those listed as threatened arable plants in Wales by Plantlife[1], supplemented by information in A New Vascular Plant Red List for Great Britain[2] and Terrestrial and Freshwater Species in Peril in Wales[3].

1.2. Ecological Background

1.2.1. A Preliminary Ecological Appraisal (PEA) for the Proposed Development was undertaken by WSP in 2025 and subsequently updated in 2026, as the original habitat survey had been undertaken outside the optimal survey period for habitat classification (refer to **Appendix 7A: Preliminary Ecological Appraisal 2026**). The PEA included a desk study, a Phase 1 habitat survey incorporating habitat survey information collected during the appropriate survey season, and a Daytime Bat Walkover (DBW). The PEA included the Site plus a wider area, hereafter referred to as the 'Survey Area', as shown in **Figure 1**.

1.2.2. As part of the desk study, records of protected and/or notable plant species within the Survey Area and within 2 km of the Survey Area were requested from the South East Wales Biodiversity Records Centre (SEWBReC).

[1] Plantlife. 2014. Threatened arable plants of Wales: An identification guide.
[2] Stroh, P.A., Oliver L., Pescott, Richard M. Bateman, Elizabeth L. Cooke, Mags Cousins, Mike F. Fay, Aline Finger, Colin A. Harrower, Andy Jones, Richard V. Lansdown, Simon J. Leach, Iain Macdonald, Alex Mills, David A. Pearman, Alex Prendergast, Timothy C.G. Rich, Fred J. Rumsey, Julian Woodman & Kevin J. Walker. A New Vascular Plant Red List for Great Britain. British & Irish Botany 7(3): 148-217.
[3] Bosanquet, S.D.S., Howe, M.A., Dyer, S., Halliwell, E.C, Hatton-Ellis, T.W., Lindley, P.J. & Woodman, J.P. 2025. Terrestrial and Freshwater Species in Peril in Wales. NRW Evidence Report No. 818. 200pp. Natural Resources Wales, Bangor.

1.2.3. A single record of a threatened arable plant, dwarf spurge *Euphorbia exigua*, was returned by the desk study, located approximately 1.3 km from the Survey Area (refer to **Appendix 7A: Preliminary Ecological Appraisal 2026**, and shown on **Figure 1**.

1.2.4. The Phase 1 habitat survey identified that the Survey Area predominantly arable farmland comprising fields separated by hedgerows and lines of trees, with parcels of woodland throughout (see Figure 6 of **Appendix 7A: Preliminary Ecological Appraisal 2026**). Arable land accounted for approximately 101 ha (87%) of the Survey Area. The arable land was sown with either wheat *Triticum sp*., or rye-grass *Lolium sp.* ley.

1.2.5. As agreed with the Vale of Glamorgan County Ecologist in March 2026[4], it was agreed that the Survey Area is potentially suitable to support a variety of threatened arable plants, and these should be considered and surveyed appropriately.

1.2.6. The Proposed Development has the potential to affect threatened arable plants through the removal of threatened arable plants that may be present, or removal of habitats considered suitable to support such species. The purpose of this Technical Note is to provide sufficient information to assess the presence or likely absence of threatened arable plants within the Site, and to inform any further considerations for threatened arable plants associated with the Proposed Development.

1.3. Methods

1.3.1. The soil type(s) present were identified in accordance with the Plantlife Arable Indicator Survey Instructions, and classified as one of the following broad soil types:

- Sandy loams, shale and other freely draining soils;
- Slowly permeable clay and silt-based soils; and
- Dry calcareous soils on chalk or limestone.

1.3.2. This was supplemented by referring to the National Soil Data Portal for England and Wales[5], and the underlying geology was ascertained through referring to the British Geological Society Geology Viewer[6].

1.3.3. A threatened arable plant survey was carried out within the Survey Area. The survey comprised a systematic walkover of the field margins within the Survey Area. The field margins extending up to 6 m from the field boundaries were thoroughly searched for threatened arable plants[7]. The remainder of each field was scanned from the field

[4] As agreed during an online Teams meeting between Nia Bowen (WSP Associate Ecologist), Megan Brench-Lee (WSP Principal Ecologist), Erica Dixon (Vale of Glamorgan County Ecologist), Daniel Patterson (Trydan Project Manager), Louis Bishop (WSP Project Manager) and Mark Roberts (Trydan Project Manager) on 17 March 2026.
[5] Department for Environment Food & Rural Affairs. 2026. National Soil Data Portal for England and Wales. Available at: https://portal.landis.org.uk/ [Accessed October 2026].
[6] British Geological Society. 2026. BGS Geology Viewer. Available at: https://www.bgs.ac.uk/map-viewers/bgs-geology-viewer/ [Accessed October 2026].
[7] Plantlife. No date. Back from the Brink: Arable Indicator Survey Instructions.

edges and vantage points to identify any threatened arable plants within the cultivated area. Where possible, tramlines were accessed to closely inspect additional areas of the fields.

1.3.4. All threatened arable plants identified were recorded and mapped.

1.3.5. The threatened arable plant survey was completed on the 2 and 3 June 2026, and repeated on the 26 and 27 August 2026. Botanical surveys are seasonally limited, and throughout the spring and summer period certain species will be more or less evident at different times (i.e. depending on the flowering season)[8]. The second survey was undertaken to increase the likelihood of detecting threatened arable plants that may be more readily identifiable later in the growing season, recognising seasonal variation in species phenology and detectability, and determined to be necessary as a result of professional judgement and understanding of the Site. The June and August survey visits together covered the principal identification periods for threatened annual arable plants[1].

1.4. Results

1.4.1. The soils across the entirety of the Survey Area comprised mostly slowly permeable clay and silt-based soils[8]. The underlying geology comprised a mix of mudstone, and interbedded mudstone and limestone[9].

1.4.2. Most of the arable field margins within the Survey Area were very narrow (~1 m). In multiple locations across the Survey Area, vegetation was dominated by species indicative of nutrient enrichment or species capable of out-competing low nutrient adapted specialists, such as nettle *Urtica dioica*, creeping thistle *Cirsium arvense* and cleavers *Galium aparine*. Suitable habitat for threatened arable plants was present within relatively small and discrete areas of the Survey Area.

1.4.3. Photos of representative examples of the field margins are shown in **Inset 1**.

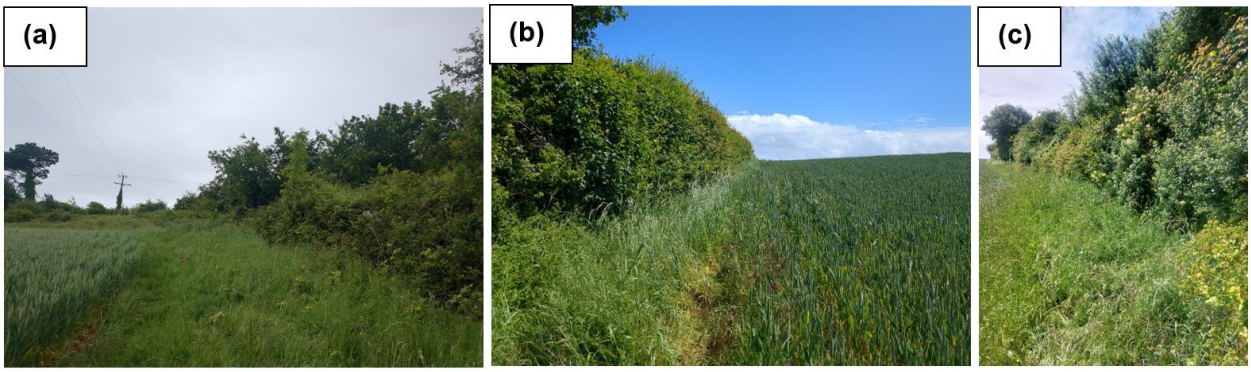
1.4.4. Two threatened arable plants were recorded within the Survey Area during the August 2026 survey: round-leaved fluellen *Kickxia spuria* and sharp-leaved fluellen *Kickxia elatine*. The location of these are shown in **Figure 1**. Both species are annual arable plants typically associated with cultivated and disturbed ground.

1.4.5. Records were strongly concentrated within the eastern-most fields of the Survey Area, outside the Site. A single individual round-leaved fluellen plant was recorded within the Site, in the south-eastern-most field of the Site, as shown on **Figure 1**.

[8] JNNC. 2016. Handbook for Phase 1 habitat survey: A technique for environmental audit.
[9] Plantlife. 2012. Arable Plants in Wales: A Management Guide. Plantlife Cymru, Gwynedd.

1.4.6. The presence of round-leaved fluellen and sharp-leaved fluellen demonstrates that parts of the Survey Area support threatened arable plant species.

1.4.7. For a full list of species identified, please refer to **Appendix 7A: Preliminary Ecological Appraisal 2026**[1].



Inset 1: Photographs of the field margins taken in June 2026, with examples from the (a) west of the Site, (b) south of the Site, and (c) north-east of the Survey Area, outside of the Site.

1.5. Discussion and Recommendations

1.5.1. A single round-leaved fluellen plant was recorded within the Site, the majority of records of both round-leaved fluellen and sharp-leaved fluellen were located within the eastern-most fields outside the Site (**Figure 1**).

1.5.2. Given that only a single round-leaved fluellen plant was recorded within the Site, the loss of habitat associated with the Proposed Development is not anticipated to affect the local populations of either round-leaved fluellen or sharp-leaved fluellen. Round-leaved fluellen and sharp-leaved fluellen are annual arable plant species that depend upon periodic soil disturbance, appropriate cultivation practices and the persistence of viable seed banks to maintain populations over the long term.

1.5.3. The distribution of records indicates that the eastern-most fields of the Survey Area, outside of the Site, are currently providing the most suitable habitat conditions for threatened arable plants. The continued occurrence of round-leaved fluellen and sharp-leaved fluellen within the Survey Area is dependent upon the retention of suitable arable management. Continued sympathetic arable management within these areas would be expected to contribute to the maintenance of the recorded populations over the longer term. The maintenance of open cultivated conditions is particularly important for reducing competition from more vigorous species, such as nettle, creeping thistle, and cleavers, identified elsewhere within the Survey Area.

1.5.4. Existing recommendations relating to the retention and appropriate management of field margins remain relevant and should be implemented as part of the wider ecological strategy for the Site. Where practicable, field margins should be managed to maintain their biodiversity value and to support the wider arable flora resource.

1.5.5. Where arable practices continue within the Survey Area outside the Site, consideration could be given to enhancing margins where practicable, as an opportunity for biodiversity enhancement. Where possible, these should be managed as fallow crop margins comprising cultivated but uncropped areas at the edge of arable fields. Preferably, the margin would be between 2 - 8 m wide and cultivated on a regular basis to maintain suitability for arable plant species. Fertilisers and herbicides would not be applied within these margins, except where required to control notifiable weeds or invasive non-native species. The location of margins may be rotated between fields.

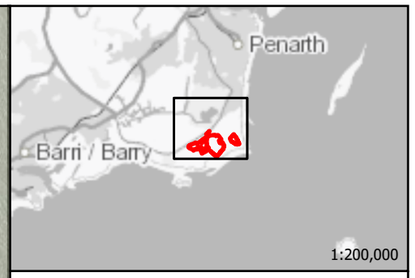
1.5.6. Further information regarding the creation and management of habitats suitable for threatened arable plants can be found in Arable Plants in Wales: A Management Guide[10].

1.5.7. Subject to the retention of the eastern-most fields, the recorded populations of round-leaved fluellen and sharp-leaved fluellen are expected to be maintained and may be enhanced over time through the continued operation of the soil seed bank and favourable habitat management.

[10] Plantlife. 2012. Arable Plants in Wales: A Management Guide. Plantlife Cymru, Gwynedd.

Figures





Legend

Survey Area Boundary

Site Boundary

Survey Results

Round leaved fluellen

Sharp leaved fluellen

Desk Study Records

Dwarf spurge

CONTAINS OS DATA © CROWN COPYRIGHT [AND DATABASE RIGHT] [2026].

PROJECT TITLE:

LARNOG SOLAR FARM

DRAWING TITLE:

FIGURE 1
THREATENED ARABLE PLANT SURVEY RESULTS

CONFIDENTIALITY: PUBLIC

DRAWN:	CHECKED:	APPROVED:	AUTHORISED:
NC	MB	MC	MC

SCALE @ A3 SIZE:	DATE:	REVISION:
1:7,000	09/10/2026	P00

DRAWING NO:

FIGURE 1

\\uk.wspgroup.com\central data\Discipline Management\Environmental\1. Service Lines\GIS\1. Office specific\Noida\Neha\Figures\Larnog Solar Farm\Threatened Arable Plant Survey Report\MXD\Figure1PlantSurveyResults\Figure1_PlantSurveyResults.aprx