Ministry of Defence

Deep Space Advanced Radar Capability (DARC)

Green Infrastructure Statement

Draft for Pre-application Consultation
Planning Application: 22/1136/SO
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Green Infrastructure Statement

1. Introduction

1.1. This green infrastructure statement has been prepared to support a planning application to Pembrokeshire County Council (PCC) submitted by the Ministry of Defence (MOD) ('the applicant'). The applicant proposes to construct and operate a Deep Space Advanced Radar Capability (DARC) facility and all associated ancillary infrastructure (hereafter referred to as 'the proposed development') at Cawdor Barracks, located near St David's in Pembrokeshire, Wales (hereafter referred to as the 'application site').

1.2. A Green Infrastructure Statement is a requirement for all planning applications as stated within Chapter 6 of Planning Policy Wales (Welsh Government, 2024). Paragraph 6.2.12 states that: *'A green infrastructure statement should be submitted with all planning applications. This will be proportionate to the scale and nature of the development proposed and will describe how green infrastructure has been incorporated into the proposal.'*

1.3. This document has been produced to fulfil this requirement.

Summary of the Proposed Development

1.4. The proposed development is situated within a 189 ha application site. The application site is located within Cawdor Barracks which is an existing approximately 300 ha MOD site on St David's Peninsula in Pembrokeshire, South Wales, approximately 1.2 km northeast of the coast, between Haverfordwest and St David's. The application site is entirely within the PCC boundary and is shown on Figure 1.

1.5. The entirety of the Cawdor Barracks is owned by the MOD and managed by the Defence Infrastructure Organisation (DIO). It is the former site of airfield RAF Brawdy. Cawdor Barracks is a working military base, which, until 2028 is occupied by approximately 400 personnel of the 14 Signals Regiment. The areas of hardstanding are a decommissioned runway/taxiway with some scattered buildings that are decommissioned.

1.6. The proposed development consists of the installation of six Transmit (Tx) antennas and twenty-one Receive (Rx) antennas at Cawdor Barracks. The Tx and Rx antennas would be enclosed with perimeter fencing. The proposed development also includes associated buildings and infrastructure to support radar operations. The proposed development is further described in Chapter 3 (Proposed Development).

1.7. The development proposals and landscape design have followed the Step-Wise Approach set out in paragraph 6.4.15 of the updated Planning Policy Wales (PPW) (Welsh Government, 2024):

1) Avoid damage to biodiversity in its widest sense (i.e. the variety of species and habitats and their abundance) and ecosystem functioning.

2) Minimise the initial impact on biodiversity and ecosystems.

3) Mitigate specific negative effects by repairing damaged habitats and disturbed species.

4) Compensate for unavoidable damage as a last resort.

Green Infrastructure

1.8. Natural Resource Wales (NRW) defines Green Infrastructure as:

"a term that's sometimes used to describe a wide range of natural and semi-natural features, spaces, rivers and lakes including parks, fields, allotments, hedgerows, roadside verges and gardens, not to mention entire ecosystems such as wetlands, waterways and mountain ranges (Natural Resource Wales, 2025).

1.9. This definition has been applied within this report and includes the area and linear habitats found within the application site.

2. Existing Green Infrastructure

Surrounding Area

2.1. The immediate area surrounding the application site is characterised predominantly by agricultural farmland with the Pembrokeshire coastline and Newgale Beach to the south. Some small, isolated settlements are situated sporadically in the surrounding area including the hamlets of Penycwm and Newgale to the south, Llandeloy to the north, and Brawdy and Trefgarn Owen to the east. In addition, the Pembrokeshire Coast National Park is located approximately 150 m south of Cawdor Barracks, extending east of Cawdor Barracks around the coastline.

2.2. There are no main rivers or ponds identified within the application site. There are three ordinary watercourses bordering the application site including Ffynnon Dogvael (also referred to as Brawdy Brook) and 13 ordinary watercourses including Cwm Mawr stream as well as six ponds. Refer to Chapter 12 (Water Environment, Flood Risk and Drainage) for a description of surface water features and groundwater conditions within and surrounding the application site.

B-Line for Pollinators

2.3. A B-Line for pollinators[1] is located across the southern extent of the application site. B-Lines are a series of 'insect pathways' running through the UK countryside and towns, along which Buglife are restoring and creating a series of wildflower-rich habitat stepping stones. They link existing wildlife areas together, creating a network that will weave across the UK landscape. This will provide large areas of brand new habitat benefiting pollinators and other wildlife. B-lines are not a policy but will help the Welsh Government to meet the requirements detailed in the 'The Action Plan for Pollinators in Wales' (Welsh Government, 2013). B-lines show areas which will provide connective habitat to link up areas of habitat which are of benefit to pollinators. These habitats and connective links are also beneficial to many other species (such as bats, birds and reptiles) and so are considered to not be relevant to pollinators only but an indicator of how the countryside can be better linked for wildlife generally.

[1] https://www.buglife.org.uk/our-work/b-lines/b-lines-guidance/

On Site Habitats

2.4. The results of the UK Habitat Classification survey of the application site are shown in Figure 1 and listed in Table 1. The location of important habitats and habitats suitable for wildlife are shown on Figure 3.

Table 1: UK Habitat Classification Survey of the Application Site

Habitat	Geographic Importance	UKHab code
Other lowland acid grassland with diverse waxcap assemblage	National	g1d
Other neutral grassland	Local	g3c
Lowland heathland (Priority Habitat)	County	h1a
Native hedgerow (Priority Habitat)	Local	h2a
Other hedgerow, including line of trees	Less than local	h2a6
Dense scrub	Local	h3
Standing open water and canals	Less than local	r1g
Buildings	N/A	u1b5
Other developed land	N/A	u1b6
Suburban mosaic of developed/natural surface	N/A	u1d
Developed land; sealed surface	N/A	u1b
Wet woodland (Priority Habitat)	County	w1d
Other woodland, mixed	Local	w1h
Other coniferous woodland	Less than local	w2c

2.5. The habitats recorded within the application site have a range of importance levels ranging from less than local for the non-native habitats present, to county level where Priority Habitats occur. The g1d other lowland acid grassland contains a diverse waxcap fungi assemblage which, in accordance with PPW guidance, are considered to be an ‘irreplaceable habitat. In addition, the number and species found mean that criteria for designation as a SSSI are also met. Therefore, the importance is at the national level (see Fungi section below for further information).

2.6. The hedgerows present were either heavily managed or with gaps and although some comprised native species, these were poor examples of Priority Habitat and therefore all hedgerows are of local importance.

2.7. The scrub habitat is extensive to the north of the site and bounds the central grassland habitats. The areas adjacent to the grassland are sparser with gaps providing habitat with a high suitability for reptiles, bats and many bird species. In the north of the site the scrub is denser and so not suitable for reptiles but provide habitat suitable for foraging and commuting bats and breeding birds. The scrub areas form a foraging and commuting corridor for reptiles, birds and bats.

2.8. The combination of the habitats onsite support foraging and commuting bats important at the county level, reptile populations of local importance and breeding and wintering birds of county level importance.

Fungi

2.9. Fungi eDNA surveys at Cawdor Barracks identified a total of 58 CHEGD (Clavarioids, Hygrocybe (waxcaps), Entoloma, Geoglossum and relatives, and Dermoloma and relatives) species, with between 20 and 34 CHEGD species noted in any single quadrat. Of the species identified, 21 species of waxcap fungi were detected. This included seven species listed by the International Union for Conservation of Nature (IUCN) as globally vulnerable, and a single species listed in accordance with Section 7 of the EWA - olive earthtongue (*Microglossum olivaceum*).

2.10. The g1d other acid grassland grassland present meets the criteria for irreplaceable habitat under PPW as it is species-rich from a fungal assemblage perspective (58 CHEGD species recorded on site). The habitat is located within an area of long undisturbed soils with minimal agricultural improvement or management. These grassland areas, which supported a rich assemblage of waxcaps are of high conservation value. The grassland habitats were further assessed during an ecology walkover undertaken in October 2025. The g3c other neutral grasslands surrounding the airstrip and the Cawdor Barracks were also observed to contain a rich diversity of fungi species. As a precautionary measure, the fungi assemblage present here is assumed to be of similar value and of the same assemblage as in the wider application site.

2.11. These areas of long grassland support wintering birds, ground nesting birds including skylark (*Alauda arvensis*) and meadow pipit (*Anthus pratensis*) and well as reptiles, foraging bats and provide terrestrial habitat for common amphibians.

Summary of Biodiversity Features

2.12. A summary of the biodiversity features present and their geographic importance, are listed in Table 2 below. Figure 3 shows the location of these features within the application site.

Table 2: Summary of Important Biodiversity Features and their Importance

Ecological Receptor	Description	Geographical Importance
Internationally Designated sites (SAC, SPA)	Nearby designated sites and their qualifying features	International
Nationally Designated sites (SSSI)	Nearby designated sites and their qualifying features	National

Ecological Receptor	Description	Geographical Importance
Ancient Woodland	Irreplaceable habitat located on the application site boundary	National
Other lowland acid grassland with diverse waxcap assemblage (including other grassland where fungi assemblage present)	Irreplaceable habitat located within the application site	National
Priority habitats - Lowland Heathland; Purple Moor Grass and Rush Pastures; Lowland Meadows; Lowland Fens and Reedbeds; Raised Bog and Wet Woodland.	Lowland heath located and wet woodland within the site, purple moor grass and rush pastures immediately adjacent and other Priority Habitats with the wider study area, off-site.	County
Habitats – other neutral grassland (where fungi absent); native hedgerow, scrub and other woodland, mixed.	Commonly occurring and widespread habitats.	Local
Habitats – other hedgerows; standing water; and other coniferous woodland.	Commonly occurring and widespread habitats of poor quality.	Less than local
Vascular plant assemblage	Bluebell recorded on site.	Less than local
Great crested newt	Likely absent	N/A
Amphibian assemblage	Toad and two newt species identified within the application.	Local
Reptiles	All four common species of reptile confirmed within the application site. Exceptional population of common lizard and good population sizes of adder and grass snake.	County
Wintering birds	Wintering bird assemblage use the habitats across the survey site, including the grassland areas.	County
Breeding birds	Breeding birds within grassland and scrub habitats.	County
Red-billed chough	Likely absent	n/a
Barn owl	Optimal foraging habitat identified within the survey site but no nesting sites.	Less than local
Bats	Foraging and commuting bats	County
Badger	Outlier badger sett located within the application site	Less than local
Other mammals of principal importance	Suitable habitat within the survey site. Assumed present.	Local
Terrestrial invertebrate assemblage	Assumed present on records and habitats present	Local

Ecological Receptor	Description	Geographical Importance
Invasive Non-native Species (INNS)	Identified within the survey site.	N/A - included due to legislation

3. Step-wise Approach

3.1. The proposed development's full impacts to habitats, and notable and protected taxa found on site is considered within the ES Chapter 8 (Biodiversity). Proposed habitat enhancement and creation is shown on Figure 2.

3.2. The step-wise approach to achieving Net Biodiversity Benefit (based on PPW12) with incorporation of the DECCA (Diversity, Extent, Condition, Connectivity and other Aspect of ecosystem resilience) Framework is summarised below.

Avoid

3.3. ES Chapter 4 (Alternatives and Design Evolution) describes the UK Site Selection Process for the proposed development. Once Cawdor Barracks was selected for the proposed development, a number of alternative design iterations are shown, all of which incorporate biodiversity in the process.

3.4. The proposed works will avoid clearing all habitats except for other lowland acid grassland (g1d), dense scrub (h3) and native hedgerow (h2a).

Minimise

3.5. Section 8.5 of Chapter 8 (Biodiversity) details the design interventions and control measures implemented to further avoid and/or reduce potential impacts on habitats and species.

3.6. The importance of the grassland for fungi and minimisation of impacts upon it was considered throughout the design process. This included:

- Siting as much of the proposed development on areas of existing hardstanding to reduce loss of fungi grassland areas, within the confines of the technical design requirements.
- A previously proposed road which was to be located around the boundary fences was removed to reduce the footprint within the fungi grassland areas.
- Existing access roads have been used for construction of the proposed antenna as far as is practicable, to reduce potential impacts on fungi grassland.
- Utility trenching, etc. within the fungi grassland has been prioritised at the edge (i.e. adjacent to hardstanding) to reduce fragmentation and loss of fungi grassland.
- Retention of all grassland areas within the new fence lines but outside the construction zones for the antennas.

3.7. The length of mown grassland either side of the fence will be kept as long as practicable while still addressing security concerns. This area will be maintained at a height of 20 cm (8 inches) and has been minimised to a buffer of 10 m either side of the fence.

3.8. Grassland to be retained within the fence line (but outside the area which needs to be mown to 20cm (8 inches)) will be managed through hay cuts once a year, to keep management the same as is currently the case.

3.9. Intrusive archaeological excavations within the fungi grassland areas would be undertaken following the fungi translocation mitigation works. This includes undertaking the trial trenching to allow for the detailed design to be completed and sensitive habitat to be translocated, to avoid unnecessary impact to the fungi grassland. To minimise unnecessary impacts on this habitat, it has been agreed that trial trenching will be deferred to a post-determination but pre-construction phase. This approach ensures that archaeological investigations are limited to areas where construction works will definitively take place, thereby reducing the extent of disturbance to the ecological resource. This approach has been agreed with Cadw and reported in ES Chapter 10 (Archaeology and Built Heritage).

3.10. Embedded mitigation is included within the design of the antenna to reduce noise levels during operation, see ES Chapter 7 (Noise and Vibration) for details.

3.11. The drainage strategy is designed to capture runoff by a new surface water drainage network and pollution prevention measures will form part of this drainage strategy / Sustainable Drainage Systems (SuDS) design. Mitigation measures relating to hydrology, groundwater and pollution are detailed within Chapter 12 (Water Environment, Flood Risk and Drainage).

3.12. The antennae dishes are grey in colour, will have a non-gloss finish and there is no material glare or reflected light is anticipated. As a result, the dishes are considered unlikely to significantly affect ecological receptors in this way.

3.13. The ecologist will be consulted during pre-construction micro-siting of infrastructure to ensure protection of the sensitive ecological features and to ensure implementation of the design principles.

3.14. Lighting has been minimised throughout the design process to reduce impacts on sensitive ecological receptors, notably nocturnal species such as bats and also nearby residents. Full details of the lighting scheme are provided in Chapter 16 (Lighting) which has considered GN08/2023 Bats and Artificial Lighting in the UK guidance in its development. All lighting will be dark sky compliant with directional lighting pointing towards the ground to reduce light spill and so will not cause reflection from the antenna dishes. For security purposes, the only lighting that will be on full-time at night will be at the site access gate.

Mitigate

3.15. Potential significant effects (in the absence of mitigation) were identified upon biodiversity features during construction of the proposed development for:

- Grassland supporting a nationally important fungi assemblage – habitat loss (and disturbance of mycelium network);

- Reptiles – habitat loss; and
- Breeding birds – habitat loss and disturbance of ground nesting birds.

3.16. Each of these biodiversity features and potential significant effects are taken in turn and mitigation measures applied in Table 3. In summary, mitigation measures focus on provision, enhancement and where feasible, translocation, of grassland habitats that support fungi (including a Grassland Fungi Mitigation Plan strategy discussed further below); enhancement of retained scrub habitats and enhancement of a hedgerow currently in poor condition; and measures to reduce noise and visual disturbance to ground nesting birds during construction comprising removal of suitable habitat in advance of works and, where necessary, installation of temporary barriers around the works.

Grassland Fungi Mitigation Plan – Approach

3.17. A Grassland Fungi Mitigation Plan would be developed post-submission of the ES to detail all the actions required to protect, translocate and manage the grassland fungi habitat throughout the construction process within the application site. The methodology provided within this document would be based on previous experience by the ecological consultant and lessons learned from previous experience of fungi grassland habitat relocation undertaken in Suffolk. This document would also include results of the monitoring undertaken at this relocation project to justify and demonstrate the viability of the approach. Detail in this document would be developed in discussion with Professor Gareth Griffith, Chair in Mycology at the University of Aberystwyth prior to submission to the LPA.

3.18. A summary of actions to be included within the plan are described below.

- Approximately 2.44ha of grassland within the application site that supports or is assumed to support the fungi assemblage would be permanently lost as a result of construction activities. As species rich grassland (primarily fungi assemblage in this case) is considered to be an irreplaceable habitat in Wales under PPW, mitigation and compensation in the form of habitat enhancement and creation is proposed.
- Further fungi eDNA assessments would be conducted in the application site to provide additional baseline information regarding the extent of the fungi distribution and assemblage, with focus on detailed identification of donor and receptor sites for translocated grassland turves. Assessments would also be conducted within the grassland areas surrounding the main barracks where fungi have been incidentally recorded.
- The area of g1d other acid grassland with encroaching scrub, located in the northwest corner of the application site has been identified as a suitable location for fungi grassland habitat creation and enhancement (Areas A, B1 and B2 in Figure 2). Incidental sightings of fungal fruiting bodies were identified during a walkover survey in October 2025, suggesting suitability for a diverse fungi assemblage. Subject to eDNA assessment, encroaching scrub would be removed to create more grassland (Area B1, Figure 2 plus Area B2 should it be required to receive translocated turves), and the habitats would be managed to align with the management of the other acid grassland present.

- Subject to eDNA assessments, selected areas of fungi grassland present that would be permanently lost to the construction footprint, would be translocated as turves to the scrub cleared grassland area to the northwest of the application site (see Area B1, and B2 if needed, Figure 2). The selected turves would represent the best in terms of species assemblage and rarity present but also those in the best physical condition to translocate. In addition, if the grassland habitat is considered suitable for waxcap translocation, turves could also be translocated to the modified grassland in proximity to the barracks (Area E, Figure 2). The translocation of turves would be conducted so that translocated soils have time, once placed at the receptor site, to re-establish vegetative cover; waxcaps depend on living plants for nutrition and therefore timing to allow vegetative regrowth is ideal, as they rely on high organic matter levels within the soil. A detailed method statement in the Mitigation Plan will include the process, requirements and timing of grassland turves translocation. It is anticipated that translocation would occur in early autumn when vegetation is entering dormancy, rain will have rewetted soils so that they are near field capacity to maximise their cohesiveness and the fungi fruiting bodies are yet to emerge. The receptor areas will be prepared by removal of the topsoil and existing vegetation. Grassland fungi turves will then be placed directly into these areas (with no intermediate storage).

- Any areas of grassland supporting fungi temporarily affected (for trenching for the installation of utilities and working areas around antennas) have been minimised as far as practicable and placed adjacent to hardstanding areas where feasible. The area of fungi grassland to be temporarily cleared is 7.93 ha. Within these areas the habitat would be re-instated immediately after works are complete with arisings stored adjacent to the ground excavations, watered if required, and replaced from where initially removed. Although this would disrupt mycelial networks within these areas, it could also disrupt unaffected mycelial networks either side of the works. It is anticipated that habitat within these areas would likely recover within a few years.

- Whenever vehicles need to track on to fungi grassland (likely required during ground investigation and possibly during archaeological investigations), track matting would be used to minimise damage to the grassland beneath.

- The newly created and enhanced grassland fungi areas would be monitored to determine the efficacy of the translocation and subsequent management. Further eDNA samples will be taken from the receptor area to determine the species richness and species assemblage. Where necessary remedial works will be undertaken. The grassland fungi mitigation approach outlined above and the monitoring methods and schedule would be confirmed, post consent, and defined in the Grassland Fungi Mitigation Plan.

Table 3: Summary of Potential Significant Effects and Mitigation Measures

Ecological Feature	Potential Impact	Importance	Significant Effect (without mitigation but with control measures)	Mitigation	Significance
Construction					
Grassland supporting fungi assemblage	Permanent loss of 2.44 ha. Temporary loss of additional 7.93ha (which would be reinstated).	National	Yes, at the county level	Vegetation clearance and earthworks across the application site would be undertaken under the observation of the ECoW, following methodology detailed within a Precautionary Working Method Statement (PWMS) and the Grassland Fungi Mitigation Plan. The Grassland Fungi Mitigation Plan would be developed to detail all actions required to protect, translocate and manage the grassland fungi habitat throughout the construction and operation process. This document would also include monitoring results of a similar translocation site in Suffolk to demonstrate the viability of the approach. Management and enhancement of habitats within the application site for grassland fungi would comprise (see Figure 2): • Area A – Approximately 7.14ha of unmanaged, rank grassland to the north of the northwestern arm of the air strip to be managed for the benefit of grassland fungi. This would include the commencement of an annual mow-and-collect regime to improve the diversity of the grassland and prevent scrub encroachment. • Area B1 - Clearance of approximately 2.34ha of transitional scrub and future management as per Area A.	None

Ecological Feature	Potential Impact	Importance	Significant Effect (without mitigation but with control measures)	Mitigation	Significance
				This would be the receptor site for grassland turves. • Area B2 – If Area B1 is already supports a good assemblage of grassland fungi Area B2 will undergo clearance of up to 5.71ha of transitional scrub with future management for the benefit of grassland fungi. If translocation is feasible this would be the backup receptor site. • Area E - The managed grassland areas surrounding the main barracks also contain assemblages of fungi, including waxcaps. These grassland areas would be appropriately managed to ensure the continued growth of waxcaps.	
Reptiles	Permanent loss of up to 10ha of scrub, 2.44ha of grassland and 10m of hedgerow used by reptiles. Temporary loss of an additional temporary loss of 7.93ha of grassland and 0.28ha of scrub.	County	Yes, at the county level	An area of dense scrub (6.81ha) to the north of the eastern arm of the air strip would be enhanced through management to improve the structure of the existing scrub, and to create clearings, glades, rides, and sheltered edges for the benefit of wildlife, including reptiles (see Area C, Figure 2). Hibernaculum would also be created within this area using materials such as brash and excavated uncontaminated soil excavated during construction and habitat clearance works. The gappy hedgerow located to the far south of the application site, positioned along the western and southern boundary of the playing fields would be enhanced. The width of the hedgerow would not increase to ensure there is no further encroachment of vegetation into the	None
Breeding birds	Permanent loss of up to 106ha of scrub, 2.44ha of grassland and 10m of hedgerow used by breeding birds. Temporary loss of an additional temporary loss of 7.93ha of grassland and 0.28ha of scrub	County	Yes, at the local level		None

Ecological Feature	Potential Impact	Importance	Significant Effect (without mitigation but with control measures)	Mitigation	Significance
				playing fields. Enhancement would include the planting of new vegetation to fill the gaps and appropriate management to rejuvenate the existing plants. Where practicable vegetation planting will utilise native species of local origin. As part of the overall landscape and ecology proposals, the majority of the scrub lost would be replaced by grassland which is also suitable for reptiles. The enhancement or increase in grassland habitat (up to approximately 21.7ha) would also be beneficial for ground nesting birds, increasing nesting and feeding opportunities.	
Breeding birds	Disturbance of ground nesting birds (skylark and meadow pipit)	County	Yes, at the local level	To reduce the impacts of noise and visual disturbance to ground-nesting birds during construction, suitable habitats present within the works area would be strimmed to ground-level to render them unsuitable for nesting, preferably in advance of the breeding bird season (i.e. before end February). Plant and site contractors would be constrained to working within prescribed working areas and access corridors. This will be implemented, where practicable, through the installation of temporary barriers to minimise damage to retained habitats and minimise the potential for disturbance to ground-nesting birds. Appropriate noise and visual disturbance screening barriers would be installed around works areas to ensure the surrounding environment remains undisturbed for ground-	None

Ecological Feature	Potential Impact	Importance	Significant Effect (without mitigation but with control measures)	Mitigation	Significance
				nesting birds, where necessary, to be confirmed by the ECoW.	
Operation					
None	N/A	N/A	N/A	N/A	N/A

Additional Mitigation

3.19. This section summarises the controls required during the construction of the proposed development. These typically include best practice or industry standard measures and/or are required to achieve compliance with legislation.

Construction Environmental Management Plan

3.20. Controls are included in the Framework Construction Environmental Management Plan (CEMP) provided in ES Appendix 3.1. The Framework CEMP will be developed into the Detailed CEMP for implementation during construction and will be secured by an appropriately worded planning condition. Further information on the Framework CEMP is provided in Chapter 3 (Proposed Development).

3.21. The CEMP will detail good practice measures such as: procedures required to prevent the spread of INNS; maintaining a tidy work site; generally reducing noise as well as appropriate storage of materials; and ensuring any excavations are covered overnight or have a ramp to facilitate an escape route for any wildlife.

3.22. The CEMP will include pollution prevention methods, which will be in place to ensure no detrimental impact to any groundwater/surface water features during construction. All measures relating to hydrology, groundwater and pollution are detailed within Chapter 12 (Water Environment, Flood Risk and Drainage).

3.23. All construction works will be undertaken following Best Practicable Means (BPM) to minimise noise disturbance, which will include restrictions on working hours, using well maintained plant with lower noise emission levels and installation of barriers where needed, see Chapter 7 (Noise and Vibration) for full details.

3.24. Standard dust management practices, as detailed within ES Chapter 3 (Proposed Development), will be put in place and detailed within the CEMP for the proposed development.

Ecological Clerk of Works (ECoW)

3.25. Prior to construction, a suitably qualified and experienced ECoW will be appointed by the Contractor. The ECoW should be consulted on habitat clearance methods and equipment, approve final method statements and be consulted on the works throughout the construction process, to ensure that all avoidance and mitigation measures are being adopted appropriately, including deployment and maintenance of any necessary (temporary) exclusion zones.

Pre-commencement walkover

3.26. A pre-commencement site walkover by a competent ecologist will be undertaken six months prior to the commencement of works and repeated immediately prior to the commencement of works to ensure that no new ecological constraints are present within the works area. This will include a search for badger setts and to map the location of any invasive species within the works boundary and within a 30 m buffer.

Lighting

3.27. No nighttime construction works are required although this may be unavoidable during the antenna assembly process. Lighting will only be required in and immediately around the building to illuminate the work area for safe assembly conditions.

3.28. The ECoW will be consulted on lighting to be used throughout construction, ensuring lighting levels are minimised and providing advice on any further measures required as necessary (e.g. additional screening, changing of lighting type, angle location etc).

Timing of Works/Clearance of Habitats

3.29. Vegetation clearance and earthworks across the application site will be undertaken under the observation of the ECoW, following the agreed methodology detailed within a Precautionary Working Method Statement (PWMS) and/or the Grassland Fungi Mitigation Plan (secured by inclusion in Appendix 3.1 Framework CEMP). This will be presented in a method statement, either within an independent document or included in the CEMP. The purpose of the PWMS will be to detail how the work will be undertaken to avoid breaches of wildlife law and minimise potential effects on legally protected species and habitats.

3.30. Full details of the methods will be provided in the CEMP, with a short summary of actions included below.

3.31. Clearance of any potential bird nesting habitat (i.e. scrub/ hedgerows/ grassland) will be ideally undertaken outside of the breeding bird season (i.e. undertaken from September to February inclusive) where possible. Where this is not possible, these habitats must be checked for nests by a suitably qualified ecologist shortly prior to clearance. If an active nest is found, works must stop, and a works exclusion buffer zone will be put in place. The works exclusion zone will remain in place until an ecologist has confirmed that the nest is no longer in use. The size of the works exclusion zone will be dependent on the species recorded nesting.

3.32. Below ground and ground level clearance within any areas suitable for hibernating amphibians, reptiles and hedgehogs (areas of scrub) will avoid the hibernation period, generally considered to be November to February inclusive, where possible. Vegetation can be cut to approximately 150 mm in height during this period. If any additional clearance is required during this period, this will need to be restricted to small areas with careful hand searches undertaken by the ECoW.

3.33. It is recommended that construction activities begin within the key window of September to October, after the bird nesting season has concluded but while temperatures remain suitable for reptile activity ensuring that there are no impacts to the initial breeding season for either reptiles or nesting birds. If this is not possible and works are to commence within grassland areas between March and July all areas of grassland within construction areas to be directly impacted by the works would be cut and maintained short from mid-February to the start of the works. This is to reduce the suitability of the grassland for ground nesting birds, reptiles and amphibians prior to works starting to minimise the risk of injury and/or disturbance.

3.34. However, if works are due to start within the breeding season (March to August inclusive) and grassland cut in February was not possible, an experienced ECoW will be required to undertake pre-commencement checks for both nesting birds and reptiles supervising the initial vegetation cut and subsequent soil stripping, as detailed above.

3.35. Any grassland to be cleared during the reptile active period (generally March to October, weather dependant) should be subject to a two-stage cut under the supervision of the ECoW to encourage reptiles to move away from the area.

Compensation

3.36. The proposed mitigation is considered sufficient such that compensation is not required.

Improvement

3.37. The landscape planting (see Figure 2) includes a suite of tree planting across selected locations across the application site boundary having combined landscape and biodiversity benefits.

3.38. The Grassland Fungi Mitigation Plan would include a plan for long-term management of grassland within the application site, while the post-consent detailed Landscape and Ecology Management Plan (LEMP) would specify monitoring requirements (including intervention requirements, if needed) for successful establishment of tree and scrub planting and hedgerow enhancement.

3.39. While the Grassland Fungi Mitigation Plan would have primary focus on the grassland and fungi assemblage there-in, there would be additional biodiversity benefits from enhancement and ongoing management in terms of intrinsic grassland plant diversity but also of improved faunal assemblages – bird, mammal and invertebrate. Similarly, the Biosecurity Management Plan to control and manage INNS would be widely beneficial. Habitat enhancements in the south of the application site would contribute to Buglife's B-Line for Pollinators project which aims to create a UK wide network of interconnected habitats that improve habitats for pollinating insects. Ongoing sensitive grassland management would improve habitat resilience and potentially buffer the effect of climate change.

3.40. The enhancement of scrub habitat and provision of hibernacula would benefit a range of other invertebrate and animal species, not just reptiles.

3.41. The creation of SuDs would provide damp habitats for commonly occurring amphibians and reptiles such as grass snake. The additional of increased habitat diversity within the application site would also improve opportunities for different invertebrate assemblages which would also provide additional food source for a range of bird, mammal species, amongst others.

3.42. Tree planting (see Figure 2) has been carefully targeted to specific areas of the application site to balance operational requirements, the landscape character context, the importance of existing grassland for fungi, and challenging conditions for tree establishment. Approximately 2.1ha of tree planting is proposed, as 10m to 15m wide blocks in selected application site boundary locations and at a location northwest of the barracks. Although provided for landscape and visual purposes, these areas of tree planting have additional benefit for biodiversity providing an additional habitat that is also suitable to support a range of species and providing additional habitat connectivity and natural corridors around the application site and to the wider landscape.

4. Proposed Green Infrastructure

4.1. The green infrastructure features and the benefit they will provide for biodiversity has been described in Section 3 above and is summarised below.

Translocation of Fungi Grassland

4.2. Areas of fungi grassland to be permanently lost to the construction footprint, would be translocated as turves to the scrub cleared grassland area to the northwest of the application site (see Area B1, and B2 if needed, Figure 2). In addition, if the grassland habitat is considered suitable for waxcap translocation, turves could also be translocated to the modified grassland in proximity to the barracks (Area E, Figure 2). Within areas of temporarily affected fungi grassland, the habitat will be re-instated immediately after works are complete. It is anticipated that habitat within these areas would likely recover within a few years.

4.3. Fungi grassland translocation will maintain the extent of this important habitat within the application site. This is beneficial for the fungi assemblages, intrinsic grassland plant diversity and bird, mammal, reptile and invertebrate assemblages that use the habitat.

Enhancement of Fungi Grassland

4.4. An area of unmanaged, rank grassland to the north of the northwestern arm of the air strip to be managed for the benefit of grassland fungi (Area A, Figure 2). This will include the commencement of an annual mow-and-collect regime to improve the diversity of the grassland and prevent scrub encroachment. The managed grassland areas surrounding the main barracks (Area E) also contain assemblages of fungi, including waxcaps. These grassland areas will be appropriately managed to ensure the continued growth of waxcaps.

4.5. Fungi grassland enhancement will facilitate fungi development and spread, which in turn will increase the rate at which the mycelial network spreads and starts new networks in previously uncolonised areas. This is beneficial for the fungi assemblages, intrinsic grassland plant diversity and bird, mammal and invertebrate assemblages that use the habitat.

Enhancement of Scrub

4.6. An area of dense scrub to the north of the eastern arm of the air strip (Area C, Figure 2) would be enhanced through management to provide the benefits of:

- Further open areas for reptiles;
- Creation of hibernaculum suitable for reptiles, amphibians and hedgehogs;
- Glades and more edge habitats with a higher suitability for foraging birds, bats, hedgehogs and amphibians;
- Open up and prevent encroachment into the area of the priority habitat lowland heath; and
- Improve the suitability of this habitat and also the connectivity across this section of the site and to habitats outside the application site.

Enhancement of Gappy Hedgerow

4.7. The gappy hedgerow located to the far south of the application site, positioned along the western and southern boundary of the playing fields will be enhanced (Figure 2). Where practicable vegetation planting will utilise native species of local origin. This will be of benefit to a variety of species including tree nesting birds.

Strimmed Breeding Bird habitat

4.8. To reduce the impacts of noise and visual disturbance to ground-nesting birds during construction, suitable habitats present within the works area will be strimmed to ground-level to render them unsuitable for nesting, preferably in advance of the breeding bird season (i.e. before end February).

Tree Planting

4.9. Tree planting is proposed in 10m to 15m wide blocks in selected application site boundary locations (see Figure 2). Although provided for landscape and visual purposes, these areas of tree planting have benefit for biodiversity providing a habitat that is also suitable to support a range of species including bats and tress nesting birds. The tree planting will also provide additional habitat connectivity and natural corridors around the application site and to the wider landscape.

Sustainable Drainage Systems

4.10. SuDs will be created across the site. These will not be permanently wet but will provide damp areas, which are currently present within this area of the site. These will provide habitat for amphibians and grass snake as well as invertebrates. These damp areas will provide a more varied topography and variety of habitats at the site improving its ability to support a wider range of biodiversity. The additional of increased habitat diversity within the application site would also improve opportunities for different invertebrate assemblages which would also provide additional food source for a range of bird, mammal species, amongst others.

5. Conclusion

5.1. When all mitigation measures are considered, the proposed development would have no overall adverse significant effect and the habitat and grassland fungi mitigation plan are expected to result in a net benefit to biodiversity.

References

Natural Resource Wales. (2025, April 10). Develop and improve urban and rural green infrastructure. Retrieved from https://naturalresources.wales/about-us/what-we-do/strategies-plans-and-policies/area-statements/north-east-wales-area-statement/develop-and-improve-urban-and-rural-green-infrastructure/?lang=en#:~:text='Green%20infrastructure'%20is%20a%20term,wetlands%2C

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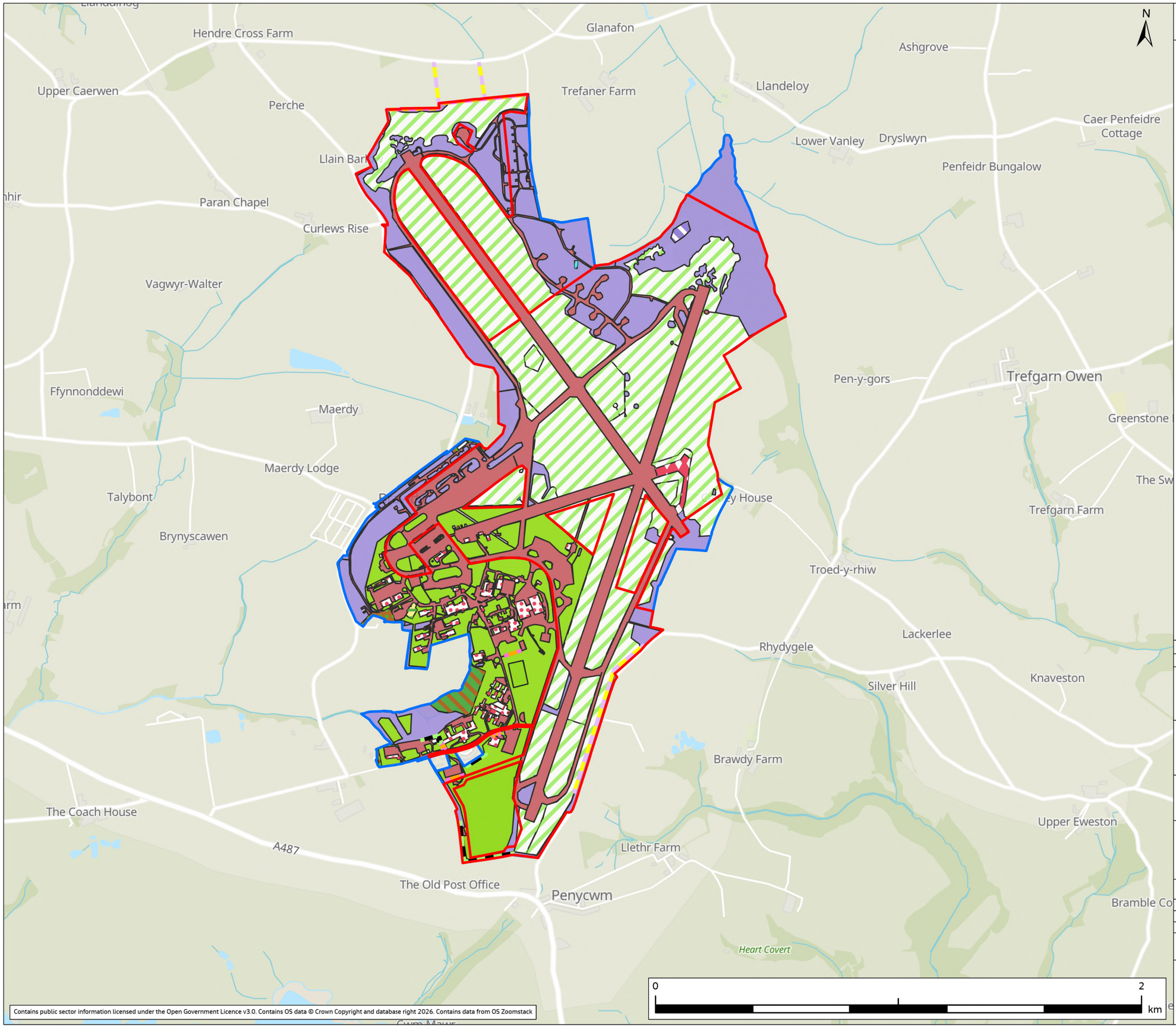
Figures

Figure 1 – UK Habitat Classification and National Vegetation Classification Survey 2025 Update

Figure 2 – Landscape and Ecology Proposals Plan

Figure 3 – Ecological Constraints

FIGURE 1

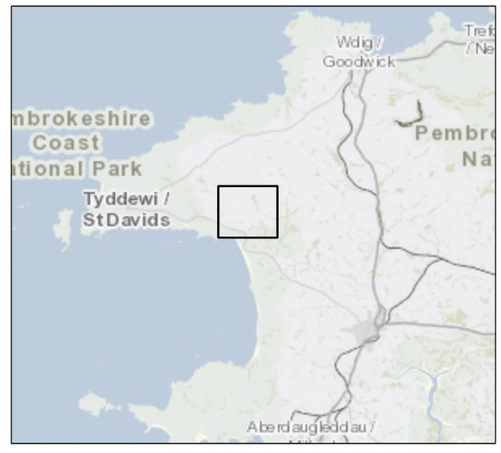


Legend

- Application Site
- Ownership Boundary

UKHABS Survey

- c1 - Arable and horticulture
- g1d - Other lowland acid grassland
- g3c - Other neutral grassland
- h1a - Lowland heathland
- h3 - Dense scrub
- r1 - Standing open water and canals
- u1b -Developed land, sealed surface
- u1b5 -Buildings
- u1b6 - Other Developed Land
- u1d - Suburban mosiac of developed/natural surfaces
- w1d - Wet Woodland
- w1h - Other woodland, mixed
- w2c - other coniferous woodland
- h2a - Native hedgerow
- h2b - Other hedgerows
- w1g6 -Line of trees



Rev.	Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P01	FEB 26	Draft for Pre-Application Consultation	CS	LS	DD	KW

Jacobs

Client: Ministry of Defence

Project: Project DARC - Cawdor Barracks

Drawing Title: UK Habitat Classification and National Vegetation Classification Survey 2025 Update

Drawing Status: INITIAL ISSUE

Scale @ A3	1:15,000	DO NOT SCALE
Jacobs No.	B5007000	
Client No.		

Drawing No.

FIGURE 2

A
Area of poor quality G1D other lowland acid grassland to be enhanced through ecological management to improve condition and prevent succession of scrub. Grassland will be further managed to improve the quality of the fungi habitat.

B1
Area of transitional scrub encroaching on grassland habitat to be removed. Area to be used as a donor site for fungi turve translocation and to be managed as g1d fungi grassland.

B2
Additional areas of scrub to be cleared to create further g1d fungi grassland where required.

C
Ecological engancement of existing scrub

D
G1d grassland within the proposed construction areas in the centre and southeast of the application areas, adjacent to existing runways

E
Area previously mapped as g4 modified grassland. However, given the diversity and abudance of CHEGD fungi fruitbodies, the floristic composition of the grassland is negated by the presence of a diverse waxcap assemblage and is better place under g3c (other neutral grassland) with a secondary code (waxcap grassland)

Operation access road

10m wide boundary tree planting to filter/softed the proposed development in views from the east

15m wide tree planting to soften appearance of the proposed development from the west

Construction access road

Single row of boundary tree planting to filter/soften the proposed development in views from the east

Sports field and assault course to be retained

Enhance existing sports field boundary strip

Hendre House
Llanddinog
Rhosgranog Isaf
Berry Bush
Glanafon
Ashgrove
Upper Caerwen
Perche
Trefaner Farm
Llandeloy
Llain Bark
Lower Vanley
Dryslwyn
Penfeidr Bungalow
Curlews Rise
Vagwyr-Walter
Ffynnonddewi
Maerdy
Trefgarn Ow
Maerdy Lodge
Caldey House
Trefgarn Fa
Troed-y-rhiw
Mount Farm
Rhydyg
Silver Hill
Knaveston
The Coach House
A487
Llethr Farm
The Old Post Office
Penycwm
Upper Ew

N

0 2 km

Legend

- Application Site
- Ownership Boundary
- Proposed Layout
- Proposed Fences
- Existing Buildings
- Hard Surfaces (Existing and Proposed)
- Potential Fungi Grassland Receptor Area
- Existing Lower Quality Fungi Grassland to be Enhanced Through Management
- Habitat Enhancement Area to Include Scrub Managment and Creation of Reptile Hibernaculum
- Target Areas for Proposed Tree Planting

Rev.	Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P01	FEB 26	Draft for Pre-Application Consultation	CS	LS	DD	KW

Jacobs

Client: Ministry of Defence

Project: Project DARC - Cawdor Barracks

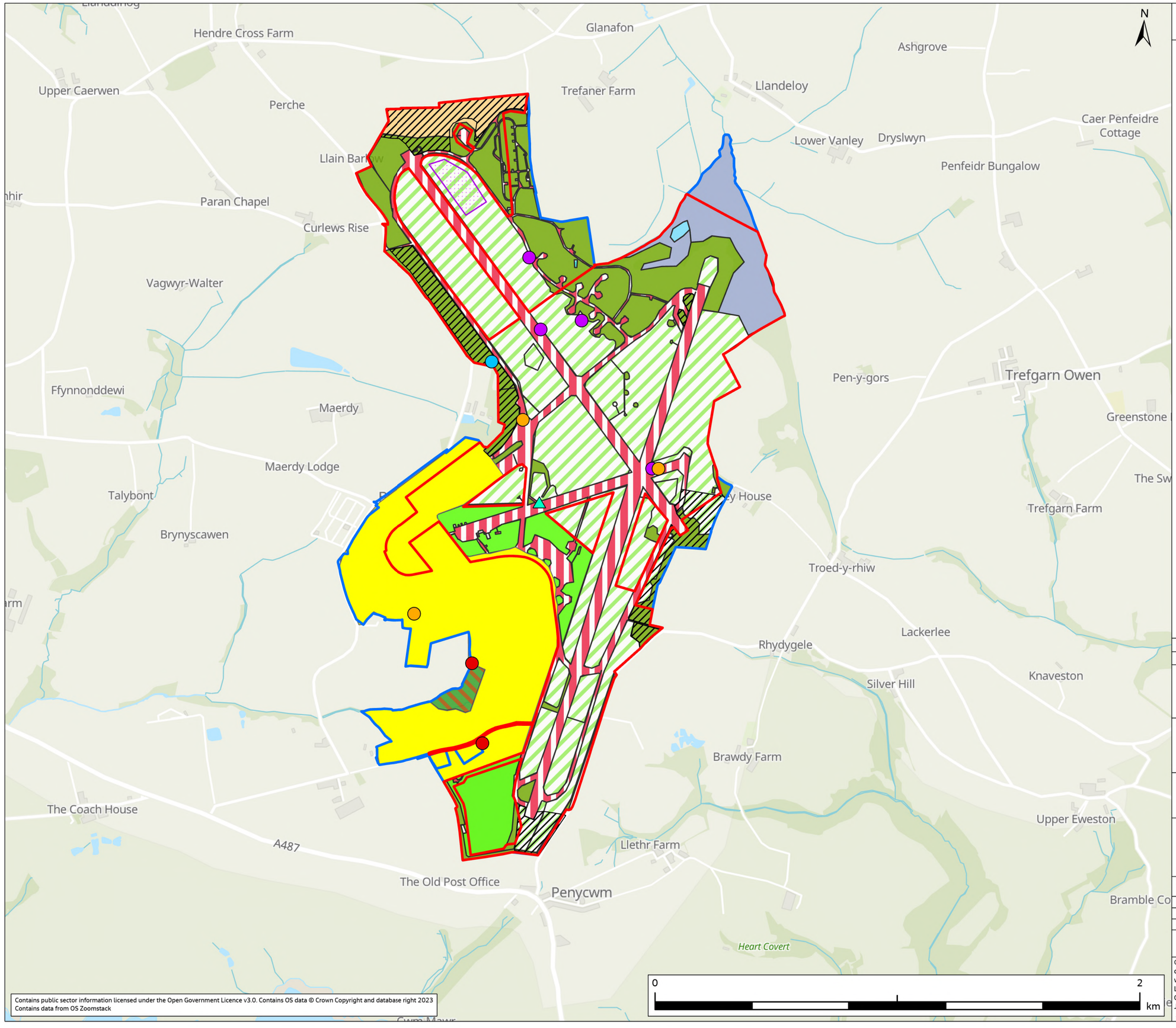
Drawing Title: Landscape and Ecology Proposals Plan

Drawing Status: INITIAL ISSUE

Scale @ A3	1:15,000	DO NOT SCALE
Jacobs No.	B5007000	
Client No.		

Drawing No.

FIGURE 3



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Legend

- Application Site
- Ownership Boundary
- Barracks Area consisting of built up areas and mown grassland - to be affected by proposals
- Optimal barn owl habitat
- Barn Owl Temprrary Roost Site (TRS) (barn owl pellet found)
- Cotoneaster - invasive non-native species
- Rhododendron - invasive non-native species
- Bluebells

Badger field Sign

- Footprints
- Latrine
- Potential sett

UKHABS Survey

- Dense impenetrable scrub - supporting breeding birds and bats (foraging and commuting)
- Less dense scrub with open areas - supporting reptiles, common amphibians, breeding birds and bats (foraging and commuting)
- Long unmanaged lowland acid grassland - supporting ground nesting and wintering birds, reptiles and bats (commuting and foraging)
- Lowland heath - priority habitat
- Woodland
- Arable and horticulture
- Modified grassland
- Other lowland acid grassland - Lond lowland acid grassland with important fungal assemblage, supporting ground nesting and wintering birds, reptiles and bats (commuting and foraging)
- Standing open water and canals
- Developed land, sealed surface; u1b6

Rev.	Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P01	FEB 26	Draft for Pre-Application Consultation	CS	LS	DD	KW

Jacobs

Client: Ministry of Defence

Project: Project DARC - Cawdor Barracks

Drawing Title: Ecological Constraints

Drawing Status	INITIAL ISSUE
Scale @ A3	1:15,000 — DO NOT SCALE
Jacobs No.	B5007000
Client No.	
Drawing No.	