Erebus: Onshore Cable Route

Technical Appendix 20.2: Preliminary Ecological Assessment

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Erebus Project

Preliminary Ecological Assessment of potential cable routes and substation locations near Angle and Rhoscrowther, Pembrokeshire

Jon Hudson Ecological Consultancy

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Executive Summary

Jon Hudson Ecological Consultancy was commissioned by ITPEnergised to carry out a preliminary ecological appraisal in support of an application to Pembrokeshire County Council for a cable installation and substation development project.

An extended Phase 1 habitat survey was undertaken, the aim of which was to assess the vegetation and habitats present within the survey area, to identify their potential to support protected species and to highlight potential constraints to the proposed development. Protected species which potentially could occur within the area include badgers *Meles meles*, bats *Chiroptera sp*., hazel dormouse *Muscardinus avellanarius*, reptiles, birds (especially Red listed species) and otters.

The survey area comprises several potential cable routes to a number of potential substation sites near Pembroke Power Station. Apart from the extensive sand dune systems at Broomhill/Gupton and Kilpaison Burrows, the landscape is dominated by intensive agriculture – arable and improved grasslands bounded by species poor hedges. Semi-natural habitats such as grasslands and woodlands are small and widely scattered and there is little in the way of river or wetland ecosystems. The habitats within the survey area were recorded using the Phase 1 survey methodology.

Some Priority Habitats (Purple moor-grass and rush pastures and Lowland meadows) and five Red Data Book plants including four arable plants (Rye brome, Corn spurrey, Field woundwort and Charlock) and one non-arable plant (round-fruited rush) were identified during the survey. Black horehound and fen pondweed are both notable local species that were also found during the survey.

Evidence of Protected Species (badgers and birds and some potential bat roost sites) was also found. The survey results are presented fully in section 4 of this report.

1. Introduction

Jon Hudson Ecological Consultancy was commissioned by ITPEnergised to carry out a preliminary ecological appraisal in support of an application to Pembrokeshire County Council for a cable installation and substation development project. The proposal is to connect a proposed floating offshore wind development in the Celtic Sea region via a single offshore export cable to landfall with onshore cabling between landfall and the grid connection, and for a substation at the grid connection point.

The survey area comprises approximately 1795ha of land along a 250m buffer on either side of several potential cable routes and around several potential substation sites near Pembroke Power Station. The proposed cable routes run from landfalls at Angle Bay, West Angle Bay and Freshwater West to the potential substation sites. See map 1 (section 6) for the location of the survey area.

Apart from the coastal dune systems of Broomhill and Kilpaison Burrows, the landscape is dominated by intensive agriculture with arable cropping and improved grassland being the predominant land-uses. Woodlands are small and scattered, and river or wetland ecosystems are mostly restricted to small streams and the valley bottom marshes.

A desk study (looking at conservation designations, and information relating to protected and notable species) was undertaken by ITPEnergised. The results of that study were used to inform the Phase 1 habitat survey and this report.

The aim of the survey is to provide baseline data on habitat and species, both on and adjacent to the proposed development site, and to investigate potential impacts that may occur during construction and post-construction stages. An assessment is made of any potential impact on protected species and sites in the area. This survey relates only to the terrestrial elements of the project (onshore cable routes and substation locations).

2. Methodology

2.1. Desk Exercise

A desk study looking at wildlife designations and information relating to protected and notable species was undertaken by ITPEnergised. The results of that study were used to inform the Phase 1 habitat survey and this report. For more detail refer to "Onshore Infrastructure Environmental Baseline & Constraints Assessment Appendix C -Ecological Desk Study" Dated: 2020-07-03. Version: 1.0. Project/Proposal Number: 2923.

2.2. Extended Phase 1 Habitat Survey

Vegetation and habitat survey

A thorough site inspection was made over several days in late June and early July 2020. The survey followed the methodology set out in the Joint Nature Conservation Committee (Revised reprint 2010) Handbook for Phase 1 habitat survey, A technique for environmental audit. JNCC, Peterborough. The methods provide quick and accurate classification of habitats. Any species and/or habitats of particular interest were recorded in "Target Notes."

Protected animal species

No dedicated protected species survey was undertaken. However, in addition to looking at the vegetation and habitats, the Phase 1 habitat survey was extended to look for field signs of protected species and to assess the habitats for the likely potential presence of protected species. Measures taken included: Identification of field signs of protected species and an assessment of the suitability of the habitat for badgers *Meles meles*, bats *Chiroptera sp*., Hazel dormouse *Muscardinus avellanarius* and otters using the methods in Sergeant & Morris (2003).

Reptiles (adder *Vipera berus*, grass snake *Natrix natrix*, slow worm *Anguis fragilis* and common lizard *Zootoca (*formerly *Lacerta) vivipara*) were looked for in suitable places (basking sites and under any items such as boards and sheet material laying on the ground).

Birds, especially the red and amber listed Birds of Conservation Concern (Eaton *et al*., 2015), were observed and listened for (it is much more effective to record birds when this can be done by song as well as visual observation). The habitats were assessed for their potential as nesting sites and also as foraging habitat for chough *Pyrrhocorax pyrrhocorax.*

In addition to recording field evidence of protected or otherwise notable species, habitats were assessed for their potential to support such species. Details of the methods used to identify the suitability of the habitat for (or the presence of) protected and priority species is set out below:

- **Badgers:** The following evidence of badger activity was searched for during the habitat survey:
    1. Presence of Setts with evidence of badgers such as footprints, discarded hair, etc.
    2. Presence of dung pits or latrines.

3. Presence of well-used runs with subsidiary evidence of badger activity (e.g. foraging or footprints).

- **Bats:** A preliminary assessment of the suitability of the site for roosting and foraging bats was undertaken using the methods in Collins (2016). It is not possible to determine presence/absence of bats during a day-time site assessment. Potential roost sites were identified for and, where found, evidence of use by bats was looked for.
- **Hazel dormouse:** A visual assessment of habitat suitability was made.
- **Reptile species:** Suitable habitat for reptiles such as ponds, long grass, scrub, hedgerows and wood/stone/rubble piles were looked for and searched for reptiles. Any items under which reptiles might hide were turned over.
- **Birds:** Bird species seen and/or heard during the survey were recorded. Identification of the suitability of the habitat for nesting birds especially those listed as species of conservation concern.
- **Otters:** Field signs including footprints, spraint, feeding signs and holts were looked for.

Rare and locally rare plants

A list of any Red Data Book found on the site was made during the survey and is given in Annex 1. Annex 2 lists all the records of "Rare" plants (in all categories) that have been recorded from within the survey area in the past. This list was extracted from the Botanical Society of the British Isles (BSBI) Rare Plant Register (RPR).

Survey constraints/limitations

There were few constraints to the survey. Two surveyors (Jon Hudson and Matt Sutton) undertook the extended Phase 1 habitat survey. Both have extensive experience in Nature Conservation/ Ecological Consultancy and are familiar with the habitats and species covered in the survey as well as knowing the area well. Adequate time, equipment and resources were available to properly undertake the survey. The survey was undertaken during the optimal period for Phase 1 habitat survey.

The weather was suitable and allowed for an adequate assessment of the habitats and their potential to support legally protected species to be made and will not have negatively affected the survey results.

Existing data was made available in the desk study which adequately informed the survey. The desk study identified all constraints but was vague about the locations of some species records.

Access permission was not granted to some areas. In these cases, aerial photography and observations from roads was used to assess the habitats present. Access around some of the woodlands, wet valleys and scrub areas was almost impossible due to the dense growth present at the time of the survey, and therefore it was not possible to look at every part of these areas. This is likely to have affected the ability to search for otter and badger signs in particular.

3. Results

3.1 Vegetation and Habitat Survey

The habitats along the potential cable routes and around the potential substation locations were recorded in detail. The survey area comprises a mixture of numerous habitat types which are mapped and summarised below. Map 2 (section 6) shows the distribution and extent of these habitats using standard Phase 1 mapping colour codes. Target Note locations are shown in map 3 (section 6) and described in table 1. The main habitat types mapped during the survey are further described in the following sections.

Table 1Target Notes

TN Number	Grid Reference	Comment
1	SM85340306	Japanese Knotweed
2	SM85590230	Bunker
3	SM85850291	Arable weed flora incl. *Chrysanthemum segetum*
4	SM86000281	Damp horse grazed semi-improved. Elm hedge with rookery northern edge
5	SM86010271	Badger latrine
6	SM85930271	Badger run
7	SM85920269	Badger run
8	SM85940266	Badger run
9	[redacted]	Badger sett active 11 entrances (heaps of bedding and bare earth at sett entrances with badger hair)
10	SM86220212	Badger run and foraging signs
11	SM86240208	Badger foraging signs
12	SM86640182	Rubble pile -suitable reptile habitat
13	SM86660149	Montbretia
14	SM86970118	Badger run
15	SM87120118	Singing quail
16	SM87330147	Verge - Semi improved grassland
17	SM87630132	Arable weed flora incl. *Bromus secilinus* and *Chrysanthemum segetum*
18	SM87880133	Verge - Semi improved grassland
19	SM88860093	Road verge dune grassland pyramidal orchid
20	SM89670087	Possible shrill carder habitat
21	SM89890125	Pond -spring fed with fringe of reed rush some semi-improved grassland, scrub and bracken
22	SM89950124	Fen pondweed *Potamogeton coloratus* & stonewort
23	SM89970135	Long headed poppy *Papaver dubium*
24	SM91250142	Recent/young *Salix* woodland, too wet for badgers
25	[redacted]	Badger sett 9 holes (heaps of bedding and bare earth at sett entrances)

TN Number	Grid Reference	Comment
26	[redacted]	Badger sett - outlier(?)
27	SM89810209	Damp base-rich vegetation with *Climacrum dendroides*
28	SM90390221	Rhoscrowther Church - Bat roost potential?
29	SM90410229	Badger tracks in wood. No Sett seen
30	SM90090250	Eastington House - Bat roost potential?
31	SM89630290	Semi-improved neutral grassland (B2.2) with *Lathyrus nissolia* and *Linum bienne*
32	SM89420320	Ruined farmstead with bat and barn owl potential
33	SM89190318	MG5a (*Cynosurus cristatus-Centaurea nigra* grassland, *Lathyrus pratensis* sub-community) previously surveyed by Sutton (2015)
34	SM89240324	Open vegetation over rock with *Trifolium subterraneum*
35	SM92030124	Badger run
36	SM92540110	Badger run
37	SM90170060	*Chrysanthemum segetum* and *Papaver rheoas*
38	SM90140060	*ballota nigra*
39	SM89820073	Skylark territory and stonechat
40	SM92680142	Arable weed flora incl. *Bromus secalinus* and *Anisantha diandra*
41	SM92460182	*Alopecurus myosuroides* and badger latrine
42	SM93640161	Arable weed flora incl. *Bromus secalinus* and *Chrysanthemum segetum*
43	SM93790166	Arable weed flora incl. *Bromus secalinus*
44	SM94000172	Flushed marshy grassland with *Dactylorrhiza praetermissa*
45	SM94100169	Reasonable quality MG5a with scattered and dense bracken
46	SM93960187	Yellowhammer territory. Arable weeds in gateway
47	SM93910224	*Juncus compressus* in brackish marsh vegetation on made ground
48	SM93440189	Badger latrine
49	SM93370199	Arable weed flora incl. *Bromus secalinus* and *Anisantha diandra*
50	SM93360209	Stone pile with some reptile basking potential
51	SM93240220	Pond

Woodland and scrub

Semi-natural broad-leaved woodland (A1.1.1) / scrub (A2)

Photo 1 Typical woodland within the arable landscape at Lambeeth, with common nettle and bramble prominent in the ground-flora

Woodlands across the survey area generally comprise mixtures of sycamore *Acer pseudoplatanus* and ash *Fraxinus excelsior*, sometimes with hawthorn *Crataegus monogyna* and young wych elms *Ulmus glabra* in the understorey. Older trees are generally confined to boundaries. Grey willow *Salix cinerea* dominates in the damper areas. The ground flora is typically dominated by ferns including broad buckler *Dryopteris dilitata*, male *Dryopteris filix-mas* and hart's-tongue *Asplenium scolopendrium* ferns. Other species such as bluebell *Hyacinthoides non-scripta*, wood avens *Geum urbanum* and enchanter's nightshade *Circaea lutetiana* were sometimes noted. Alongside arable fields, the woodland floor often comprises a dense growth of common nettle *Urtica dioica* and bramble *Rubus fruticosus agg*., with hemlock water-dropwort *Oenanthe crocata* in damper areas.

These woodlands are of minor or local ecological significance but often support badger populations and setts were noted in some of them (see Target Notes). Wet woodlands in the stream valleys have the potential to be used by otters and bats are likely to forage around the woodland edges.

Areas of **dense scrub** were mapped in some areas, most notably on the coastal slopes below Sawdern Point. Blackthorn is strongly dominant here. Patches of gorse scrub were mapped at Lambeeth and elsewhere. Scrub areas are likely to support birds of conservation concern and again may be of importance for badgers and bats.

Mixed plantation (A1.3.2) / broad-leaved plantation (A1.1.2)

Photo 2 Failed broad-leaved planting south of Pembroke Power Station

Small areas of young broad-leaved plantation were mapped to the south of Pembroke Power Station. One area largely comprised dead and dying saplings of ash.

A narrow belt of mixed plantation is present around the south-west edge of the Valero refinery – this was not investigated. The habitat is of little ecological significance.

Agricultural grasslands

Semi-improved neutral grassland (B2.2)

Photo 3 Horse-grazed MG5a at Lambeeth

An area of this habitat, and the one most clearly corresponding to the 'Lowland Meadows' UK BAP priority habitat, lies within a horse-grazed pasture to the east of the farmhouse at Lambeeth. Crested dog's tail *Cynosurus cristatus*, sweet vernal grass *Anthoxanthum odoratum*, red fescue *Festuca rubra* and common bent *Agrostis capillaris* are the most prominent grasses in the sward, and perennial rye-grass *Lolium perenne* becomes frequent in the more modified upper areas. Common bird's-foot trefoil *Lotus corniculatus*, cat's-ear *Hypochaeris radicata* and lesser knapweed *Centaurea nigra* are frequent or abundant in the better-quality areas, and common centaury *Centaurium erythraea* is also notably frequent here. Red bartsia *Odontites vernus* is frequent in more disturbed areas, with white clover *Trifolium repens* also locally abundant. Bracken *Pteridium aquilinum* forms dense and scattered patches. In National Vegetation Classification (NVC) terms, this is *Cynosurus cristatus – Centaurea nigra* grassland, *Lathyrus pratensis* sub-community, MG5a. This is a widespread but uncommon vegetation type, of high conservation interest, and this is a locally-significant example.

The fields at Sawdern also hold MG5a, previously mapped and described in Sutton (2015). At that time, they were found to be dominated by common bent, red fescue and crested dog's-tail, with a forb component typically including lesser knapweed, ribwort plantain *Plantago lanceolata*, meadow vetchling *Lathyrus pratensis*, red clover *Trifolium pratense* and common bird's-foot trefoil. A degree of local distinctiveness was provided by species associated with summer-droughted, open grasslands

over thinner soils – pale flax *Linum bienne*, restharrow *Ononis repens*, sheep's sorrel *Rumex acetosa* and common centaury. The current survey found these grasslands to have declined somewhat in quality, with summer sheep-grazing likely to have been responsible. Bird's-foot trefoil is still frequent, but swards are generally grass-dominated and rather impoverished. They are still of local ecological significance.

Other areas mapped as this habitat are generally coarser, species-poor grasslands referable to *Arrhenatherum elatius* grassland MG1 in the NVC. Typical examples were found south of Pembroke Power Station, where false oat-grass *Arrhenatherum elatius* and cock's-foot *Dactylis glomerata* dominated, and hogweed *Heracleum sphondylium*, common sorrel, common vetch *Vicia sativa*, creeping thistle *Cirsium arvense* and lesser stitchwort *Stellaria graminea* were among the associates.

Although not botanically-rich, this vegetation type can support a range of invertebrates and small mammals and is of local ecological significance. Coastal examples of this habitat may be used by chough for feeding where the sward is kept short.

Photo 4 MG5a at Sawdern (top-left); MG1 south of Pembroke Power Station (top-right); yellow meadow ant-hills at Lambeeth (bottom-left); rough grassland with grass vetchling at Sawdern (bottom-right)

Poor semi-improved grassland (B6)

Photo 5 Poor semi-improved grassland at Lambeeth

This grassland encompasses the more modified semi-improved grasslands, lacking the indicator species of the semi-improved neutral grassland described above. A typical example at Sawdern is strongly grass-dominated, with greater bird's-foot trefoil *Lotus pedunculatu*s locally frequent but common bird's-foot trefoil rare. Trailing tormentil *Potentilla erecta* is among the few associates. Greater bird's-foot trefoil is also locally abundant in examples at Lambeeth, which are dominated by Yorkshire fog *Holcus lanatus* and *Agrostis stolonifera* and have a few damp grassland species such as common fleabane *Pulicaria dysenterica* in addition to an abundance of agriculturally-favoured 'weed' species such as creeping thistle and broad-leaved dock *Rumex obtusifolius*.

South of Pembroke Power Station, the similarly weedy damp grassland grades into coarse semi-improved grassland referable to MG1. To the west, a field of *Holcus lanatus – Juncus effusus* rush-pasture, Typical sub-community (MG10a in the NVC) was not closely investigated. Similar Yorkshire fog and soft-rush *Juncus effusus* swards near Carters Green held some greater bird's-foot trefoil, but no other marshy grassland indicator species. Red clover and lesser knapweed were occasional in a sward with several agricultural weed species.

These are widespread grassland types and not of particular conservation significance although coastal examples of this habitat may be used by chough for feeding where the sward is kept short.

Improved grassland (B4)

Photo 6 Improved grassland at North Studdock, with nesting skylark and meadow pipit

Agriculturally-improved grasslands were mapped in various places. Typical examples are strongly grass-dominated, with rye-grasses, Yorkshire fog and white clover the most prominent species. Soft brome *Bromus hordaeceus*, timothy *Phleum pratense*, and creeping bent were amongst the other grass species noted, and broad-leaved dock, creeping buttercup *Ranunculus repens* and dandelion *Taraxacum officinale* amongst the forbs.

Skylark territories were noted in several improved fields and meadow pipit in one. Coastal examples of this habitat may be used by chough for feeding where the sward is kept short.

This is a widespread grassland type of little ecological significance.

Marshy grassland (B5)

Photo 7 Southern Marsh Orchids in a small area of flushed marshy grassland at Lambeeth

A small area in the field east of Lambeeth holds a relatively species-rich marshy grassland, pictured above. Rushes dominate here, with jointed, soft- and toad rushes noted *(Juncus articulatus, J. effusus and J. bufonius*). Horse-grazing has produced an open structure, with common spike-rush *Eleocharis palustris*, slender club-rush *Eleocharis gracilis*, glaucous sedge *Carex flacca*, ragged robin *Lychnis flos-cuculi*, water mint *Mentha aquatica* and southern marsh orchid *Dactylorhiza praetermissa* among the associates.

Marshy grassland elsewhere, such as the patches by the irrigation reservoir south of Carters Green and at Wallaston Cross, tends to be strongly dominated by soft-rush. The former also has an abundance of Yorkshire fog and common sorrel, together with some marsh bedstraw *Galium palustre*, common fleabane and yellow flag iris *Iris pseudacorus* and dense patches of hemlock water-dropwort. Transitions to a more modified, damp semi-improved grassland were often noted.

Purple moor-grass and rush pastures are a UK BAP priority habitat, but the areas here are tiny or modified and species-poor. They are of minor ecological significance.

Tall herb and fern

Continuous bracken (C1.1)

Photo 8 Areas of dense bracken were mapped at Neath and Lambeeth

The areas of Continuous Bracken (C1.1) were mapped at Neath and Lambeeth but were not surveyed in detail, having few associates other than tall grasses such as false oat-grass, a few common tall forbs such as foxglove *Digitalis purpurea*, and patches of bramble. These habitats may be used by badgers.

Tall ruderal (C3.1)

Patches of Tall Ruderal (C3.1), encompassing stands of great willowherb *Epilobium hirsutum*, were present amongst scrub to the south of Pembroke Power Station.

Swamp, Marginal and Inundation / Open Water / Running Water

Swamp (F1)

Photo 9 Common spike-rush dominating the edge of an irrigation reservoir near Carters Green

Swamp vegetation was mostly noted in the valley west of Rhoscrowther, where common reed *Phragmites australis* forms extensive beds mixed with willow (*Salix* spp.) scrub. This was difficult to access and was not surveyed in detail. Cetti's warbler was among the breeding birds here. A patch of common spike-rush swamp was noted at the edge of an irrigation reservoir.

These habitats may be used by otters for feeding.

Marginal and inundation vegetation (F2) / open water (G2) / running water (G1)

Photo 10 Watercress and fool's watercress in a field edge gully (left); irrigation reservoir south of Carter's Green (right)

Open Water was mapped as small ponds and irrigation reservoirs. The small spring-fed pond 250m west of Neath Farm had very good water quality. Extensive patches of the Locally Rare fen pondweed *Potamogeton coloratus* were present. This is a newly discovered population of this species (there are just three other known sites in the county) which has declined over much of its British range. Also present were beds of a stonewort *(Chara spp.).* This was not identified to species as it was not possible to collect. Apart from this pond, water quality appeared generally poor, and aquatic plants rarely present – algal blooms were seen in some. The reservoir south of Carters Green had a waterweed, either Canadian or Nuttall's *Elodea* spp.

Marginal Vegetation in the form of great reedmace *Typha latifolia* was noted in the inundation zone of several irrigation reservoirs. Small areas of vegetation dominated by watercress *Nasturtium officinale* and fool's watercress *Apium nodiflorum* were noted in a few damp shallow watercourses. The few areas of **Running Water** comprised shallow streams within woodland or other dense vegetation; they were not closely investigated.

The pond near Neath is of local importance, the remainder of the vegetation is of minor ecological significance.

Coastland

Saltmarsh (H2)

The intertidal habitats lie outside the scope of this assessment. An area of open, brackish vegetation over made-ground alongside the estuary to the south-east of Pembroke Power Station held atypical vegetation somewhat transitional between saltmarsh and marshy grassland. The range of plants here included false fox-sedge *Carex otrubae*, glaucous sedge, creeping bent, pale flax and several bryophytes typical of damp, calcareous ground. A specimen of the uncommon round-fruited rush *Juncus compressus* was collected here and awaits confirmation as a new record for the county.

Strandline vegetation (H5) / sand dune (H6)

Photo 11 Dune Grassland and Slack at Gupton Burrows

The Locally Scarce sea kale *Crambe maritima* is regularly recorded along the strandline at Freshwater West. A population of the strandline beetle *Eunebria complanata*. *E. complanata* was last recorded in here in 1997 and a survey in 2016 returned a zero count (Stewart 2017). This is a very local and rare coastal species which is now classified as endangered, following a severe decline over recent decades. It is however possible that a relict population may still exist here.

All of these habitats lie within the Limestone Coast of South and West Wales Special Area of Conservation (SAC) and Broomhill Burrows Site of Special Scientific Interest (SSSI), and, as such, have previously been subject to more detailed survey and assessment. A walkover survey of Broomhill and Kilpaison Burrows to confirm and map the Phase 1 habitat categories was undertaken, but no more detailed assessment was made. The fixed dune grassland is generally in good condition here, although there are more modified areas immediately landward of the road. The old quarry area appears to have received relatively light grazing in recent years. Petalwort *Petalophyllun ralfsii* - a rare liverwort (and feature of the SAC) – is likely to have been lost as a result of this. Sedge-rich slack vegetation is well developed in places, and several notable higher plants, such as tufted sedge *Carex elata*, were

re-found. A sand dune reversion area on National Trust land at Gupton supports atypical dune vegetation, developing over former maize fields.

All of the dune communities here are important in an International/National context; the fixed dune grassland is considered of European significance. This habitat may be used by chough for feeding where the sward is kept short.

Maritime cliff and slope

Photo 12 Coastal grassland at West Angle Bay

Small areas of coastal grassland were mapped on rocky promontories to the south of West Angle Bay. The coastal grassland communities here fall within the Angle Peninsula Coast SSSI and are therefore important in a National context. These grasslands are open to the adjacent improved pasture and are somewhat impoverished and poached in places. The steeper slopes that are ungrazed (but maintained by droughting and exposure) are of higher quality with species such as kidney vetch *Anthyllis vulneraria* and saw wort *Serratula tinctoria* present. This habitat may be used by chough for feeding where the sward is kept short.

Miscellaneous

Arable (J1)

Photo 13 Corn marigold in cereal field south of Carters Green

Arable proved to be the most extensive habitat in the survey area. Crops of wheat, oats, barley, rape and potatoes were recorded, and regularly re-seeded rye-grass leys also fall within this habitat classification. Although conventionally managed, margins of the crop and gateways often held an interesting flora of 'arable weeds', several of which are of conservation interest. Corn marigold *Glebionis segetum - (Chrysanthemum segetum)*, corn spurrey *Spergula arvensis*, sharp-leaved fluellin Kickxia *elatine* and field madder *Sherardia arvensis* were among the regularly encountered species. Common poppy and long-headed poppy (*Papaver rhoeas* and *P. dubium*) were more rarely seen. Rye-brome *Bromus secalinus* was found in several fields, particularly at Lambeeth, and had not previously been recorded in the county since the 1860s.

The arable fields supported breeding birds including quail and skylark. They will also provide foraging for flocks of birds in winter.

Boundaries (J2)

Photo 14 Hedgerow alongside an access track

Almost all of the hedgerows across the survey site are species-poor mixtures of hawthorn, blackthorn *Prunus spinosa*, European gorse *Ulex europaeus* and grey willow. Ash and sycamore are sometimes present as standards in less exposed areas and were occasionally mapped as Phase 1 habitat J2.3 - Hedge with Trees where standards are continuous. Hedges within arable field systems, such as those west of Angle, are often defunct – often lacking fences and with gaps between and below bushes. Intact hedges are generally continuous and thicker, in places having a fringe of bramble or encroaching thorn. Some grazed fields, such as those at Lambeeth and Sawdern, have encroaching hedges forming thick bands of scrub. A few roadside hedges around Angle are enriched with wych elm and have a richer hedge-bottom flora with species such as primrose *Primula vulgaris*. More open road verges along the B4320 sometimes have a relatively rich grassland flora with species such as greater knapweed *Centaurea scabiosa* and field scabious *Knautia arvensis* – these have been target-noted.

The thicker (intact) hedges are used by breeding birds, including linnets and occasionally yellowhammers. There is some potential for these to be used by hazel dormouse in some locations and badger setts could occur in the banks of the larger hedges. Bats may use the larger hedges as

flight lines and for foraging along. The thinner (defunct) hedges are generally unsuitable for nesting birds, dormouse and badgers.

Built-up areas (J3)

Photo 15 Abandoned farm building at Sawdern

Caravan sites and built-up areas in and around villages were not investigated closely. A few locations had abandoned farm buildings or ex-WW2 bunkers which had some potential to be used by bats or barn owls. Known locations for bat roosts provided by the desk exercise include greater and lesser horseshoe bat roosts in the gun battery near Freshwater West.

Photo 16 Bunker near South Studdock

3.2. Protected Species

It should be noted that this Phase 1 habitat survey does not constitute a dedicated protected species survey. However, the Phase 1 habitat survey was extended to consider the potential suitability of the site for protected and Priority Species. Consideration was given to the potential for the site to support species such as badger, bats, hazel dormouse, reptiles and otters. Birds including chough and especially the "farmland birds" listed as Birds of Conservation Concern were also considered. Great crested newts (*Triturus cristatus*) were not considered, as this species is absent from Pembrokeshire. Details of the species records are shown in Map 3 (section 6) and in table 1 above.

Badgers

Badger setts, runs and latrines were found in several places across the site. Badgers are likely to be present in many of the woods and larger hedgerows in the survey area and setts may occur on slopes in open habitats. Such sites are likely to be of high importance for badgers.

Bats

No bat survey was carried out. There is limited potential for roosting bats on the parts of the site likely to be impacted by the proposed works. Known bat roosts are present in the gun battery at Freshwater West and other buildings such as the bunkers south of Angle (SM85580230) and east of Broomhill (SM89280134) have some potential to hold roosts (Target Notes 2 & 32). Some woodland trees were found to have moderate or high bat potential, but no hedgerow trees were noted with anything more than low bat potential. Many hedgerows will serve as commuting and foraging corridors, particularly where they are thick and continuous. Areas of semi-natural habitat such as rough grassland, woodland edges and ponds will be likely to provide foraging habitats.

Hazel dormouse

No evidence of the presence of dormouse was found. The suitability of the habitat along the cable routes and substation sites was visually assessed but no searches for dormouse nests or other signs were made. The hedgerows and woodlands are generally of low suitability/importance for dormice, rarely having much hazel, and often lacking the requisite fringe of bramble, honeysuckle *Lonicera periclymenum,* roses *Rosa* spp., or other plants which are required to provide cover and foraging opportunities. Where the hedges are thicker, surrounding habitat is often modified, and connectivity to other suitable habitats is low but these hedges do have some potential to support dormouse populations.

The Species Action Plan for Dormouse in Pembrokeshire notes that "*Although coppiced hazel with bramble and honeysuckle is considered 'classic' dormouse habitat, there are records of them living in Pembrokeshire in mature hedgerows and gardens where these plant species are either not present or where their abundance is low*". There are also unconfirmed records from the Carew/Begelly area of South Pembrokeshire on the NBN Gateway (https://records.nbnatlas.org/occurrences/85e06f07-4ebf-49f3-8a6a-eea522219f88).

Reptiles

Despite some hot and sunny weather during the survey period, no reptiles were seen. Much of the agriculturally-modified landscape is of low suitability/importance for reptiles, but various boundaries and other small features such as rock piles have the potential to support common species such as slow worm, common lizard or barred grass snakes. The dune systems at Broomhill and Kilpaison Burrows are however, likely to be of high importance for reptiles.

Amphibians

All standing water habitats have some potential for breeding amphibians. The grasslands and other habitats around them could support dispersing or hibernating individuals. Most of these habitats are however, likely to be of low importance for amphibians.

Birds

Several birds of conservation concern (Eaton *et al*., 2015, Johnstone and Bladwell, 2016) were seen or heard during the survey, and are likely to be breeding in the area.

Willow warbler, whitethroat, bullfinch, linnet and yellowhammer are all red-listed species, due to steep population declines in the UK and Wales. A strong population of yellowhammers was noted at Lambeeth Farm in the eastern part of the survey site, where the mixed livestock and arable system supported at least 4 territories. Individuals were also seen near Angle and Carters Green. Linnets were reasonably frequent in hedges around Angle and elsewhere; birds were generally in post-breeding family groups. Bullfinches were occasionally noted in hedges and woodland edges. Whitethroats were less frequent away from the coastal edge, but any thick hedgerow has the potential to support a breeding pair. Willow warbler was only heard singing in one woodland near Pembroke Power Station, but targeted bird survey earlier in the year would have detected many more territories.

Quail, red kite, goldcrest, skylark, song thrush, house sparrow and meadow pipit are all amber-listed species. Quails were heard singing in two cereal fields near Carters Green, and one at Lambeeth. A single red kite was seen foraging; no nests were found and no data is available on nest locations from the WWBIC. Goldcrest was heard singing in one woodland. Skylarks were relatively numerous, with territories noted in various cereal fields and improved grasslands at Carters Green, Lambeeth, Angle, Sawdern, South Studdock, Hoplass and elsewhere. Song thrushes were frequently encountered, and house sparrows were often seen in hedges around farms and villages. Meadow pipit was noted in one improved grassland field at South Studdock.

Wintering bird populations are concentrated in Angle Bay and in the Pembroke River near Lambeeth, where there are important feeding grounds for waders and wildfowl.

Any of the coastal fields and the dunes systems at Broomhill Burrows and Kilpaison Burrows have the potential to be used for foraging by chough *Pyrrhocorax pyrrhocorax.*

Otters

No signs of otters were found during the survey. However, it should be noted that many of the streams and their associated valleys, woods and wetlands that do have the potential to support otters could not be fully searched due to dense scrub and undergrowth. The coast here is known to support an otter population. Many of the valley bottom woods lining the streams are likely to be used for commuting, foraging and laying up places or possibly for holts. Irrigation reservoirs and ponds may also provide foraging opportunities. These areas may be of importance for otters.

3.3. Other Notable Biodiversity

Notable plants

Five plant species on the Welsh Red List (Dines, 2008) were recorded. Rye brome ('Near Threatened') was found in the county for the first time since the 1860s – this grass of arable fields was frequent around the edges of three cereal fields at Lambeeth, and rare at the edge of one near Carters Green. Corn spurrey ('Vulnerable') was reasonably frequent in gateways to arable fields, particularly around Angle. Field woundwort ('Vulnerable') was only noted in one field edge near Angle. Charlock ('Vulnerable') was frequent in fields around Lambeeth and perhaps elsewhere – locations were not recorded in detail. The only Red-listed non-arable plant was round-fruited rush ('Endangered') which was found, new to the county, in brackish vegetation over made-ground south of Pembroke Power Station. Black horehound *Ballota nigra* was present in a gateway beside the B4320 near Newton Farm. This species and fen pondweed are both notable local species.

The records of the five plant species on the Welsh Red List recorded during the survey are shown in map 4 (section 6) and details are provided in Annex 1.

The species included on the Rare Plants Register (RPR) that have been recorded within or very close to the survey area were not mapped as there are a large number of records that would not display well in printed form. These are listed with their grid references in Annex 2. The RPR lists plants in the following categories:

- Internationally Rare (including taxa which are Endemic, Near Endemic, and those for which we have International Responsibility
- Nationally Rare/ Scarce (occurring in 15 or fewer or 16-100 hectads in Great Britain)
- National (Great Britain or Ireland) Red List (threatened categories – CR, EN, VU,)
- National Red List other categories – NT, EX, EW, DD?
- Protected Species – European4 and National
- Country Red List
- Species of Principal Importance for biodiversity
- Locally Rare/ Scarce species

Notable bees (Aculeata)

- **Shrill Carder Bee** *Bombus sylvarum* (Listed as a Notable B species by Falk (1991) but has become much rarer in recent years and may now be in danger of becoming extinct in Britain.
- **Large Scabious Mining Bee** *Andrena hattorfiana* (Red Data Book as Vulnerable (RDB2)

Both of these species are known from grasslands on the Castlemartin Peninsula, and, in the case of shrill carder bee, also from Gupton Burrows. Semi-improved grasslands with an abundance of particular flowers such as knapweed, woundworts and red bartsia could support the former, whilst the latter is specifically associated with field scabious. Only small areas of potential shrill carder bee habitat were noted, at Lambeeth and Carters Green, and field scabious was only seen on the B4320 road verges east of Carters Green. Most of the habitats within the survey area are unsuitable for these species. Some of the small areas of potentially suitable habitat noted during the survey do have low potential to support these species.

Invasive species

Several invasive non-native species were found on the site. Areas with rhododendron *rhododendron* spp., Japanese knotweed *Fallopia japonica* and Montbretia *Crocosmia x crocosmiiflora* were mapped. Japanese knotweed was found behind West Angle Bay, and in woodland at Carters Green where rhododendron also formed a dense understorey. A small amount of Montbretia was present in rough grassland near Carters Green. Giant hogweed was identified by the desk exercise; location details were not given and it was not seen during the survey. These species are all target noted.

4. Recommendations

4.1 Further Survey

Vegetation/habitats

The Phase 1 survey adequately assessed the vegetation and habitats present and no further habitat survey should be required. The dune grasslands and other habitats within the Limestone Coast of South and West Wales Special Area of Conservation (SAC) and Broomhill Burrows Site of Special Scientific Interest (SSSI) have previously been subject to more detailed survey and assessment by Natural Resources Wales. The coastal grassland at West Angle Bay falls within the Angle Peninsula Coast SSSI and the West Wales Marine SAC. These coastal grasslands are open to the adjacent improved pasture and are generally of low quality with better quality vegetation on the steeper slopes. The Phase 1 survey undertaken here adequately assess them.

It would be impractical to undertake detailed surveys for all protected species across all of the potential cable routes and substation locations. It is, however, recommended that once the cable routes and substation locations have been refined, some additional surveys are undertaken. Recommendations for further survey are given below.

Badger

Detailed badger survey will be required following refinement of the cable route as it is possible that this present survey may not have found all of the setts present within the survey area. Furthermore, it will be necessary to establish the current usage and sett type and of all setts that may be affected.

Bat species

Detailed bat surveys may be required following refinement of the cable route, if trees and hedges are to be removed. This will be especially important where:

- Records show that there are bat roosts in the development site or roosts in the area;
- The area includes buildings or other structures that bats tend to use;
- There are potential roost structures like abandoned mines, tunnels or cellars or bunkers nearby; and
- There are trees with features that bats tend to use nearby.

Further surveys may also be required around the proposed substation location once this is refined, or if works are proposed which would impact on known or potential bat roosts in buildings or mature trees.

Reptile species

It would be impractical to undertake a reptile survey across all of these locations, but a Reptile Mitigation Method Statement may be required. The sand dune systems at Broomhill and Kilpaison

Burrows are clearly of more significance to reptiles, with records of barred grass snake, adder, slow worm and common lizard. Further survey and/or a reptile mitigation method statement will be required should the proposal impact these areas that may be of importance for reptiles.

Hazel dormouse

Most of the cable route options cross open improved farmland where species-poor, thin (defunct) hedges and a lack of woodland means that the habitat is not suitable. This species is very unlikely to be present in these areas. The habitat appears unsuitable and therefore, further survey is unlikely to be required.

Where species-rich thick (intact) hedges or woodland will be affected, this species may be present and therefore, further survey **is** likely to be required once the cable route has been refined.

Birds

Dependent on timing, location and nature of work, further bird survey or assessment may be required unless a suitable mitigation plan for the project that avoids, reduces or manages any negative effects to birds is prepared. Options for avoiding, reducing and managing potential impacts upon birds may include the following: Removal of nest cover pre nesting season, deterrent measures for ground nesting birds, site screening to minimize disturbance for over wintering birds, compensation for loss of bird foraging habitat, compensation for loss of nest sites (especially schedule 1 species). If a suitable mitigation plan is not in place and works will affect, damage or remove bird nesting sites during the breeding season, surveys would need to be undertaken by a suitably experienced ornithologist in order to detect the full range of species present, particularly with regard to Schedule 1 birds that may nest on the sites. The possibility of works (including machinery movements) affecting ground-nesting birds such as skylarks must also be considered.

Otters

Further survey would be required should the proposal impact and/or cause disturbance in and around habitats that are likely to be used by otters once the cable route has been refined. This would need to be targeted to specific watercourses (and associated woodlands) affected by the cable route.

4.2. Constraints/Mitigation/Promotion of Biodiversity

The cable itself is unlikely to have any long-term impacts on any habitats, and no mitigation should be required for this element of the project. The substation may have a long-term impact on some interests and it may be necessary to develop mitigation measures once a final substation location has been identified.

The major constraints are shown in map 5 (section 6). This map identifies where protected sites occur, where the Phase 1 habitat survey identified habitats of importance, and where Target Notes identified species or habitats of importance. See maps 2 and 3 in section 6 and table 1 for details of the constraints identified in map 5. None of the Red Data book plants identified in the survey place a constraint upon the project as they are all arable plants, associated with disturbed habitats apart

from one species (jointed rush) which is present to the south of Pembroke Power Station (Target Note 47).

In many areas along the proposed cable routes, soil disturbance associated with the proposed work would not cause significant ecological harm and may be of benefit, for example in exposing buried seed of uncommon arable plant species or creating temporary bare ground for solitary bees and other insects. Even in potentially constrained locations, such as the sand dunes of Broomhill Burrows SSSI, disturbance may not necessarily be harmful, and with a route chosen to avoid rare species or ecologically-sensitive locations, could have beneficial side-effects. Detailed consultation with Natural Resources Wales would, of course, be required. This would not apply to many semi-natural habitats such as woodlands, scrub, marshy, unimproved and the better quality semi-improved grasslands, stream valleys and other similar habitats.

Biodiversity net gains are unlikely to be achieved without specific management changes, requiring ongoing commitments. Tree planting schemes should generally be avoided (apart from perhaps to provide visual screening), with a focus on the encouragement of more natural ecological processes such as semi-improved grassland reversion, dune grassland development, scrub development or retention of unsprayed ‘weed-rich’ arable zones.

5. References

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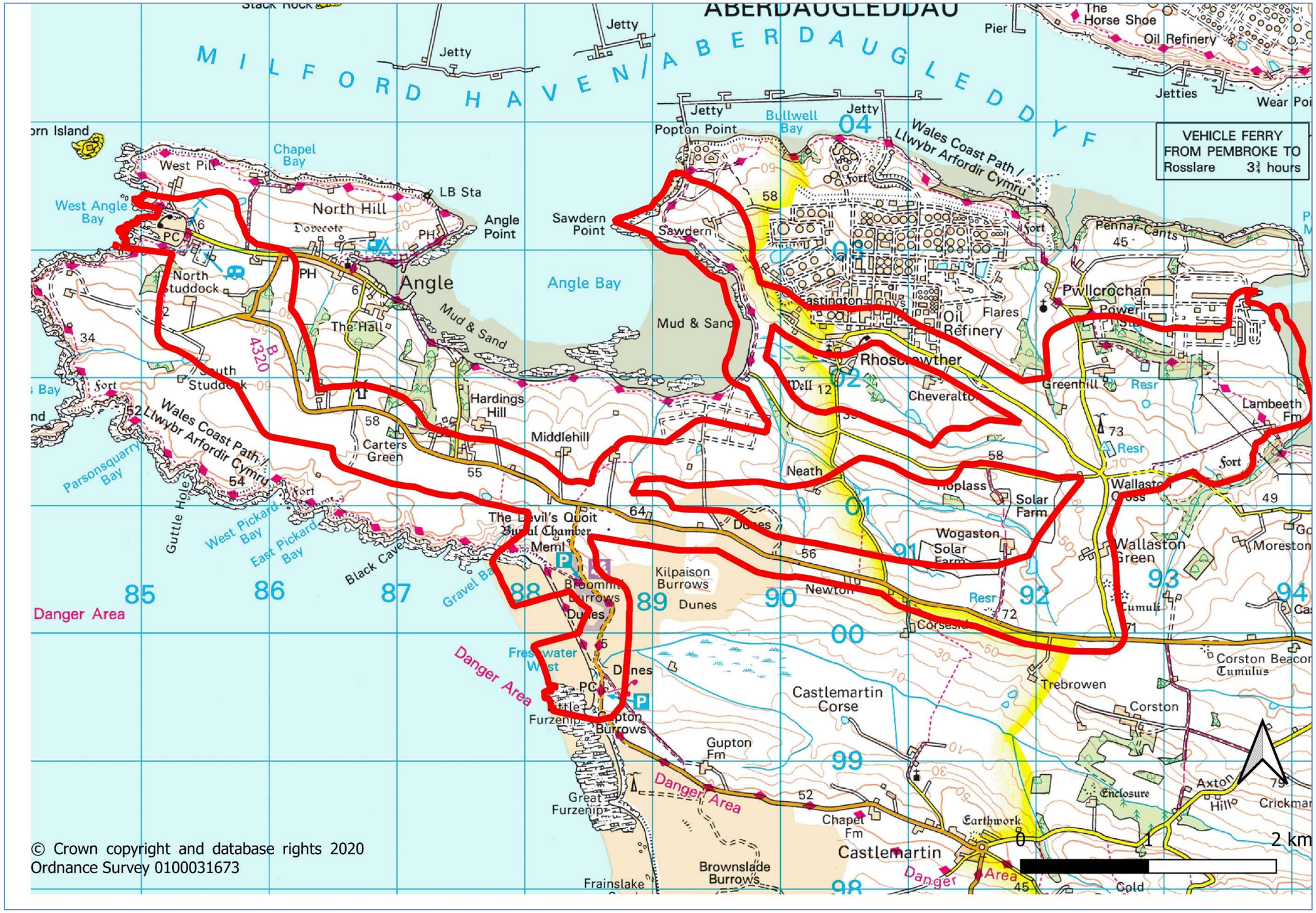
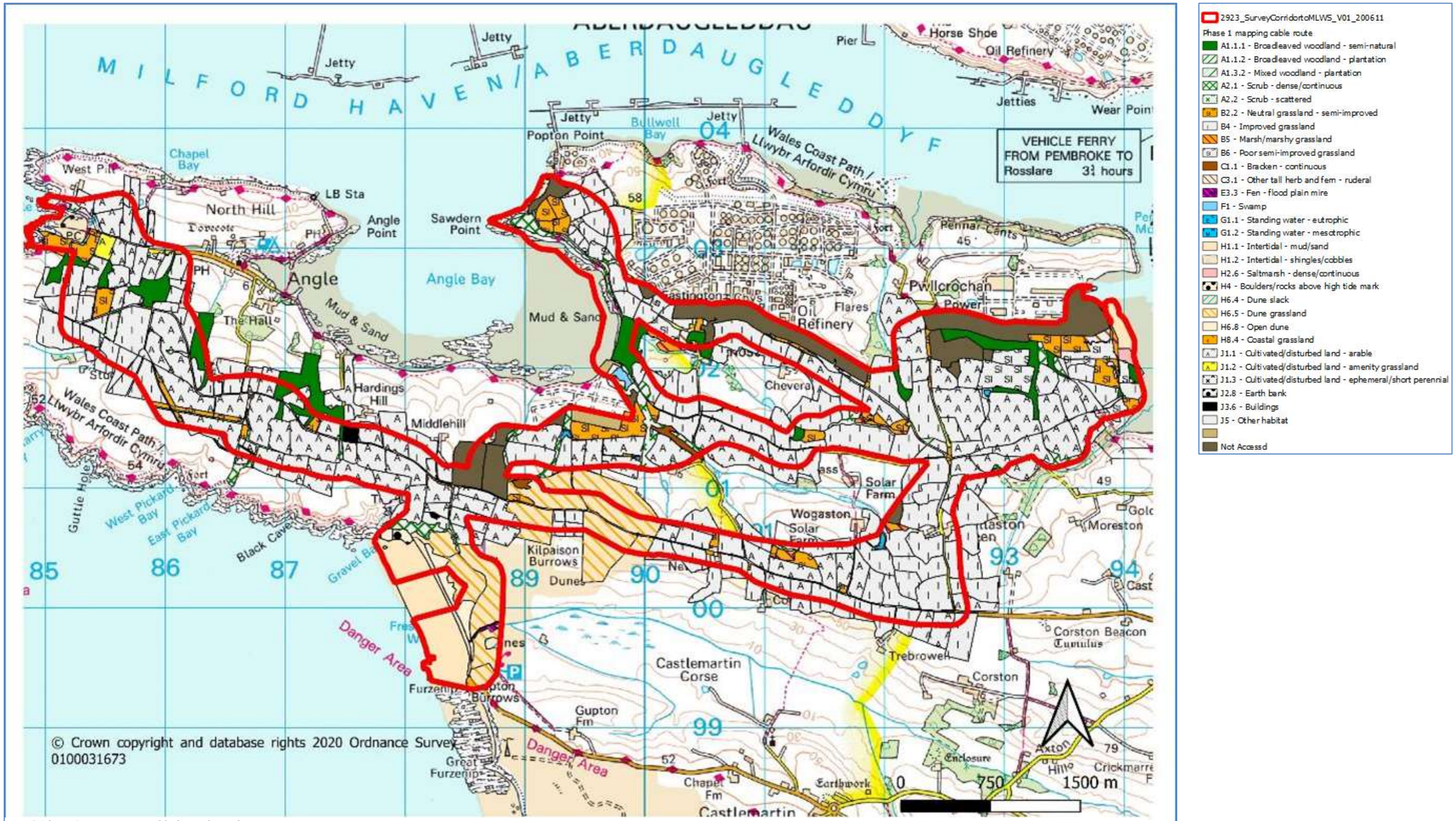
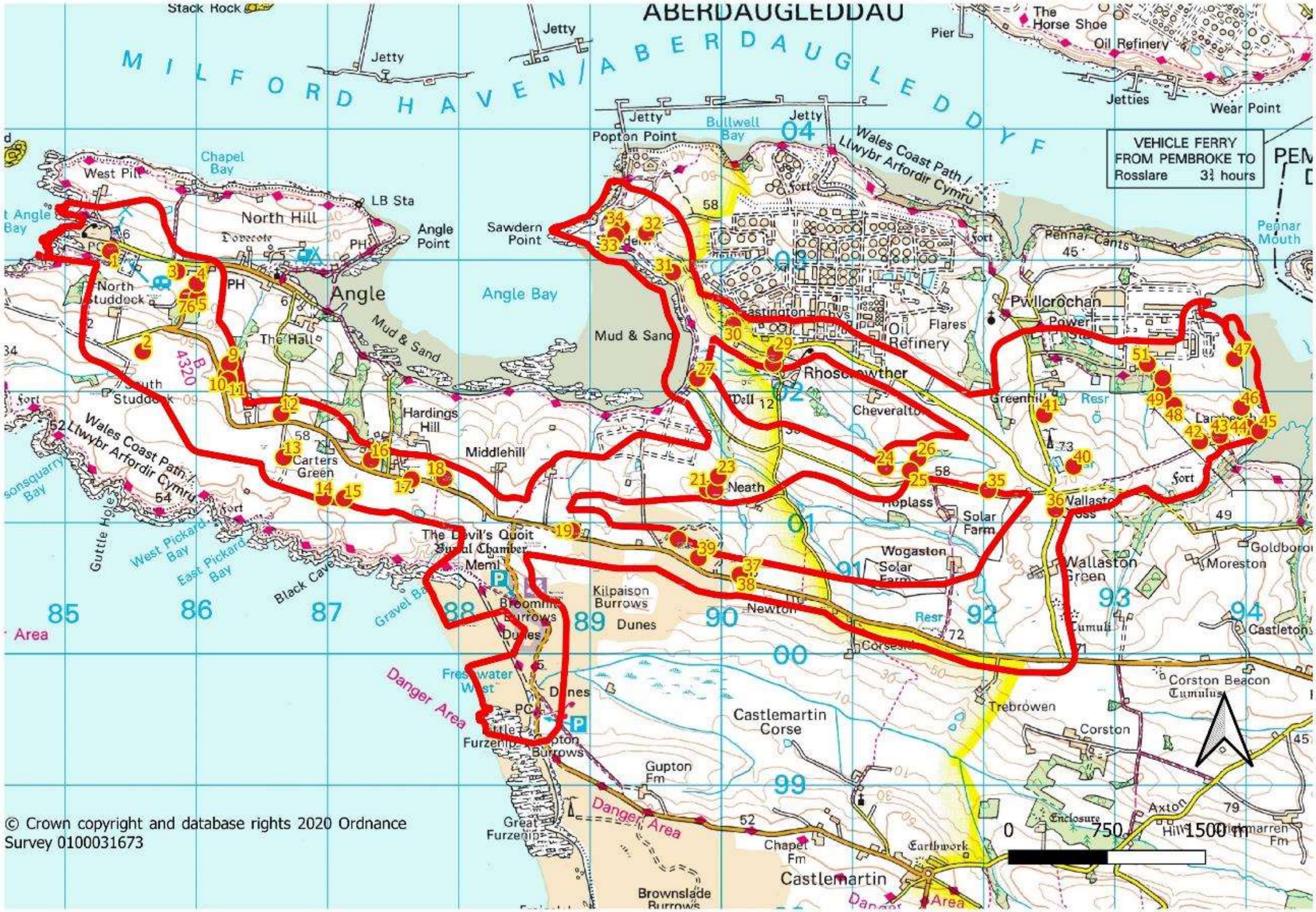
6. Maps



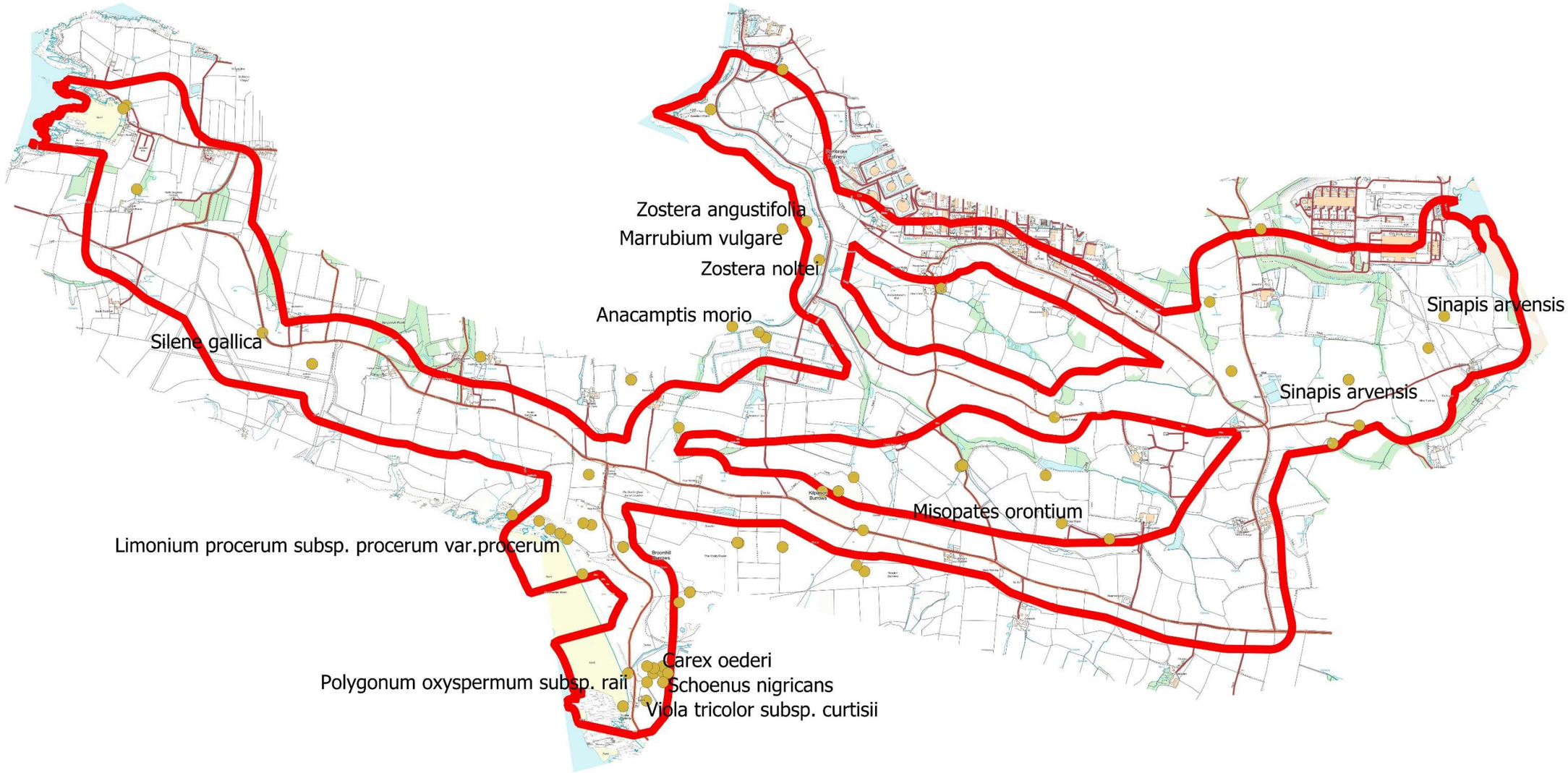
Map 1 Survey area outlined in red



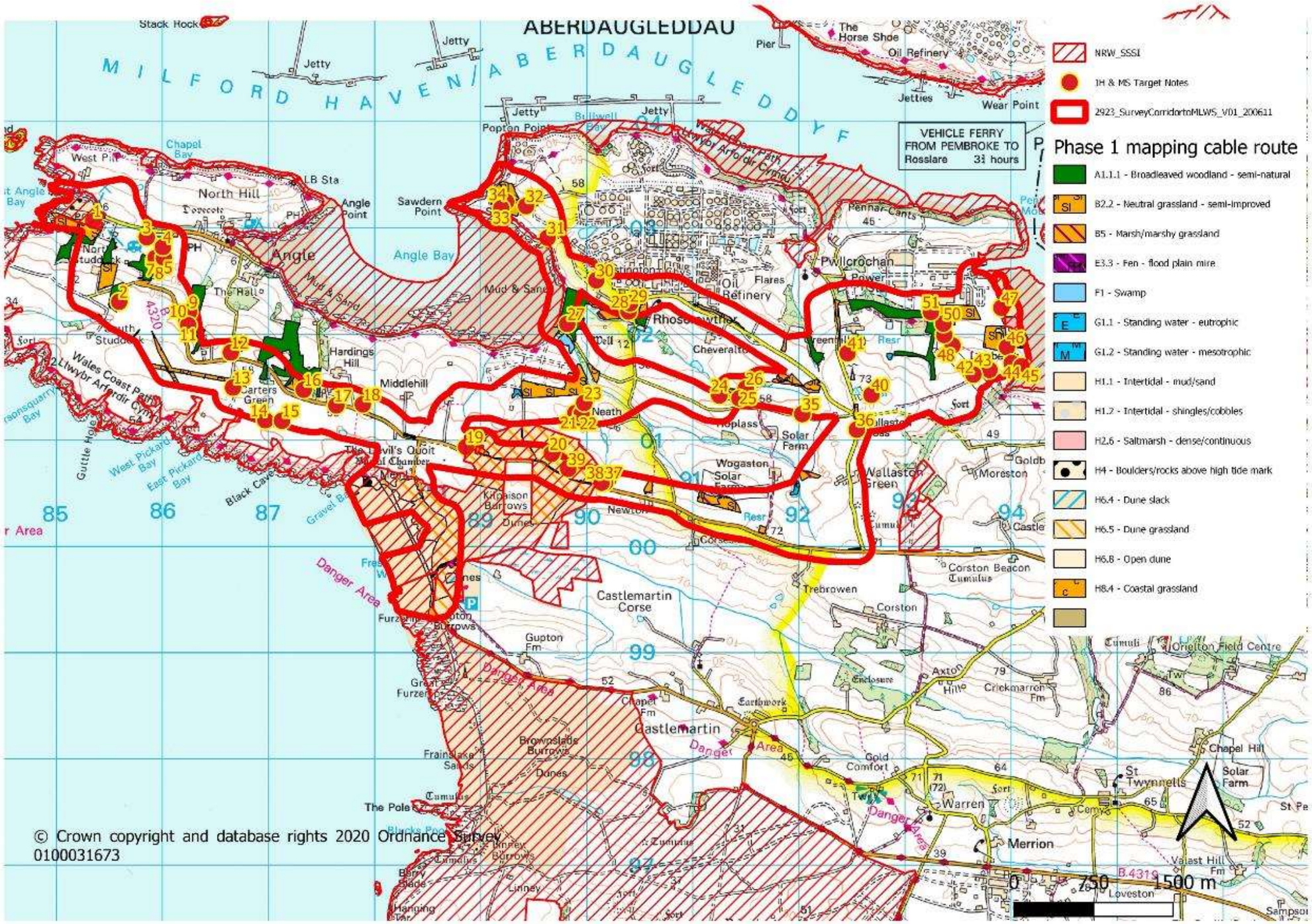
Map 2 Phase 1 survey map and habitats legend



Map 3 Target Note location



Map 4 Rare Plants Register (RPR) plants that have been recorded within or very close to the Survey Area



Map 5 Possible constraints

7. Annex 1 Records of plant species on the Welsh Red List recorded during the survey

Species	Location	NGR	Comments
Alopecurus myosuroides	Green Hill	SM9250901820	a few plants at edge of barley field
Anisantha diandra	Lambeeth	SM933019	abundant around edge of barley field
Anisantha diandra	Lambeeth	SM933020	abundant around edge of barley field (different tetrad)
Anisantha diandra	Lambeeth	SM93670163	edge of oat field
Anisantha diandra	Green Hill	SM927014	around barley field
Bromus secalinus	Lambeeth	SM933019	abundant around edge of barley field
Bromus secalinus	Lambeeth	SM933020	abundant around edge of barley field (different tetrad)
Bromus secalinus	Lambeeth	SM9356701561	edge of barley field
Bromus secalinus	Lambeeth	SM93670163	edge of oat field
Bromus secalinus	Carters Green	SM87610130	edge of wheat field
Chrysanthemum segetum	Lambeeth	SM934018	occasional in barley and gateway to oat field
Chrysanthemum segetum	Lambeeth	SM93670163	edge of oat field
Chrysanthemum segetum	Carters Green	SM87380110	edge of barley field
Chrysanthemum segetum	Carters Green	SM87610130	edge of wheat field
Chrysanthemum segetum	Angle	SM85700305	gateway to wheat field
Chrysanthemum segetum	Angle	SM85850291	gateway between wheat fields
Juncus compressus? (awaiting confirmation)	Lambeeth	SM9390902076	a few plants in open, presumably brackish marsh
Lathryrus nissolia	Sawdern	SM89620291	frequent in rough grassland with open areas
Ranunculus sardous	Gupton	SR88619952	Gupton dune reversion adjoining Freshwater West car-park
Spergula arvensis	Lambeeth	SM93960188	a few plants in gateway
Spergula arvensis	Carters Green	SM928015	gateway to barley field
Spergula arvensis	Carters Green	SM87610130	edge of wheat field
Spergula arvensis	Angle	SM85700305	gateway to wheat field
Spergula arvensis	Angle	SM859028	edge of wheat field
Stachys arvensis	Angle	SM859028	edge of wheat field

8. Annex 2 Plants on the BSBI Rare Plants Register Recorded within or very close to the Survey Area

Scientific name	NGR	Location	National Rarity	Protected	Section 7	National 1	Welsh Red	Local Rarity
Anacamptis morio	SM89180188	NW grassland BP tank farm						NSS
Anisantha diandra	SM9217802039	Field 2599, Lambeeth						LS
Anisantha diandra	SM9001300346	Arable field 1, Middlehill Farm, Rhoscrowther						LS
Anthriscus caucalis	SM89220052	Broomhill Burrows						LS
Baldellia ranunculoides	SR8868899704	Gupton Dune Slack, Broomhill Burrows				NT		
Carex oederi	SR8874799713	Gupton dune slack						LS
Centaurea cyanus	SM9062801015	Near gate into arable field, Neath farm, Rhoscrowther			S7		CR	NLS
Cirsium acaule	SM897008	Kilpaison Burrows						LR
Crambe maritima	SM881005	Angle peninsula end of Broomhill Burrows						LS
Cynoglossum officinale	SM898008	Kilpaison Burrows NE				NT		NLS
Cynoglossum officinale	SM8800	Broomhill Burrows				NT		NLS
Cynoglossum officinale	SR8899	Freshwater West				NT		NLS
Dactylorhiza fuchsii x incarnata = D. x kerneriorum	SM888001	Old Sand quarry, Broomhill Burrows						LR
Dactylorhiza incarnata x purpurella = D. x latirella	SM888001	Old Sand quarry, Broomhill Burrows						LR
Daphne laureola	SM893018	Kilpaison disused oil tank farm, Bunds 7 and 8						LS
Eleocharis uniglumis	SR887997	Main dune slack, Gupton						NLS
Epipactis palustris	SM898008	Kilpaison Burrows						LS
Equisetum variegatum	SM8994600937	Kilpaison Dunes	Status: NS					NLS
Equisetum variegatum	SR8869399737	Main dune slack, Gupton	Status: NS					NLS
Erodium moschatum	SM8921500527	Broomhill Burrows						NLS
Erodium moschatum	SM87600169	Hardings Hill, Angle						NLS
Eryngium maritimum	SM8824500329	Freshwater West						LS

Scientific name	NGR	Location	National Rarity	Protected	Section 7	National 1	Welsh Red	Local Rarity
Eryngium maritimum	SM8800	Freshwater West						LS
Euphorbia exigua	SM9311601263	Lambeeth				NT	NT	NLS
Euphorbia portlandica	SM8891800216	Broomhill Burrows						NLS
Euphorbia portlandica	SM8780400701	Gravel Bay, North end of Freshwater West						NLS
Euphrasia confusa	SM8900	Kilpaison Burrows				DD	VU	NLS
Euphrasia confusa x tetraquetra	SM8900	Kilpaison Burrows						LS
Euphrasia tetraquetra	SM8996500384	By old Warren wall, SE. edge of Broomhill Burrows				DD		NLS
Filago vulgaris	SM89390181	Kilpaison disused oil tank farm, Bunds 7 and 8				NT	VU	NLS
Glebionis segetum	SM85380327	West Angle Bay				VU		NLS
Glebionis segetum	SM90610100	Near gate into arable field, Neath farm, Rhoscrowther				VU		NLS
Glebionis segetum	SM885015	Field Two, Broomhill Farm				VU		NLS
Glebionis segetum	SM935017	Field 5575, Lambeeth				VU		NLS
Glebionis segetum	SM929011	Field 0219, Lambeeth				VU		NLS
Glebionis segetum	SM915005	Field One, Wogaston				VU		NLS
Hornungia petraea	SM8891800216	Broomhill Burrows	Status: NS					NLS
Hornungia petraea	SM90000060	Kilpaison Burrows	Status: NS					NLS
Hyoscyamus niger	SM8902	Angle Bay, Rhoscrowther				VU		NLS
Inula crithmoides	SM8804200612	North end of Freshwater West	Status: NS					NLS
Inula crithmoides	SM85360325	West Angle Bay	Status: NS					NLS
Inula crithmoides	SM8800	Freshwater West	Status: NS					NLS
Lathyrus nissolia	SM893018	Kilpaison disused oil tank farm, Bunds 7 and 8						LS
Leymus arenarius	SM8797300663	Gravel Bay, North end of Freshwater West						LS

Scientific name	NGR	Location	National Rarity	Protected	Section 7	National 1	Welsh Red	Local Rarity
Limonium procerum subsp. procerum var.procerum	SM88100058	Broomhill Burrows N.						LS
Lithospermum arvense	SM9202	Cornfield, Pwllcrochan				EN	RE	LS
Marrubium vulgare	SM8902	Rhoscrowther	Status: NS				NT	NLS
Mentha arvensis	SR886996	Gupton					VU	NLS
Misopates orontium	SM91200131	Wogaston Farm				VU		NLS
Misopates orontium	SM912006	Field Two, Wogaston				VU		NLS
Misopates orontium	SM930015	Field 0447-0771, Lambeeth				VU		NLS
Misopates orontium	SM885015	Field Two, Broomhill Farm				VU		NLS
Misopates orontium	SM8903	Popton Point				VU		NLS
Polygonum oxyspermum subsp. raii	SR8853099705	Gupton Shingle, Freshwater West						LS
Polygonum oxyspermum subsp. raii	SM8800	Freshwater West						LS
Ranunculus trichophyllus subsp. trichophyllus	SR886997	Gupton dune slack						LR
Rumex pulcher	SM9202	Pwllcrochan					EN	LS
Schoenus nigricans	SR8878199706	Gupton dune slack						LS
Scleranthus annuus	SM890032	Sawdern Point, East side of Angle Bay, Rhoscrowther			S7	EN		NLS
Silene gallica	SM8623801845	OS0022 west of Hubberton Farm, Angle	Status: NS		S7	EN	VU	NLS
Silene gallica	SM890032	Sawdern Point, East side of Angle Bay, Rhoscrowther	Status: NS		S7	EN	VU	NLS
Silene gallica	SR8899	Fields at Freshwater West	Status: NS		S7	EN	VU	NLS
Sinapis arvensis	SM90490212	Rhoscrowther					VU	NLS
Sinapis arvensis	SM885015	Field Two, Broomhill Farm					VU	NLS
Sinapis arvensis	SM865016	Field Six, South Studdock					VU	NLS
Sinapis arvensis	SM930015	Field 0447-0771, Lambeeth					VU	NLS
Sinapis arvensis	SM911009	Field Four, Wogaston					VU	NLS
Sinapis arvensis	SM936019	Field 6109, Lambeeth					VU	NLS

Scientific name	NGR	Location	National Rarity	Protected	Section 7	National 1	Welsh Red	Local Rarity
Spergula arvensis	SM90610100	Near gate into arable field, Neath farm, Rhoscrowther				VU	NT	NLS
Spergula arvensis	SM888012	Field Three, Broomhill Farm				VU	NT	NLS
Spergula arvensis	SM854027	Field Four, South Studdock				VU	NT	NLS
Spergula arvensis	SM865016	Field Six, South Studdock				VU	NT	NLS
Spergula arvensis	SM930015	Field 0447-0771, Lambeeth				VU	NT	NLS
Spergula arvensis	SM8903	Popton Point				VU	NT	NLS
Stachys arvensis	SM88280095	Field 2898, Middle Hill				NT	VU	NLS
Stachys arvensis	SM90610100	Near gate into arable field, Neath farm, Rhoscrowther				NT	VU	NLS
Stachys arvensis	SM92310160	Field 3262, Lambeeth				NT	VU	NLS
Stachys arvensis	SM885015	Field Two, Broomhill Farm				NT	VU	NLS
Stachys arvensis	SM8903	Popton Point				NT	VU	NLS
Stellaria pallida	SM8830000638	NW side of Broomhill Burrows						LS
Trifolium incarnatum	SM9062901012	Near gate into arable field, Neath farm, Rhoscrowther						LR
Veronica catenata	SM8800	Broomhill Burrows						LS
Viola canina	SR887996	Gupton Management Agreement area				NT		NLS
Viola canina	SM898008	Kilpaison Burrows NE				NT		NLS
Viola tricolor subsp. curtisii	SR88649953	Reverting dunes behind car park,Gupton Farm				NT	VU	LS
Viola tricolor subsp. curtisii	SM882006	Freshwater West				NT	VU	LS
Vulpia fasciculata	SM8800	Freshwater West	Status: NS					NLS
Zostera angustifolia	SM896025	Angle Bay ENE						LR
Zostera noltei	SM8973002306	East Angle Bay	Status: NS			VU		NLS

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