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Perpetuus Tidal Energy Centre

Preliminary Ecological Appraisal and Targeted Vegetation Assessment

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EXECUTIVE SUMMARY

1. This report presents the findings of a preliminary ecological appraisal (PEA) of land at Flowers Brook and Castle Cove, Ventnor, Isle of Wight, carried out on 7 April 2021 and a Phase 2 Vegetation Assessment carried out on 7 May 2021.
2. The purpose of the report is to provide an overview of the ecological make-up of site. It replaces a 2014 PEA and Environmental statement (ES) prepared by Royal HaskoningDHV for Perpetuus Tidal Energy Centre. Development plans include the construction of a substation, control room and onshore infrastructure for a tidal energy platform.
3. This report covers habitats, rare plants and badgers. Other species, including invertebrates, red squirrels, bats, reptiles and dormice which could potentially be present, were the subject of separate surveys and will be covered in a further report.
4. No suitable habitat was recorded for the following protected species: otter, white-clawed crayfish, water vole or great crested newt. Further surveys are not required for these species.
5. A background data search (BDS) identified 8 statutory designated sites within 2 km of the site boundary.
6. The walkover survey identified 2 UK BAP priority habitats present on the coastal fringe of the survey area: intertidal under boulder communities and maritime cliffs and slopes.
7. Other habitats present include modified grassland and scrub. An area of grassland to the west of Castle Cove was identified as having potential for the protected species Early Gentian. This area is outside the given red line boundary but within a 30 m buffer.
8. Five invasive non-native plant species on Schedule 9 of the Wildlife and Countryside Act (1981) were identified during the survey. Of these, 2 were in the western grassland outside of the red line boundary, 1 was apparently planted in a hedge on private land, and 2 were present within the Southern Water compound.

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1.0 INTRODUCTION

1.1 Purpose of this report

- 1.1.1 This report presents the results of a preliminary ecological appraisal (PEA), comprising a background data search, ecological walkover and subsequent evaluation of the biodiversity value of land at Flowers Brook and Castle Cove, Ventnor (grid reference SZ 553 770).
- 1.1.2 The report identifies habitats and species found during the survey, as well as records of protected species from the wider area identified during the background data search (BDS). The PEA was carried out on behalf of EMEC by RSK Biocensus in April 2021.
- 1.1.3 The report represents an update to the 2014 PEA report produced by Arc Consulting for Royal Haskoning DHV.

1.2 Landscape context

- 1.2.1 The survey area lies within the town of Ventnor approximately 0.5 km west of the main promenade. It consists of Flowers Brook Park to the south, a pumping station owned by Southern Water to the northeast, and a residential property (which includes Flowers Brook Caravan Park) to the northwest.
- 1.2.2 The survey area includes a small section of Castle Cove in the southeast corner, rising to cliffs (and an undercliff tidal platform) for the remainder of the southern boundary. The northern boundary is formed by Steephill Road.

1.3 Development proposals

- 1.3.1 It is understood that development plans consist of the construction of a project substation sited to the north or south of the Southern Water pumping station. The substation will house a 11/33kV transformer, power conditioning equipment and a control room.
- 1.3.2 The available footprint to the north of the pumping house favours a linear layout for the substation, while for land to the south a squatter, rectangular shape is more appropriate. The footprint of the proposed structures ranges between c. 280 and 330 m² depending on the design used.
- 1.3.3 A laydown area is proposed on land at Flowers Brook Park, directly outside of the Southern Water compound.
- 1.3.4 Cabling between the tidal platform and the substation is via trenching or tunneling works. In the case of a trenched cable route this would be a 2-3 m wide ditch running from the substation through Flowers Brook park, thereafter following the coastal path to a transition pit in Castle Cove. Further trenching would be necessary at the point of landfall of the marine cables.

- 1.3.5 The feasibility of horizontal directional drilling (HDD) is also being assessed. This would use a smaller footprint within Flowers Brook Park, passing beneath the cliffs and foreshore to the south.

2.0 METHODS

2.1 General

- 2.1.1 A preliminary ecological appraisal (PEA) was undertaken in line with guidance from the Chartered Institute of Ecology and Environmental Management (2017), which indicates that a PEA normally involves:
- a desk study (gathering information from national websites; local record centres, published material, previous reports etc.) here called a background data search (BDS)
 - a field survey having a scope that includes some form of habitat mapping, assessment of the possible presence of protected or priority species and the likely importance of habitat features, and notes including mapping of any incidental sightings of non-native invasive plant species and protected or priority mammal species.
- 2.1.2 The PEA results provide an ecological description of the site and information about species that may occur there. It either allows evaluation of the ecological importance of the site, or - if insufficient to do so - indicates what further surveys are needed.
- 2.1.3 A previous report had already indicated the need for more detailed assessment of some protected species within the site boundary. Red squirrels, bats, reptiles and dormice have therefore been omitted from the scope of this report and will be covered in a separate publication.
- 2.1.4 The survey (including habitat assessment for protected species) was carried out by Pete Flood on 7 April 2021 using UKHab methodology.
- 2.1.5 A further phase 2 vegetation assessment was carried out on 7 May 2021 in order to establish whether plants protected by legislation were present within the works area. Prior surveys and desk study had raised the possibility that suitable habitat could be found within the red line boundary for *Gentianella anglica* (Early Gentian), an endemic plant on schedule 8 of the Wildlife and Countryside Act (1981) and further protected under the European Habitats Directive and Species Directive of the Bern Convention.
- 2.1.6 This second survey was carried out by Dr Richard Carter and Pete Flood. Dr Carter is an experienced botanist and scientific director with 40 years' experience while Pete Flood is a botanist (holding a level 5 Field Skills Identification Certificate (FISC) and consultant ecologist with 4 years' experience.
- 2.1.7 The weather during both surveys was sunny and dry, with light winds below 5 mph.

2.2 Background Data Search

- 2.2.1 A search was made in April 2021 for reference materials relating to the ecology of the PTEC 2 site, and a list of sources is given in *Table 1*.

Table 1: Data sources

Information Obtained	Available From
Protected and noteworthy species-records	Isle of Wight Local Record Centre
Designated site locations and citations	Natural England website
Designated site locations and citations	Joint Nature Conservation Committee (JNCC) website
Designated site locations and citations	Isle of Wight Local Record Centre
Designations and legal protection of noteworthy species	Joint Nature Conservation Committee (JNCC) website
Details of species and habitats listed on the LBAP	Local BAP website https://www.wildonwight.co.uk/library.php

2.2.2 A search was made for information on statutory designated sites (often internationally and nationally important sites for ecology) within 2 km of the site boundary and non-statutory designated sites (often important in a local context) within 1 km. The search was extended to 10 km for internationally designated sites. A search was also made for records of noteworthy species within 1 km of the site boundary. Species included in the search parameters were:

- European protected species (listed on Schedules 2 and 5 of The Conservation of Habitats and Species Regulations 2017);
- nationally protected species under Schedules 1, 5 and 8 of The Wildlife & Countryside Act 1981 and The Protection of Badgers Act 1992;
- species listed as critically endangered, endangered or vulnerable based on the IUCN Red List Categories and Criteria 2001;
- all species listed on the RSPB Birds of Conservation Concern 4 as red or amber;
- nationally rare or nationally scarce species;
- notable invertebrates; and
- species of principal importance under The Natural Environment and Rural Communities (NERC) Act (2006) or are priority species under the local biodiversity action plan.

2.3 Habitat survey using UKHab methodology

2.3.1 The habitat survey was based on the UKHab habitat classification approach (UKHab, 2018) as extended in its Professional Edition. This involves the following elements:

- Classification of habitats using 3-4 figure primary codes and numeric secondary codes.
- Habitat mapping using a set of standard colour codes to indicate habitat types on a phase 1 habitat map (Figure 2).
- Description of features of possible ecological or nature conservation interest in notes relating to numbered locations on the habitat map, called 'target notes'. These are provided in Appendix B.

2.3.2 UKHab habitat survey methods are described in The UK Habitat Classification User Manual Version 1.1 (Butcher *et al.*, 2020). Limits to the achievable reliability of habitat classification methods (with a focus on Phase 1 methodology) are discussed in Cherrill & McClean (1999).

2.3.3 Plant nomenclature in this report follows Stace (2019) for native and naturalised species of vascular plant. Plant names in the text are given with common names first, followed by the scientific name in brackets. Names of mosses and liverworts follow Hill *et al.* (2008).

2.4 Non-Native Invasive Plant Species

2.4.1 UK Habitat survey does not involve exhaustive surveying for any individual plant species. But if invasive plant species were seen during the normal course of the survey e.g. Japanese Knotweed (*Reynoutria japonica*), Giant Hogweed (*Heracleum mantegazzianum*), Himalayan Balsam (*Impatiens glandulifera*), they were noted and reported here.

2.5 Assessing the Value of Habitats

2.5.1 The scientific value of habitats for nature conservation is assessed according to widely accepted criteria of which the most important are naturalness, extent, rarity, and diversity. These and others are described in an extensive literature (e.g. Ratcliffe 1977, Usher 1986). In addition, the following criteria were used:

- Whether habitats are included on a list of priority habitat types that has been published in connection with UK implementation of the EC 'Habitats Directive'. Other important habitats and species are identified in National Biodiversity Action Plans (UK BAP website: www.ukbap.org.uk).
- Special importance attaches to ancient semi-natural habitats that depend for their survival on traditional types of land management, especially where these have suffered large reductions over the last seventy years due to agricultural intensification. Habitats in these categories are discussed in Rackham (1986).

2.6 Phase 2 Vegetation Assessment

2.6.1 The aim of this second survey was to assess the suitability of habitats within the red line boundary for Early Gentian (*Gentianella anglica*).

- 2.6.2 Initial desk study involved research of the habitat, ecology and distribution of this species, using information provided by Rich and McVeigh (2019) in their study of UK Gentianaceae as well as the location of previous records for Early Gentian within the 2 x 2 km tetrad SZ57N in which the proposed development lies.
- 2.6.3 A combination of systematic searches and quadrats were used in likely areas at a date judged to be the optimum flowering period for this species. Quadrat recording enabled an assessment to be made of the plant communities present, and the presiding biotic and abiotic factors governing their formation. Systematic searches were not possible over the entirety of the survey area and were focused instead on a relatively small number of habitats: clifftop grassland and scrub at Flowers Brook, the vegetated sea cliffs directly to the south, and rough grassland to the west of Castle Cove.

2.7 Habitat Assessment for Protected Species

2.7.1 General

- 2.7.2 The suitability of the site for the protected animals that are likely to occur in the area was assessed. The site was assessed for suitability for badgers (*Meles meles*), while the results of assessments for other protected species will be presented in a separate report. Further details of the assessment methods are given below.

2.7.3 Badgers

- 2.7.4 An initial assessment was carried out to identify areas that might be used by badgers for commuting, foraging and sett-building on the site and within 30 m of the site boundary (where access was possible). The site was systematically searched for signs of badger activity including setts, snuffle-holes, latrines and paths.

2.8 Validity of Data

- 2.8.1 Data collected for submissions to the Local Planning Authority are usually valid up to two years following the field survey. Should construction works not have commenced within two years, then a repeated preliminary ecological appraisal and initial bat inspection may be needed.

2.9 Constraints and limitations

- 2.9.1 The initial habitat survey was carried out at an early point in the field season (April to September). However, most plant species that were missed because they were not in evidence or inconspicuous were likely to have been found by the phase 2 survey in May 2021. An experienced botanist can name most of what is in evidence, and the surveys were sufficient to indicate the general botanical character of the habitats present.
- 2.9.2 The preliminary view as to whether protected species might occur on the site is based on the suitability of habitat, the known distribution of relevant species in the

local area (from on-line sources and desk study) and any signs of the relevant species noted. It does not constitute a full and definitive survey of any protected species group.

- 2.9.3 While most of the site was accessible, some areas of cliff could only be surveyed using binoculars, and some dense stands of scrub proved impenetrable.
- 2.9.4 For the purposes of this survey the site boundary has been taken as the red line boundary plus a 30 m buffer. This includes only the 'landside' portions of the tidal platform, excluding marine areas affected by the installation of the tidal platform itself.

3.0 RESULTS

3.1 Background Data Search

3.1.1 Biodiversity Action Plans

3.1.2 Habitats on the site qualify as the priority habitat types 'Intertidal Boulder Communities', 'Maritime Cliffs and Slopes', 'Lowland Mixed Deciduous Woodland', 'Hedgerows', 'Rivers' and 'Ponds' under Section 41 of The Natural Environment and Rural Communities (NERC) Act 2006.

3.1.3 The latest Isle of Wight local biodiversity action plan (LBAP) lists 8 habitat action plans (HAPs) and 2 species action plans (SAPs). The local HAPs and SAPs that are relevant to the proposed development are;

Habitats:

- Maritime cliffs and slopes.
- Calcareous grassland.
- Heathland and acid grassland.
- Lowland meadows.
- Wetlands.
- Woodland.
- Farmland.
- Solent coast.

Species:

- Woodland bats.
- Red squirrel.

3.1.4 Designated Sites

Statutory Sites

3.1.5 There are eight statutory designated sites within 2 km of the site boundary, comprising one area of outstanding natural beauty, two special areas of conservation (SAC), four sites of special scientific interest (SSSI), one local nature reserve (LNR). These sites are listed in *Table 2* in order of proximity to the site; short descriptions are given for the sites.

Table 2: Statutory sites within 2 km of the site boundary

Site Name	Designation	Approximate Distance (m)
Isle of Wight	AONB	0
Dominated by chalk in the sharp upfold which forms both the island's east west backbone and southern expanse of wide green downs white stacks of the Needles. On the north coast, the AONB protects the low clay cliffs, salt-marsh and mud-flats of the Hamstead Heritage Coast. In		

Site Name	Designation	Approximate Distance (m)
the south, the complex landscapes bounded by the Tennyson Heritage Coast range from sandy bays to high unstable sandstone and chalk cliffs, cut by wooded 'chines'. This complexity gives rise to chalk downland, arable farmland, wooded dairy pasture, small areas of heathland and hay meadows, sea cliffs and creeks.		
South Wight Maritime	SAC	0
South Wight Maritime was designated as a SAC in recognition of its outstanding reef marine habitats and pristine sea cave systems. This European Marine Site is a dynamic site that boasts a variety of different types of reefs including chalk, limestone, sandstone, clay/mudstone, greensand bedrock and boulder reef. South Wight Maritime SAC is also the only known location of subtidal chalk caves in the UK. These sea caves are of ecological importance with many hosting algal communities which are restricted to this type of habitat. The reef habitats support a variety of intertidal and subtidal species, including nationally scarce seaweeds such as the shepherd's purse wart weed (<i>Gracilaria bursa-pastoris</i>). The exposed bedrock reefs host a diverse range of faunal turf communities comprised of bryozoans, hydroids and slow-growing sponges, together with rock-boring piddocks. Several species reach their north-eastern limit of distribution within the site, with rare fish species such as the trigger fish (<i>Balistes carolinensis</i>) being present during the summer months.		
Compton Chine to Steephill Cove	SSSI	330
The site is notified for its vegetated maritime cliffs and slopes, species-rich unimproved chalk grassland, nationally rare plant species, an assemblage of nationally scarce plants, an outstanding assemblage of nationally rare and scarce invertebrates, exposed and moderately exposed rocky shores (littoral rock) and nationally important coastal geomorphology. The relevant National Vegetation Classification (NVC) communities of the vegetated maritime cliffs and slopes are <i>Armeria maritima</i> - <i>Cerastium diffusum</i> ssp. <i>diffusum</i> maritime therophyte community (NVC MC5); <i>Festuca rubra</i> - <i>Armeria maritima</i> maritime grassland (NVC MC8); <i>Festuca rubra</i> - <i>Holcus lanatus</i> maritime grassland (NVC MC9) and <i>Festuca rubra</i> - <i>Daucus carota</i> ssp. <i>gummifer</i> maritime grassland (NVC MC11). The communities for the species rich unimproved calcareous grassland are <i>Festuca ovina</i> - <i>Carlina vulgaris</i> grassland (NVC CG1), <i>Festuca ovina</i> - <i>Avenula pratensis</i> grassland (NVC CG2), <i>Bromus erectus</i> grassland (NVC CG3), <i>Brachypodium pinnatum</i> grassland (NVC CG4) and <i>Bromus erectus</i> - <i>Brachypodium pinnatum</i> grassland (NVC CG5).		
Rew Down	SSSI/LNR	345
Rew Down is a steep south-facing chalk slope capped with superficial Pleistocene gravel exhibiting a wide range of soils and supporting a diversity of species-rich plant communities. The occurrence of both strongly acid soils (on the ridge top gravels) and basic soils (on the escarpment face) gives rise to disparate plant communities of considerable ecological interest. The steep lower slopes support a rich chalk grassland flora and fauna. In part the chalk grassland is largely ungrazed (1984) and characterised by tall vegetation dominated by glaucous sedge <i>Carex flacca</i> and false brome <i>Brachypodium sylvaticum</i>. More open areas of heavily rabbit grazed grassland occurs within this matrix and contain notably large populations of the rare early gentian <i>Gentianella anglica</i> and horseshoe vetch <i>Hippocrepis comosa</i>. Grazed		

Site Name	Designation	Approximate Distance (m)
parts of the Down have a consistently richer chalk grassland turf which includes large populations of bee orchids <i>Ophrys apifera</i>, burnt tip orchids <i>O. ustulata</i> and early-purple orchids <i>O. mascula</i>, yellow-wort <i>Blackstonia perfoliata</i> and probably the largest colony of cowslips <i>Primula veris</i> on the chalk in the Isle of Wight. Autumn ladies' tresses <i>Spiranthes spiralis</i>, early gentian and bastard toadflax <i>Thesium humifusum</i> occur on thinner soils. Horseshoe vetch is notably abundant throughout the site and the food plant for the nationally rare Adonis blue butterfly <i>Lysandra bellargus</i>, of which a strong colony occurs on the site.		
Isle of Wight Downs	SAC	855
This complex contains semi-natural dry grassland on chalk, with extensive areas of sheep's fescue – meadow oat-grass (<i>Festuca ovina</i> – <i>Helictotrichon pratense</i>) grassland in both inland and coastal situations. In places this grades into sheep'-fescue – carline thistle <i>Carlina vulgaris</i> grassland, particularly on south-facing slopes on the coast, which contains important examples of lichen-rich maritime chalk grassland. Smaller areas of upright brome <i>Bromopsis erecta</i> grassland occur on the eastern parts of the chalk outcrop. Grassland is locally replaced by heather – dwarf gorse (<i>Calluna vulgaris</i> – <i>Ulex minor</i>) dry heaths where superficial deposits overlie the chalk. There are also some stands of the rare chalk heath, with features intermediate between chalk grassland and <i>Calluna</i> – <i>Ulex</i> heath. The cliff tops provide a range of sheltered and exposed conditions, and the most exposed support assemblages of nationally rare lichens including <i>Fulgensia fulgens</i>. At the western end of the site, the instability and maritime influence has altered the chalk grassland vegetation to include maritime species such as yellow horned-poppay <i>Glaucium flavum</i>, rock samphire <i>Crithmum maritimum</i> and wild cabbage <i>Brassica oleracea</i> var. <i>oleracea</i>, together with calcareous grassland species such as wild carrot <i>Daucus carota</i>, carline thistle and lesser hawkbit <i>Leontodon saxatilis</i>. This site represents an uncommon transition from chalk grassland species to sea cliff vegetation, including very large populations of early gentian <i>Gentianella anglica</i>.		
Ventnor Downs	SSSI	855
The site comprises a dog-leg chalk ridge capped with 5 metres or more of angular flint gravel. The gravel capping supports extensive tracts of gorse <i>Ulex europaeus</i> with intervening areas of heathland and acid grassland dominated by heather <i>Calluna vulgaris</i>, bell heather <i>Erica cinerea</i>, purple moor-grass <i>Molinia caerulea</i>, bristle bent <i>Agrostis curtisii</i> and locally bilberry <i>Vaccinium myrtillus</i>. Where the cap yields to chalk the vegetation grades to hawthorn <i>Crataegus monogyna</i> scrub with some whitebeam <i>Sorbus aria</i> and emergent sycamore <i>Acer pseudoplatanus</i> and ash <i>Fraxinus excelsior</i> woodland. On the east slopes of the site the emergent woodland in turn gives way to ancient ash woodland with hazel <i>Corylus avellana</i> coppice and a ground flora dominated by ramsons <i>Allium ursinum</i>, dog's mercury <i>Mercurialis perennis</i> and bluebells <i>Hyacinthoides non-scripta</i>. Two smaller areas of mature ash woodland occur at the northern tip of the site, these are composed of often very large trees that support an apparently rich epiphytic lichen flora. On the steep south escarpment, a dense woodland of naturalised holm oak <i>Quercus ilex</i> has developed.		
St Lawrence Bank	SSSI	1,650
The site consists of a small, field edge, a chalk bank vegetated with a mix of tall, ungrazed grassland, and dense mature scrub.		

Site Name	Designation	Approximate Distance (m)
The site is of great national importance in supporting a large population of the very rare field cow-wheat <i>Melampyrum arvense</i>. This plant was at one time common as a weed of arable crops renowned for ruining the quality of grain in flour and bread and called locally “poverty weed”. This semi-parasitic species is now restricted to four known locations nationally, two of which are on the Isle of Wight. The site also contains a strong colony of the rare ivy broomrape <i>Orobanche hederæ</i>, a parasitic species of ivy <i>Hedera helix</i> which forms dense carpets under the areas of scrub in the site.		

Internationally Designated Sites

- 3.1.6 There are three internationally designated sites within 10 km of the site boundary, one special protection area (SPA) and two special areas of conservation (SAC). These sites are listed in *Table 3*, any sites within 2 km of the site boundary are described in *Table 2*. Some of the sites share several designations.

Table 3: Internationally designated sites within 10 km of the site boundary

Site Name	Designation	Approximate Distance (m)
South Wight Maritime	SAC	0
Isle of Wight Downs	SAC	855
Solent and Dorset Coast	SPA	6,700

SSSI Impact Risk Zones

- 3.1.7 There are several SSSIs in the wider area, and the site intersects their impact risk zones (IRZs), but the proposed development is not of a type that matches specified types in respect of which the planning authority is recommended to consult with Natural England (the special types reflect sensitivities at particular SSSIs and may therefore differ from one BDS search-location to another).

Non-statutory Sites

- 3.1.8 There are four non-statutory designated sites within 1 km of the site boundary, comprising four sites of importance for nature conservation (SINC). These sites are listed in *Table 4* in order of proximity to the site; citations were not provided.

Table 4: Non-statutory sites within 1 km of the site boundary

Site Name	Designation	Approximate Distance (m)
The Undercliff	SINC	0
Ventnor Cemetery	SINC	565

Site Name	Designation	Approximate Distance (m)
Rew Copse	SINC	680
Watcombe Bottom	SINC	745

Other Notable Sites

- 3.1.9 There is one area of ancient woodland within 1 km of the site boundary, which is 965m away.

3.1.10 Protected and Noteworthy Species

- 3.1.11 At least 154 noteworthy species are recorded from places within 1 km of the site boundary. Of these, 47 are birds, 69 are invertebrates, 26 are plants, at least 7 are mammals, 1 is a fish, 1 is a fungus, and 3 are reptiles. Species that are protected by law under Schedules 2 and 5 of The Conservation of Habitats and Species Regulations 2017, Schedules 2, 5 and 8 of The Wildlife and Countryside Act 1981 or The Protection of Badgers Act 1992 and have been recorded in the search area are listed in the table below (excluding species protected only against collection for sale); a full species list is given in *Appendix C*.

Table 5: Protected species records within 1 km of the site boundary

Latin Name	Common name	Designation	Most Recent	Within 100m	Within 1km
Birds					
<i>Calidris maritima</i>	purple sandpiper	WCA1.1	2016	P	P
<i>Falco peregrinus</i>	peregrine	WCA1.1	2007	P	P
<i>Falco subbuteo</i>	hobby	WCA1.1	2007	P	P
<i>Fringilla montifringilla</i>	brambling	WCA1.1	2016	P	P
<i>Gavia stellata</i>	red-throated diver	WCA1.1	2016	P	P
<i>Melanitta fusca</i>	velvet scoter	WCA1.1	2016	P	P
<i>Milvus milvus</i>	red kite	WCA1.1	2016	P	P
<i>Pandion haliaetus</i>	osprey	WCA1.1	2016	P	P
<i>Panurus biarmicus</i>	bearded tit	WCA1.1	2017	P	P
<i>Sylvia undata</i>	Dartford warbler	WCA1.1	2007	P	P
Plants					
<i>Gentianella anglica</i>	early gentian	WCA8	2017		☒

Latin Name	Common name	Designation	Most Recent	Within 100m	Within 1km
Invertebrates					
<i>Papilio machaon</i>	swallowtail	WCA5	2014		☒
Mammals					
<i>Barbastella barbastellus</i>	western Barbastelle	EPS(Sch2), WCA5	2004	P	P
<i>Eptesicus serotinus</i>	serotine	EPS(Sch2), WCA5	2012	P	P
<i>Muscardinus avellanarius</i>	hazel dormouse	EPS(Sch2), WCA5	2017	P	P
<i>Pipistrellus nathusii</i>	Nathusius's pipistrelle	EPS(Sch2), WCA5	2009	P	P
<i>Pipistrellus pipistrellus</i>	common pipistrelle	EPS(Sch2), WCA5	2016	P	P
Reptiles					
<i>Anguis fragilis</i>	slow-worm	WCA5, S41	2014		☒
<i>Natrix helvetica</i>	grass snake	WCA5, S41	2017		☒
<i>Vipera berus</i>	adder	WCA5, S41	2009		☒

Note - P relates to records with 4 figure or tetrad grid references that could potentially be anywhere within a 1 km or 2 km square.

- 3.1.12 Given the habitats recorded the majority of bird species are considered unlikely to be present as breeding species except perhaps peregrine on the coastal cliffs. Velvet scoter and red throated diver may occur offshore during the winter months and purple sandpiper may forage on the rocky shore during the winter. Osprey and red kite are likely to be passage migrants or occasional vagrants.
- 3.1.13 Swallowtail butterflies recorded on the Isle of Wight will belong to the continental subspecies *Papilio machaon* ssp. *gorganus* as opposed to the native ssp. *britannicus* which is restricted to the Norfolk Broads. These invertebrates are rare migrants.
- 3.1.14 Other protected species with local records – bats, dormice and reptiles – will be dealt with in a separate report.

3.2 UK HAB Habitat Survey

- 3.2.1 The survey identified seven broad habitat types present; grassland, woodland, scrub (including hedgerows), urban, sparsely vegetated land, rivers and lakes and transitional waters. In some cases, these could be divided further into multiple sub-categories. For instance, 4 scrub sub-categories were found within the survey area:

native hedgerows, other hedgerows, Blackthorn scrub and mixed scrub. Secondary

Plate 1 – The site from a vantage point to the northeast, showing Flowers Brook Park (l) and caravan site (r), with Castle Cove and the western area of woodland in the background.



codes were then attached to each habitat area in order to supply further detail on its important features.

- 3.2.2 A summary of the habitats present is given in *Table 6* below, while *Table 7* explains secondary codes used in the survey. Figure 2 presented at the end of this report shows the UK Habitat types identified.

Table 6: Habitats present, with secondary codes and condition assessments

Broad habitat	Subdivision	UKHab code	Secondary codes	Condition assessment
Grassland	Modified grassland	g4	16 17 66 86 196	moderate
Scrub	Hedgerow (priority habitat)	h2a	16 69	good
	Other hedgerows	h2b	69	moderate

	Blackthorn scrub	h3a6	16	fairly good
	Mixed scrub	h3h	16	good
Woodland	Other lowland mixed deciduous woodland	w1f7	10 12 16 37 57 86	moderate
	Line of trees	w1g6	16 68	moderate
Urban	Buildings	u1b5		poor
	Artificial unvegetated; unsealed surface	u1c	17	poor
	Built linear features	u1e*		poor
Sparsely vegetated land	Soft rock sea cliffs	s2a6	10 16 17 86 138 151	good
Rivers and lakes	Other rivers and streams	r2b	16 40 47 86 142 154 157 165	n/a
Transitional waters	Intertidal underboulder communities	t1c	86 138	good

Table 7: Explanations of UK Hab secondary codes used in the survey

Secondary code	Definition
10	Scattered scrub: Used for non-woodland habitats that contain small areas of scattered scrub.
12	Scattered Bracken: Habitats with Bracken (<i>Pteridium aquilinum</i>) at <95% cover within the field layer.
16	Tall herb: Used to denote the presence of stands of tall perennial herbs such as Common Nettle (<i>Urtica dioica</i>) and Rosebay Willowherb (<i>Chamaenerion angustifolium</i>).
17	Ruderal/ephemeral: Ruderal and ephemeral plants are adapted to grow in areas of heavy disturbance and/or stress such as footpath edges, and are typically small and fast-growing, completing their life cycle quickly in order to better survive adverse conditions.

Secondary code	Definition
37	Semi-natural woodland: Woodland composed of trees which have arisen naturally, without human interference.
40	Freshwater – heavily modified: A watercourse modified by river-engineering work. In this case referring to the landscaping of Flowers Brook.
47	Native: Composed predominantly of species which are within their natural distribution.
57	Young trees – self-set: Areas containing tree seedlings or saplings of natural regeneration origin.
66	Frequently mown: Frequent mechanized cutting of grass as practiced in Flowers Brook Park and the adjacent caravan park.
68	Mortared wall: An upright construction of stone, bricks or masonry with mortar.
69	Fence: A linear barrier usually comprising wire with wooden or metal posts.
86	Accessible natural greenspace: Greenspace that is accessible to the public at all times.
138	Saline influence: A habitat close to the sea showing some effects of saltwater or spray, with vegetation including halophytic species.
142	Base-rich water: water with relatively high levels of dissolved calcium and magnesium.
151	Landslips: An area of active or recent soil movement down a slope.
154	Open grown trees: Trees that have grown with little or no competition from neighbouring trees, developing a full crown.
157	Shallow pools: An area of slow current within a faster current of freshwater, of modest depth.
165	Waterfall: A cascade of water falling from a height.
196	Caravan park: A site used for permanent or touring caravans.

3.2.3 **Grassland - modified grassland (g4)**

3.2.4 The main areas of grassland found within the survey areas are modified for amenity use by regular mowing, and subject to moderate disturbance by trampling. In the

case of the caravan park, many areas are subject to compaction and shading from vehicles, while the grassland at Flowers Brook Park experiences nutrient enrichment from the many dogs that are exercised within the grounds.

- 3.2.5 There is a small area of sown grassland at the Southern Water pumping station with a secluded aspect which makes it attractive to rabbits, who keep the sward grazed to a low level, allowing broadleaved herbs to flourish. Rosette-forming herbs are particularly prominent here, including some plants of Bee Orchid (*Ophrys apifera*). Grasses are sparsely-distributed and confined to a few common species: Perennial Rye-grass (*Lolium perenne*), Red Fescue (*Festuca rubra*) and Cock's-foot (*Dactylis glomerata*) and rare tussocks of Spring-sedge (*Carex caryophyllea*). Low-growing broadleaved herbs make up the bulk of the vegetation, including abundant Musk Stork's-bill (*Erodium moschatum*) and Spotted Medick (*Medicago arabica*), with plants of Creeping Cinquefoil (*Potentilla reptans*) and Field Madder (*Sherardia arvensis*) fewer in number.

Plate 2 – Modified grassland at the Southern Water Pumping House (TN13)



- 3.2.6 Flowers Brook Park has a slightly higher sward with a greater dominance of grass species; principally Perennial Rye-grass, with Yorkshire-fog (*Holcus lanatus*), Annual Meadow-grass (*Poa annua*), Cock's-foot, Red Fescue and some Early Meadow-grass (*Poa infirma*) on the edges of footpaths. Plants characteristic of grassland in amenity situations are common here, including Daisy (*Bellis perennis*), Dandelion (*Taraxacum officinale* agg.) and White Clover (*Trifolium repens*), given a coastal twist by the frequent presence of Lesser Chickweed (*Stellaria pallida*) in large, straggling mats. Marginal areas have frequent tall herbs such as Alexanders (*Smyrniololus satrum*), Spear Thistle (*Cirsium vulgare*) and Sea Beet (*Beta vulgaris* ssp. *maritima*), while open areas near the clifftop have Chalk Knapweed (*Centaurea nigra*), Greater Knapweed (*Centaurea scabiosa*), Kidney Vetch (*Anthyllis vulneraria*), Lady's Bedstraw (*Galium verum*) and a small amount of Meadow Scabious (*Knautia arvensis*).

Plate 3 – Grassland at Flowers Brook Park, with the stream to the left



- 3.2.7 The areas within the caravan park are the least diverse of the grasslands surveyed. The sward is dominated by False Oat-grass (*Arrhenatherum elatius*), some Red Fescue, and a few plants of Cut-leaved Crane's-bill (*Geranium dissectum*). Eastern margins have abundant tall herbs, principally Nettle (*Urtica dioica*) and Broadleaved Dock (*Rumex obtusifolius*), while garden areas have a range of ornamental plantings.
- 3.2.8 **Hedgerow and scrub - hedgerow (priority habitat) (h2a)**
- 3.2.9 This is a short length of neglected hedge parallel to a fence, outgrown in places and gappy in others. It is comprised of native species and probably of planted origin given the even species composition. Species present include Hazel (*Corylus avellana*), Blackthorn (*Prunus spinosa*) and Wild Privet (*Ligustrum vulgare*), with

tangles of Bramble (*Rubus fruticosus* agg.) and Honeysuckle (*Lonicera periclymenum*) below.

3.2.10 Hedgerow and scrub - other hedgerows (h2b)

3.2.11 Thick monocultural hedges of New Zealand Broadleaf (*Griselinia littoralis*) are used within the caravan park to partition areas (TN13).

3.2.12 The southern tip of the caravan park land has a u-shaped hedge (broken by a gate) comprised mainly of non-native species including Evergreen Spindle (*Euonymus japonicus*), Escallonia (*Escallonia macrantha*) and Strawberry-tree (*Arbutus unedo*), with some Blackthorn and Wild Privet.

3.2.13 Hedgerow and scrub - Blackthorn scrub (h3a6)

3.2.14 Some clifftop areas of scrub are dominated by wind-pruned Blackthorn, growing with Bramble and Wild Privet in a dense and sculpted tangle. Salt-tolerant tall herbs and scramblers such as Alexanders, Wild Madder (*Rubia peregrina*) and Sea Radish (*Raphanus raphanistrum* ssp. *maritimus*) are common on the margins.

3.2.15 Hedgerow and scrub - mixed scrub (h3h)

3.2.16 Other areas of clifftop scrub are more diverse than the Blackthorn scrub described above. The species listed previously are all present in this habitat, plus shrubs and saplings of Hawthorn (*Crataegus monogyna*) and Ash (*Fraxinus excelsior*), with the climbers Honeysuckle and Traveller's-joy (*Clematis vitalba*).

Plate 4 – a mosaic of low scrub with a characteristic marginal belt of Alexanders on the path to Castle Cove



3.2.17 Woodland – other lowland mixed deciduous woodland (w1f7)

3.2.18 The 2 areas of woodland surveyed were largely similar but differed in condition. In both woodlands the canopy species were Ash and Sycamore (*Acer pseudoplatanus*).

- 3.2.19 The northern strip alongside Steephill Road contains abundant regenerating Ash saplings in various stages of succumbing to Ash Dieback (*Hymenoscyphus fraxineus*), with Elder (*Sambucus nigra*), Common Elm (*Ulmus procera*) Butterfly-bush (*Buddleja davidii*) and saplings of Sycamore and Holm Oak (*Quercus ilex*) also present in the shrub layer. The field layer is notable for the number of non-native species present, with Three-cornered Garlic (*Allium triquetrum*), Montbretia

Plate 5 – Woodland adjacent to the Southern Water pumping station, with Ash regeneration and Green Alkanet



- 3.2.20 The southwestern area of woodland is more open in character and the shrub layer is principally comprised of Wild Privet, with a small clump of Wilson's Honeysuckle (*Lonicera nitida*). Ivy (*Hedera helix*) forms a thick carpet, with some *Pteridium aquilinum* (Bracken) (*Pteridium aquilinum*), and on steep banks, Primrose (*Primula vulgaris*), and Hart's-tongue fern (*Asplenium scolopendrium*).
- 3.2.21 **Urban – various habitats (u1b5/u1c/u1e)**
- 3.2.22 These habitats consist of buildings, gravel drives and built linear features such as roads and footpaths. Their biodiversity value is minimal, with only occasional ephemeral plants such as Hairy Bitter-cress (*Cardamine hirsuta*) and Early Meadow-grass (*Poa infirma*) present.
- 3.2.23 **Sparsely vegetated land – soft rock sea cliffs (s2a6)**
- 3.2.24 The mudstone cliffs on the southern land border of the survey area are friable and prone to landslips. The vegetation communities arising here have a pronounced maritime influence and consist of early successional species with some patches of Blackthorn and Wild Privet scrub. Tall herbs such as Rock Samphire (*Crithmum maritimum*), Red Valerian (*Centranthus ruber*) Sea Beet and Sea Radish form patches on steeper ground, while where landslips have settled, low, mildly

calcareous communities arise, with Kidney Vetch (*Anthyllis vulneraria*) and Wild Marjoram (*Origanum vulgare*). There are also many areas of bare rock.

- 3.2.25 Common lizard (*Zootoca vivipara*), rabbits (*Oryctolagus cuniculus*) and Wheatear (*Oenanthe oenanthe*) were seen during survey of the cliffs.

Plate 6 – Vegetation communities on cliffs, looking east from Castle Cove



3.2.26 **Other developed land – u1b6**

- 3.2.27 These areas are composed of compacted skeletal soils on sand over gravel, giving rise to a vegetation community characterized by a loose collection of rosette-forming perennials and halophytes. Grass cover is low, with only Common Couch (*Elymus repens*), Cock's-foot, Red Fescue and Fern-grass (*Catapodium rigidum*) present, and the sward is patchy and varied. Rosette-forming broadleaved herbs include Dandelion (*Taraxacum officinale* agg.), Daisy (*Bellis perennis*), Lesser Hawkbit (*Leontodon saxatilis*), Bee Orchid (*Ophrys apifera*) and Cat's-ear (*Hypochaeris radicata*), while salt-tolerant species include Rock Samphire and Buck's-horn Plantain (*Plantago coronopus*). This area grades into scrub to the east and is probably only kept from full succession by the stoniness of the substrate and trampling – it is a popular resting point on the footpath between Ventnor and Steephill Cove.

Plate 7 – Castle Cove: small areas of stony dune grassland in the foreground with scrub and stone walls in gabion cages on the slope up to Flowers Brook Park.



3.2.28 Rivers and Lakes – other rivers and streams (r2b)

3.2.29 Flowers Brook emerges from a culvert at the northern tip of Flowers Brook Park and is joined by a waterfall from the east. It is a shallow stream with little aquatic vegetation except for the bryophytes St Winifrid's Moss (*Chiloscyphus polyanthos*) and Fern-leaved Hook-moss (*Cratoneuron filicinum*), which has deposited tufa in some places. Marginal vegetation communities are quite varied, with Pendulous Sedge (*Carex pendula*), Water Figwort (*Scrophularia auriculata*), Fool's Water-cress (*Apium nodiflorum*) and Mind-your-own-business (*Soleirolia soleirolii*). A veteran specimen of native Black Poplar (*Populus nigra* ssp. *betulifolia*) is present on the brook edge. The brook widens into a pond just outside the survey area, with some marginal ornamental planting including Giant-rhubarb (*Gunnera tinctoria*) and Russian-vine (*Fallopia baldschuanica*), before running over the cliff where it forms an informal reedbed flush of Common Reed (*Phragmites australis*).

3.2.30 Transitional Waters – intertidal underboulder communities (t1c)

3.2.31 A tidal platform forming a band along the undercliff, extending along Castle Cove. Vegetation is limited to seaweeds, including Bladder Wrack (*Fucus vesiculosus*), Gut-weed (*Ulva intestinalis*) and Purple Laver (*Porphyra umbilicalis*).

Plate 8 – Flowers Brook: view to the culvert at the north entrance of Flowers Brook Park



3.2.33 Invasive non-native species

3.2.34 Five invasive non-native plant species listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) were recorded during the survey. Montbretia (*Crocsmia × crocosmiiflora*) is common over a range of habitats including grassland, woodland and scrub margins and the sides of Flowers Brook. Three-cornered Garlic (*Allium triquetrum*) is limited to the northern belt of woodland. A single plant of a small-leaved *Cotoneaster* species is part of a planted hedgerow within the caravan site but was lacking features necessary for definitive identification (flowers or berries) at the time of the survey.

3.2.35 Hottentot Fig (*Carpobrotus edulis*) and Purple Dewplant (*Disphyma crassifolium*) were found in grassland west of Castle Cove, outside of the red line boundary but within a 30 m buffer.

3.3 Phase 2 Vegetation Assessment

3.3.1 Systematic Search

3.3.2 Early Gentian (*Gentianella amarella* ssp. *anglica*) was not found during a search of likely habitats on 7 May 2021.

3.3.3 The grassland at Flowers Brook Park becomes more diverse towards the cliff edge and in the scrubby area in the southwestern corner. The dominant grass in these areas is Red Fescue, which makes for a very dense sward, kept relatively low (c. 5 cm) by the mowing regime. This is a small area, and it is unlikely that the systematic search would have missed the target species had it been present.

3.3.4 A mosaic of vegetation is present on the cliffs and large areas are inaccessible – these were surveyed by binoculars from the base of the cliffs, and from Flowers Brook Park. Areas of dense Privet and Blackthorn scrub were discounted as being too shaded for the target species, and expanses of bare rock and skeletal soils were considered too exposed. Two small areas were identified where soils have

developed in the wake of past landslips. The westernmost of these areas, at SZ55337697 is rabbit-grazed, with a vegetation community where the maritime influence is minimized by the nearby line of boulders that form a belt of coastal protection. While this area was considered a possible location for the target species, its isolated position makes it unlikely.

- 3.3.5 To the east is another small area at SZ55397700 where the maritime influence is apparently greater, as the sward is dominated by large halophytic species. This area was considered suboptimal for the target species.
- 3.3.6 The grassland to the west of Castle Cove lies outside of the red line boundary but within the 30 m buffer. It is an open and varied sward dominated by c. 20 cm high tufts of False-brome (*Brachypodium sylvaticum*). With a calcareous influence, an open sward, free-draining soils and a sunny position, this area was considered to contain many of the conditions favored by the target species. The height and complexity of the vegetation here made a thorough search difficult, and it remained impossible to discount the presence of the target species in this area.
- 3.3.7 **Quadrat Recording**
- 3.3.8 Eight quadrats were taken: 5 in grassland west of Castle Cove, 2 on settled vegetation communities on the cliffs south of Flowers Brook Park, and 1 in clifftop vegetation within the park. Early Gentian was not found within these quadrats, but a related plant with a similar ecology, Yellow-wort (*Blackstonia perfoliata*), was found in the western grassland, raising the possibility that the target species could be present in that area. Detailed records for the 8 quadrats are given in Appendix C.

3.4 Protected Species

3.4.1 Badgers

- 3.4.2 Badger paths, snuffle holes and a single disused outlying sett were found during the survey. The records are clustered on the western side of the survey area, and the owner of the caravan park reported that she regularly sees badgers commuting south through her garden at dusk. Badger trails are concentrated on both sides of the fence on the southern margin of the caravan site property. In places the fencing wire had been distorted, and the steep soil bank below had become a slide in places. A single hole was found in the woodland, but this was closed off with Ivy and had no signs of recent usage. Badger paths continued south of the hole into the adjacent scrub but no other holes were seen.

4.0 EVALUATION

4.1 Designated sites

4.1.1 Statutory sites

- 4.1.2 With a limited scope of works, this development will have no impacts upon local sites designated for the purposes of nature conservation. The site lies within an Area of Outstanding Natural Beauty and care must be taken during the construction phase to restrict work to areas of amenity grassland and avoid areas of greater ecological importance (Flowers Brook and the clifftop). Thereafter, areas of grassland used for laydown should be restored to their previous state. Further discussion of planning implications within an AONB is outside the remit of this report.

4.2 Habitats

4.2.1 Value of habitats

- 4.2.2 The habitats within the survey area provide valuable ecological functions and increase connectivity within the wider landscape but are for the most part common. Two habitats – vegetated sea cliffs, and intertidal underboulder communities – have priority status, and care should be taken during construction to avoid any actions that might cause negative impacts to these areas. It is understood that current construction plans would not endanger these habitats.
- 4.2.3 Grassland areas are in most cases managed for amenity use and contain species tolerant of compaction and high nutrient inputs. Areas of higher diversity were found at Flowers Brook Park in a 20 m strip along the top of the cliff, and in the grassland west of Castle Cove. These areas should be protected from adverse impacts during the construction phase if possible.
- 4.2.4 Scrubby areas range from dense wind-pruned stands on the coastal margins to scrub of a more open character around the pumping station. All provide valuable nesting opportunities for birds and shelter for other animals.
- 4.2.5 The value of hedgerows lies in the linear connectivity they provide to the wider landscape, shelter for nesting birds, mammals, reptiles and invertebrates, and flower forage for invertebrates. On the caravan site hedgerows are characterized by a high proportion of non-native planting, somewhat lowering their value to native wildlife, particularly in the case of the central hedges of New Zealand Broadleaf. A hedgerow on the western edge of the pumping station is outgrown and gappy in places. Despite its poor condition, the value of it and connected hedgerows is considerably raised by their position as part of a line of shrubs and trees linking the northern and southern woodlands.
- 4.2.6 Woodland areas have a mix of height and age classes, although species composition is dominated by Sycamore and Ash. The northern belt has been badly affected by Ash dieback and has also become home to a number of invasive species of the suburban fringe, while the southern area is in better overall condition. Both provide valuable shelter and connectivity within the wider landscape.

- 4.2.7 The watercourse at Flowers Brook, although extensively modified and therefore not qualifying as priority habitat, is in good condition, supporting a wide range of species over its short length. This linear habitat provides good connectivity, home for obligate aquatic species, and drinking water for a range of species.
- 4.2.8 **Invasive non-native species on schedule 9 of the Wildlife and Countryside Act (1981)**
- 4.2.9 Three-cornered Garlic (*Allium triquetrum*) is a patch-forming woodland herb in the Onion family (Amaryllidaceae subfamily Alliioideae). It is commonly found on wooded verges on urban fringes, whether from the dumping of garden waste or as an intentional introduction. While it does set viable seed, its predominant means of colonisation is vegetative via division. While in southwestern UK it can invade valuable habitats, it prefers road verges and other waste places in most of the UK, making its ecological impact minimal.
- 4.2.10 Montbretia (*Crocodymia × crocosmiiflora*) is a patch-forming plant in the Lily family. Grown in gardens, it spreads rapidly, and most wild populations are the result of the dumping of garden waste. It rarely sets seed, spreading instead by vegetative division.
- 4.2.11 It was not possible to definitively identify the Cotoneaster bush found within hedging at Flowers Brook Caravan Park. It could possibly be the Schedule 9 species Entire-leaved Cotoneaster (*Cotoneaster integrifolius*) which is commonly used in hedging. It is not a breach of the current legislation to possess schedule 9 invasive species as ornamental plants on private land, but it is an offence to cause them to spread in the wild. Cotoneaster species can spread from bird-sown seed, but in this case no wild-sown plants were found.
- 4.2.12 Hottentot-fig (*Carpobrotus edulis*) and Purple Dewplant (*Disphyma crassifolium*) are salt-tolerant succulent mat-forming perennials in the Dewplant family (Aizoaceae). Both species were found in low numbers in grassland west of Castle Cove: from here they pose an invasion risk to cliff habitats to the east.
- 4.2.13 The abovementioned plants are Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). It is an offence to cause them to grow in the wild. Further guidance can be found online at: Guidance on section 14 of the Wildlife and Countryside Act, 1981. (Defra, 2010).

4.3 Protected species

- 4.3.1 **Badgers**
- 4.3.2 Signs were found of badger commuting, foraging and sett-building, and local testimony suggests an active population using the site. No active badger setts were found on site during the survey, but badgers may establish new main setts or outlier setts so the area should be checked for badger holes within 30 m of the works area prior to commencement of works. It is considered good practice to cover any excavations overnight to prevent mammals from becoming trapped. If it is not possible to cover excavations, an egress route should be provided to allow animals to climb out of excavations.

5.0 CONCLUSIONS

- 5.1.1 Priority habitats were identified at the coastal interface. It is recommended that works are avoided around the cliffs and foreshore. If this is not possible, further surveys are recommended, including:
- Breeding bird survey of cliffs.
 - Reptile survey of cliffs.
 - Vegetation survey of cliffs.
 - Foreshore survey by marine ecologist.
- 5.1.2 The presence of Early Gentian (*Gentianella amarella* ssp. *anglica*) cannot be discounted in the grassland west of Castle Cove. This area is outside the red line boundary of the proposed development, but care should be taken to avoid any unintended negative consequences on this grassland that might arise from nearby works.
- 5.1.3 Trenching work alongside the footpath to Castle Cove should be carried out outside of the bird nesting season (February to August inclusive) in order to avoid constraints arising from active bird nests. If this is impossible, work should be carried out under a watching brief from a qualified ecologist.
- 5.1.4 Works at Flowers Brook Park should avoid damage to clifftop and stream side habitats. Amenity grassland should be used for laydown wherever possible, using ground protection mats to avoid damage to turf.
- 5.1.5 Any further scrub and vegetation clearance should be carried out under a watching brief from a qualified ecologist to avoid potential harm to nesting birds and reptiles.
- 5.1.6 No action is currently required regarding invasive species. If a future scheme of works will involve the removal of plant material containing Schedule 9 species, this must be disposed of at an appropriately licensed landfill site. If EMEC undertake the management of an area in which these species are growing, the species in question should be eradicated by a trained professional.
- 5.1.7 Badgers are using the site and can open up new setts at short notice. The works area plus a 30 m buffer should be checked for badger holes prior to commencement of works. It is considered good practice to cover any excavations overnight to prevent mammals from becoming trapped. If it is not possible to cover excavations, an egress route should be provided to allow animals to climb out of excavations.

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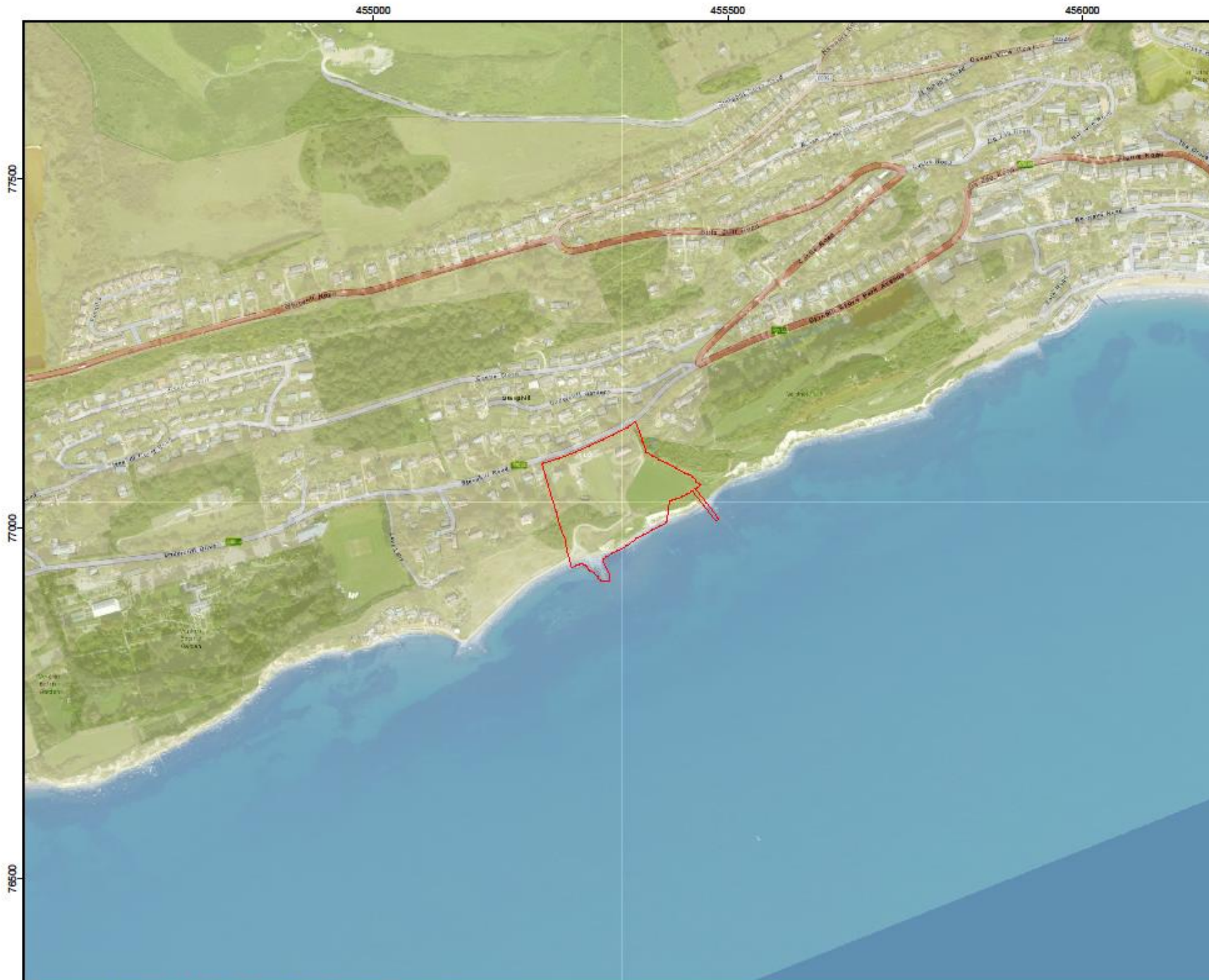
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FIGURES

- Figure 1 Site Location Plan
Figure 2 UK Hab Habitat Survey Map



Legend:
 Site Boundary



00	23/04/2021	2481829	GO	RG	PP
Rev	Date	Description	Des	Chk	App

PTEC Isle of Wight



TITLE Figure 1:
 Site Location Plan

0 70 140
 Metres
 SCALE: 1:5,000 @ A3



REV 00



- Legend:**
- Site Boundary
 - g4 - Modified Grassland
 - w1f7 - Other Lowland Mixed Deciduous Woodland
 - h3a6 - Blackthorn Scrub
 - h3h - Mixed Scrub
 - s2a5 - Vegetated Sea Cliffs
 - t1c - Intertidal Underboulder Communities
 - u1b - Developed Land - Sealed Surface
 - u1b5 - Building
 - u1b6 - Other Developed Land
 - u1c - Artificial Unvegetated Surface
 - h2a - Hedgerow Priority Habitat
 - h2b - Other Hedgerow
 - w1g6 - Line of Trees
 - r2b - Stream
 - u1e - Wall
 - Target Note



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PTEC Isle of Wight

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TITLE: Figure 2:

UK Habitat Survey

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 Metres
 SCALE: 1:1,000 @ A3



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APPENDIX A – TARGET NOTES

Target Note 1 – Lowland mixed deciduous woodland. A roadside belt of woodland in poor condition. Ash (*Fraxinus excelsior*) is the main constituent, ranging from some standards to thick stands of saplings afflicted with Ash dieback (*Hymenoscyphus fraxineus*). Sycamore (*Acer pseudoplatanus*) is also common in a range of age classes, while Holm Oak (*Quercus ilex*) occurs as rare seedlings, one standard to the west of the area, and some smaller trees immediately south of the pumping station. Along with saplings of the canopy species, the main understorey trees are Elder (*Sambucus nigra*), Common Elm (*Ulmus procera*) and Wild Privet (*Ligustrum vulgare*), with the occasional plant of Butterfly-bush (*Buddleja davidii*). The field layer in the deeper shade of the centre of the woodland consists of Ivy (*Hedera helix*) broken only by Daffodil (*Narcissus pseudonarcissus*) and Lords-and-Ladies (*Arum* species), while on the margin there is a belt of ruderal species including Green Alkanet (*Pentaglottis sempervirens*), Red Dead-nettle (*Lamium purpureum*), Creeping Thistle (*Cirsium arvense*) and Garlic Mustard (*Alliaria petiolata*), interspersed with lower growing plants including Three-cornered Garlic (*Allium triquetrum*) and Lesser Celandine (*Ficaria verna*).

Target Note 2 – Stream: a small stream issues from a culvert at the northern tip of Flowers Brook Field and is soon joined by a second from the northeast (outside of the red line boundary). These watercourses have a rich marginal flora including Alexanders (*Smyrniolololus satrum*), Hart's-tongue Fern (*Asplenium scolopendrium*) and Mind-your-own-Business (*Soleirolia soleirolia*) and are notable for the presence of a community of bryophytes characteristic of calcium-rich freshwater habitats, including St Winifrid's Moss (*Chiloscyphus polyanthos*), Endive Pella (*Pellaea endiviifolia*), Pale Glaucous Thread-moss (*Pohlia wahlenbergii*) and Fern-leaved Hook-moss (*Cratoneuron filicinum*). A couple of mature examples of Native Black Poplar (*Populus nigra* ssp. *betulifolia*) grow on the brook margins, one with a large colony of Minute Pouncewort (*Cololejeunea minutissima*). Montbretia (*Crocodymia x crocosmiiflora*), a plant on Schedule 9 of the Wildlife and Countryside Act (1981), also grows here.

Target Note 3 – Modified grassland: The single field of Flowers Brook park consists of a low c. 5 cm sward of modified grassland rich in common grass species such as Perennial Rye-grass (*Lolium perenne*), Annual Meadow-grass (*Poa annua*) and Yorkshire-fog (*Holcus lanatus*). Broadleaved species include large areas of Lesser Chickweed (*Stellaria pallida*), with lesser growths of Slender Speedwell (*Veronica filiformis*), Common Bird's-foot-trefoil (*Lotus corniculatus*) and Dove's-foot Crane's-bill (*Geranium molle*). A section of wall in the northwest is bordered by a suite of more robust species including some vigorous plants of Musk Stork's-bill (*Erodium moschatum*), Spotted Medick (*Medicago arabica*) and Sea Beet (*Beta vulgaris* ssp. *maritima*), while the edges of footpaths often have a straggling belt of the ephemeral grass Early Meadow-grass (*Poa infirma*).

Target Note 4 – Blackthorn scrub: patches of wind-pruned Blackthorn (*Prunus spinosa*) scrub can be found here, and further west, growing with small amounts of Wild Privet (*Ligustrum vulgare*), and Bramble (*Rubus fruticosus* agg.). Wild Madder (*Rubia peregrina*) is a constant constituent of this and other scrub communities in this area, scrambling over shrubs with such vigour that it sometimes deprives them of all light. Small clifftop clearings within the scrub have some open ground with a diverse bryophyte community including Curving Feather-moss (*Scorpiurum circinatum*) and Revolute Beard-moss (*Pseudocrossidium revolutum*).

Target Note 5 – Vegetated sea cliffs: east of Steephill cove the friable mudstone strata forms sloping, vegetated cliffs. These are protected from erosion by a line of dumped granite boulders, but are still apparently prone to regular subsidence. Trees and shrubs are absent, except for low-growing banks of wind-pruned Blackthorn and Wild Privet. Grasses too are mostly limited to occasional tussocks of Cock's-foot (*Dactylis glomerata*) and Red Fescue (*Festuca rubra*). A wide range of broadleaved herbs can be found however, with maritime plants such as Alexanders, Sea Radish (*Raphanus raphanistrum* ssp. *maritimus*), Red Valerian (*Centranthus ruber*) and Kidney Vetch (*Anthyllis vulneraria*) locally dominant. In places where old landslips have stabilised into stable ground, more complex communities of have developed with plants characteristic of weakly basic soils such as Wild marjoram (*Origanum vulgare*), Mouse-ear Hawkweed (*Pilosella officinarum*) and Lesser Hawkbit (*Leontodon saxatilis*) with a bryophyte flora including Variable Crisp-moss (*Trichostomum brachydontium*) and Common Aloe-moss (*Aloina aloides*). Common Lizards (*Zootoca vivipara*) were observed basking in three separate locations while rabbit holes were occasional in the soft earth of landslips.

Target Note 6 – Intertidal underboulder communities: a c. 30 m wide undercliff platform comprised of stones and boulders of a range of sizes, with a few patches of sandy sediment. Seaweeds found on the upper shore include Bladder Wrack (*Fucus vesiculosus*), Gut-weed (*Ulva intestinalis*) and Purple Laver (*Porphyra umbilicalis*).

Target Note 7 – Artificial unsealed surface: this habitat comprises 2 small areas on either side of the path to the slipway, with skeletal sandy soil in between ballast. The vegetation here tends to be patchy, with no dominant species, although the grasses Sea Couch (*Elymus atherica*) and Red Fescue (*Festuca rubra*) are frequent constituents. Halophyte species such as Sea Beet (*Beta vulgaris* ssp. *maritima*) and Rock Samphire (*Crithmum maritimum*) are common, but other plants here include Knotted Clover (*Trifolium striatum*), Bee Orchid (*Ophrys apifera*) and *Hypericum hirsutum* (Hairy St John's-wort).

Target Note 8 – Mixed scrub: a dense area of wind-pruned scrub, lacking the dominance of Blackthorn seen elsewhere (TN4). Wild Privet (*Ligustrum vulgare*) and Elder (*Sambucus nigra*) are common here, and often draped in Traveller's-joy (*Clematis vitalba*) and Wild Madger (*Rubia perigrina*). Smooth Sow-thistle (*Sonchus oleraceus*) is common on the pathsides.

Target Note 9 – Lowland mixed deciduous woodland: this area of woodland is floristically similar to that found on the northern belt (TN1), but is in markedly better condition, with fewer diseased trees and no encroachment from invasive species. Ash (*Fraxinus excelsior*) and Sycamore (*Acer pseudoplatanus*) are once again the co-dominant canopy species, and Wild Privet (*Ligustrum vulgare*) and Elder (*Sambucus nigra*) are common in the shrub layer, with a few plants of Wilson's Honeysuckle (*Lonicera nitida*) too. Bracken (*Pteridium aquilinum*) is common in the field layer but seldom so vigorous that it out-competes other growth. Other ground-level plants include Stinking Iris (*Iris foetidissima*), Hart's-tongue Fern (*Asplenium scolopendrium*) and Ivy (*Hedera helix*), which is dominant in places. A few epiphytic bryophytes are present including Dilated Scalewort (*Frullania dilatata*) and Wood Bristle-moss (*Orthotrichum affine*).

Target Note 10 – Badger hole: a single badger hole with no sign of recent entry was found here. This represents a disused outlying sett.

Target Note 11 – Badger paths: the property to the north is bordered by a lax and outgrown hedge with a wire fence, which banks down to a footpath through the woodland. Three broad and well-used badger paths cross this barrier, and in one case the shape of the wire fencing has clearly been distorted to fit a large mammal.

Target Note 12 – Line of trees: a line of mature standards grows on the border between 2 properties. These are mostly Beech (*Fagus sylvatica*), with one Horse Chestnut (*Aesculus hippocastanum*).

Target Note 13 – Hedgerow: a dense hedge of New Zealand Broadleaf (*Griselinia littoralis*) has been used to compartmentalise grassland areas within this caravan park.

Target Note 14 – Modified grassland: grassland areas within the caravan park are characterised by a medium-low c. 8 cm sward of False Oat-grass (*Arrhenatherum elatius*) and Red Fescue (*Festuca rubra*), broken in areas of high disturbance by some Early Meadow-grass (*Poa infirma*) and Ribwort Plantain (*Plantago lanceolata*). Few broadleaved species are found, but there are patches of Sweet Violet (*Viola odorata* var. *praecox*) and Cut-leaved Crane's-bill (*Geranium dissectum*). There are some marginal areas of ornamental planting, with species such as Spanish-dagger (*Yucca gloriosa*), Shrub Ragwort (*Brachyglottis* × *jubar*), Autumn Crocus (*Colchicum autumnale*) and Box (*Buxus sempervirens*).

Target Note 15 – Modified grassland: this small area within the relatively undisturbed enclave of the pumping station shows signs of intensive rabbit grazing. The sward is low (c. 3 cm) and broadleaved herbs, principally Musk Stork's-bill (*Erodium moschatum*) and Spotted Medick (*Medicago arabica*), outnumber the grasses Perennial Rye-grass (*Lolium perenne*), Annual Meadow-grass (*Poa annua*) and Cock's-foot (*Dactylis glomerata*). Rosette-forming species such as Ragwort (*Jacobaea vulgaris*), Weld (*Reseda luteola*) and Bee Orchid (*Ophrys apifera*) are occasional, as are wefts of the mosses Common Feather-moss (*Kindbergia praelonga*) and Rough-stalked Feather-moss (*Brachythecium rutabulum*).

Target Note 16 – Mixed scrub: this area of dense scrub probably represents an outgrown hedgerow. It consists of native species such as Hawthorn (*Crataegus monogyna*), Hazel (*Corylus avellana*), Grey Willow (*Salix cinerea*), Honeysuckle (*Lonicera periclymenum*) and Bramble (*Rubus fruticosus* agg.), bordered by ruderals such as Alexanders (*Smyrniolus olusatrum*) and Spear Thistle (*Cirsium vulgare*).

Target Note 17 – Line of trees: a line of young Sycamores (*Acer pseudoplatanus*) bordered to the northwest by a band of tall ruderals including Nettle (*Urtica dioica*), Bristly Ox-tongue (*Helminthotheca echioides*) and Broad-leaved Dock (*Rumex obtusifolius*).

Target Note 18 – Hedgerow: this area of hedgerow is comprised of non-native species including Escallonia (*Escallonia macrantha*), Strawberry-tree (*Arbutus unedo*) and Evergreen Spindle (*Euonymus japonicus*).

APPENDIX B – PLANT SPECIES LIST

Table A1 – species list of plants found within the survey area

Name	Grassland	Woodland/Scrub/Herbaceous	Cliffs
Woody Species			
<i>Acer pseudoplatanus</i> (Sycamore)		X	
<i>Aesculus hippocastanum</i> (Horse-Chestnut)		X	
<i>Arbutus undedo</i> (Strawberry Tree)		X	
<i>Buddleja davidii</i> (Butterfly Bush)		X	
<i>Buxus sempervirens</i> (Box)		X	
<i>Cordyline australis</i> (Cabbage Palm)		X	
<i>Corylus avellana</i> (Hazel)		X	
<i>Crataegus</i> spp. (Hawthorns sp.)		X	X
<i>Erica</i> spp. (Heather sp.)	X	X	
<i>Escallonia rubra</i> var. <i>macrantha</i> (Escallonia)		X	
<i>Euonymus japonicus</i> (Evergreen Spindle)		X	
<i>Fagus sylvatica</i> (Beech)		X	
<i>Ficus carica</i> (Fig)		X	
<i>Fraxinus excelsior</i> (Ash)		X	
<i>Hedera helix</i> (Ivy)		X	X
<i>Helichrysum</i> spp.	X	X	
<i>Laurus nobilis</i> (Bay Laurel)		X	
<i>Leycesteria formosa</i> (Himalayan Honeysuckle)		X	
<i>Ligustrum vulgare</i> (Wild Privet)		X	X
<i>Lonicera periclymenum</i> (Honeysuckle)		X	
<i>Populus nigra</i> ssp. <i>betulifolia</i> (Native Black Poplar)		X	
<i>Prunus spinosa</i> (Blackthorn)		X	X
<i>Quercus ilex</i> (Evergreen Oak)	X	X	
<i>Rubus fruticosus</i> agg. (Bramble)		X	
<i>Rubus</i> c.f. <i>ulmifolius</i> (Elm-leaved Bramble)		X	X
<i>Sambucus nigra</i> (Elder)		X	X
<i>Ulmus procera</i> (English Elm)		X	
<i>Viburnum tinus</i> (Laurustinus)		X	
<i>Yucca gloriosa</i> (Spanish-Dagger)	X		
Herbaceous Species			
<i>Achillea millefolium</i> (Yarrow)	X		
<i>Agrimonia eupatoria</i> (Agrimony)		X	
<i>Allium triquetrum</i> (Three-cornered Garlic)	X	X	
<i>Anthriscus sylvestris</i> (Cow Parsley)	X		
<i>Alliaria petiolata</i> (Garlic Mustard)	X		
<i>Anthyllis vulneraria</i> (Kidney Vetch)			X
<i>Arum italicum</i> (Italian Lords-and-Ladies)		X	
<i>Arum maculatum</i> (Lords-and-Ladies)	X	X	
<i>Allium nigrum</i> (Black Garlic)	X		
<i>Aphanes arvensis</i> (Parsley-piert)	X		
<i>Apium nodiflorum</i> (Fool's Water-cress)	X		

<i>Arctium minus</i> (Lesser Burdock)		X	
<i>Beta vulgaris</i> ssp. <i>maritima</i> (Sea Beet)	X		X
<i>Bellis perennis</i> (Common Daisy)	X		X
<i>Blackstonia perfoliata</i> (Yellow-wort)	X		
<i>Brachypodium sylvaticum</i> (False Brome)	X	X	X
<i>Caltha palustris</i> (Marsh-marigold)	X	X	
<i>Cardamine flexuosa</i> (Wavy Bitter-cress)	X		
<i>Cardamine hirsuta</i> (Hairy Bitter-cress)			
<i>Carex pendula</i> (Pendulous Sedge)		X	
<i>Carex flacca</i> (Glaucous Sedge)	X		
<i>Carex caryophyllea</i> (Spring Sedge)	X		
<i>Carpobrotus edulis</i> (Hottentot-fig)			
<i>Catapodium rigidum</i> (Fern-grass)	X		X
<i>Centaurea debauxii</i> (Chalk Knapweed)	X		
<i>Centaurea scabiosa</i> (Greater Knapweed)	X		
<i>Centaureum erythraea</i> (Common Centaury)	X	X	
<i>Cerastium tomentosum</i> (Snow-in-summer)	X		
<i>Cerastium fontanum</i> (Common Mouse-ear)	X		
<i>Cerastium glomeratum</i> (Sticky Mouse-ear)	X		
<i>Centranthus ruber</i> (Red Valerian)	X		X
<i>Cirsium vulgare</i> (Spear Thistle)	X		
<i>Cochlearia danica</i> (Danish Scurvygrass)	X		
<i>Convolvulus arvensis</i> (Field Bindweed)	X		
<i>Coronopus didymus</i> (Lesser Swine-cress)	X		
<i>Crithmum maritimum</i> (Rock Samphire)	X		X
<i>Crocosmia</i> × <i>crocosmiiflora</i> (Montbretia)	X		
<i>Dactylis glomerata</i> (Cock's-foot)	X	X	X
<i>Daucus carota</i> ssp. <i>gummifer</i> (Sea Carrot)	X		X
<i>Dipsacus fullonum</i> (Wild Teasel)	X		X
<i>Disphyma crassifolium</i> (Purple Dewplant)			
<i>Echium pininana</i> (Giant Viper's-bugloss)	X	X	
<i>Epilobium hirsutum</i> (Great Willowherb)	X		
<i>Elymus athericus</i> (Sea Couch)	X		
<i>Elytrigia repens</i> (Common Couch)	X		
<i>Euphorbia amygdaloides</i> ssp. <i>amygdaloides</i> (Wood Spurge)	X		
<i>Eupatorium cannabinum</i> (Hemp-agrimony)	X		
<i>Fallopia baldschuanica</i> (Russian-vine)	X		
<i>Festuca rubra</i> (Red Fescue)	X		X
<i>Ficaria verna</i> (Lesser Celandine)	X	X	
<i>Fumaria capreolata</i> (White Ramping-fumitory)		X	
<i>Galium album</i> (Hedge Bedstraw)	X	X	
<i>Galium aparine</i> (Cleavers)	X		
<i>Galium verum</i> (Lady's Bedstraw)	X		
<i>Galanthus nivalis</i> (Snowdrop)	X	X	
<i>Geranium molle</i> (Dove's-foot Crane's-bill)	X		
<i>Geranium robertianum</i> (Herb-Robert)	X	X	
<i>Geranium rotundifolium</i> (Round-leaved Geranium)	X		

<i>Gladiolus communis</i> ssp. <i>byzantinus</i> (Eastern Gladiolus)	X		
<i>Glechoma hederacea</i> (Ground-ivy)	X		
<i>Gunnera tinctoria</i> (Giant Rhubarb)	X		
<i>Gymnadenia</i> sp. (a Fragrant Orchid)	X		
<i>Helminthotheca echioides</i> (Bristly Oxtongue)	X		
<i>Heracleum sphondylium</i> (Hogweed)	X	X	
<i>Humulus lupulus</i> (Hop)		X	
<i>Hypericum hircinum</i> (Stinking Tutsan)			
<i>Hypericum maculatum</i> (Imperforate St John's-wort)			
<i>Hypochaeris radicata</i> (Cat's-ear)	X		
<i>Hyacinthoides hispanica</i> (Spanish Bluebell)	X	X	
<i>Hyacinthoides</i> × <i>massartiana</i> (Hybrid Bluebell)			
<i>Hyacinthoides non-scripta</i> (Bluebell)			
<i>Inula conyzae</i> (Ploughman's-spikenard)	X		
<i>Iris foetidissima</i> (Stinking Iris)	X	X	X
<i>Iris pseudacorus</i> (Yellow Iris)	X	X	
<i>Juncus inflexus</i> (Hard Rush)	X		
<i>Jacobaea erucifolius</i> (Hoary Ragwort)	X		X
<i>Jacobaea vulgaris</i> (Common Ragwort)	X		
<i>Knautia arvensis</i> (Field Scabious)	X		
<i>Lapsana communis</i> (Nipplewort)	X		
<i>Lathyrus pratensis</i> (Meadow Vetchling)	X		
<i>Lamium purpureum</i> (Red Dead-Nettle)	X		
<i>Leontodon saxatilis</i> (Lesser Hawkbit)	X		X
<i>Leucojum vernum</i> (Spring Snowflake)	X	X	
<i>Leucanthemum vulgare</i> (Oxeye Daisy)	X		
<i>Lolium perenne</i> (Perennial Rye-grass)	X		
<i>Lotus corniculatus</i> (Common Bird's-foot-trefoil)			X
<i>Malva sylvestris</i> (Common Mallow)		X	
<i>Matthiola sinuata</i> (Sea Stock)			X
<i>Medicago arabica</i> (Spotted Medick)	X		
<i>Medicago lupulina</i> (Black Medick)	X		X
<i>Mercurialis annua</i> (Annual Mercury)		X	
<i>Myosotis sylvatica</i> (Wood Forget-me-not)		X	
<i>Narcissus pseudonarcissus</i> (Wild Daffodil)	X	X	
<i>Ononis repens</i> (Common Restharrow)	X		X
<i>Origanum vulgare</i> (Wild Marjoram)	X		X
<i>Ophrys apifera</i> (Bee Orchid)	X		
<i>Parietaria judaica</i> (Pellitory-of-the-Wall)	X		
<i>Pentaglottis sempervirens</i> (Green Alkanet)	X	X	
<i>Phleum pratense</i> (Timothy)	X		
<i>Phragmites australis</i> (Common Reed)	X		
<i>Pilosella officinarum</i> (Mouse-ear-hawkweed)	X		
<i>Plantago coronopus</i> (Buck's-horn Plantain)	X		X
<i>Plantago lanceolata</i> (Ribwort Plantain)	X		X
<i>Plantago media</i> (Hoary Plantain)	X		
<i>Poa annua</i> (Annual Meadow-Grass)	X		

<i>Polypodium vulgare</i> (Common Polypody)		X	
<i>Potentilla reptans</i> (Creeping Cinquefoil)	X		
<i>Primula vulgaris</i> (Primrose)	X	X	
<i>Prunella vulgaris</i> (Selfheal)	X		X
<i>Ranunculus bulbosus</i> (Bulbous Buttercup)	X		
<i>Ranunculus repens</i> (Creeping Buttercup)	X		
<i>Raphanus raphanistrum</i> ssp. (Wild Radish)	X		
<i>Reseda luteola</i> (Weld)	X		
<i>Rhinanthus minor</i> (Yellow-rattle)	X		
<i>Rubia peregrina</i> (Wild Madder)	X	X	X
<i>Rumex obtusifolius</i> (Broad-leaved Dock)	X		
<i>Rumex crispus</i> (Curled Dock)	X		
<i>Rumex sanguineus</i> (Wood Dock)	X	X	
<i>Sagina procumbens</i> (Procumbent Pearlwort)	X		
<i>Schedonorus arundinaceus</i> (Tall Fescue)			X
<i>Scrophularia auriculata</i> (Water Figwort)		X	
<i>Scrophularia scorodonia</i> (Balm-leaved Figwort)		X	X
<i>Sedum praealtum</i> (Greater Mexican-stonecrop)	X		
<i>Senecio erucifolius</i> (Hoary Ragwort)	X		X
<i>Senecio vulgaris</i> (Groundsel)	X		
<i>Smyrniolum olusatrum</i> (Alexanders)	X	X	
<i>Soleirolia soleiroliae</i> (Mind-your-own-business)	X		
<i>Sonchus asper</i> (Prickly Sow-thistle)	X	X	
<i>Sonchus oleraceus</i> (Smooth Sow-Thistle)	X	X	X
<i>Stachys sylvatica</i> (Hedge Woundwort)	X	X	
<i>Stellaria pallida</i> (Lesser Chickweed)	X		
<i>Tamus communis</i> (Black Bryony)		X	
<i>Tanacetum vulgare</i> (Tansy)	X		
<i>Taraxacum</i> sect. <i>Ruderalia</i> (Dandelion)	X		
<i>Torilis nodosa</i> (Knotted Hedge-parsley)	X		
<i>Trifolium pratense</i> (Red Clover)	X		
<i>Trifolium repens</i> (White Clover)	X		
<i>Urtica dioica</i> (Common Nettle)	X	X	
<i>Vinca major</i> (Greater Periwinkle)		X	
<i>Viola odorata</i> (Sweet Violet)	X		
<i>Valerianella</i> sp. (a Cornsalad)	X		
<i>Veronica arvensis</i> (Wall Speedwell)	X		
<i>Veronica persica</i> (Common Field-speedwell)	X		
<i>Veronica hederifolia</i> (Ivy-leaved Speedwell)	X		
<i>Veronica filiformis</i> (Slender Speedwell)	X		
<i>Vicia sativa</i> ssp. <i>nigra</i> (Common Vetch)			
Bryophytes			
<i>Chiloscyphus polyanthos</i> (St Winifrid's Moss)		X	
<i>Conocephalum conicum</i> (Great Scented Liverwort)		X	
<i>Dicranella heteromalla</i> (Silky Forklet-moss)	X	X	
<i>Orthotrichum affine</i> (Wood Bristle-moss)		X	
<i>Pohlia wahlenbergii</i> (Pale Glaucous Thread-moss)			
<i>Scorpiurum circinatum</i> (Curving Feather-moss)	X		

APPENDIX C – QUADRAT RECORDS

Species abundance is expressed using the Domin scale as follows:

Cover	Domin value
91-100%	10
76-90%	9
51-75%	8
34-50%	7
26-33%	6
11-25%	5
4-10%	4
<4% - many individuals	3
<4% - several individuals	2
<4% - few individuals	1

Table A2 - Quadrats 1-5: Grassland west of Castle Cove

Species	Quadrats				
	1	2	3	4	5
<i>Acer pseudoplatanus</i> (Sycamore)	-	-	-	1	-
<i>Achillea millefolium</i> (Yarrow)	-	-	-	2	2
<i>Agrimonia eupatoria</i>	1	-	-	-	-
<i>Arrhenatherum elatius</i>	1	1	1	2	2
<i>Blackstonia perfoliata</i> (Yellow-wort)	-	-	-	1	-
<i>Brachypodium sylvaticum</i>	7	9	7	8	8
<i>Carex flacca</i>	6	3	-	1	5
<i>Crataegus monogyna</i>	-	-	1	-	-
<i>Crocsmia</i> × <i>crocsmiiflora</i>	-	-	2	-	-
<i>Dipsacus fullonum</i>	1	1	-	-	-
<i>Euphorbia amygdaloides</i> ssp. <i>amygdaloides</i> (Wood Spurge)	-	-	-	-	4
<i>Galium album</i> (Hedge Bedstraw)	-	-	-	-	2
<i>Gladiolus communis</i> ssp. <i>byzantinus</i> (Eastern Gladiolus)	-	-	-	2	1
<i>Glechoma hederacea</i> (Ground-ivy)	-	-	-	1	6
<i>Helminthotheca echioides</i>	-	1	1	-	1
<i>Hypochaeris radicata</i>	1	-	-	-	-
<i>Iris foetidissima</i>	-	-	4	-	-
<i>Jacobaea erucifolia</i>	1	-	1	-	-
<i>Jacobaea vulgaris</i>	1	-	-	-	-
<i>Leucanthemum vulgare</i>	4	3	4	4	-
<i>Lotus corniculatus</i>	6	1	-	1	5
<i>Origanum vulgare</i> (Wild Marjoram)	-	-	-	1	-
<i>Plantago lanceolata</i> (Ribwort Plantain)	-	-	-	-	1
<i>Potentilla reptans</i>	-	1	2	-	-
<i>Rubia peregrina</i>	-	1	-	-	-
<i>Rubus</i> cf. <i>ulmifolius</i>	-	1	-	-	-
<i>Rumex crispus</i>	-	-	1	-	-
<i>Schedonorus arundinaceus</i> (Tall Fescue)	-	-	-	1	-

<i>Senecio erucifolius</i> (Hoary Ragwort)	-	-	-	1	-
<i>Sonchus asper</i>	-	-	2	-	-
<i>Sonchus oleraceus</i>	1	-	-	-	-
<i>Vicia sativa</i> ssp. <i>nigra</i> (Common Vetch)	-	-	-	1	1
Bare ground	3	5	4	2	1
Other species in area (mostly in more open ground at foot of slope) – <i>Anisantha sterilis</i> , <i>Carpobrotus edulis</i> , <i>Catapodium maritimum</i> , <i>Disphyma crassifolium</i> , <i>Plantago coronopus</i>					

Table A3 – Quadrats 5-8: maritime cliffs and clifftop at Flowers Brook Park

Species	Quadrats		
	6	7	8
<i>Achillea millefolium</i> (Yarrow)	-	-	5
<i>Anthyllis vulneraria</i> (Kidney Vetch)	-	-	1
<i>Arrhenatherum elatius</i> (False Oat-grass)	-	-	3
<i>Bellis perennis</i> (Daisy)	2	-	3
<i>Brachypodium sylvaticum</i> (False Brome)	3	2	-
<i>Catapodium marinum</i> (Sea Fern-grass)	1	-	-
<i>Centaurea debeauxii</i> (Chalk knapweed)	-	-	2
<i>Centaurea scabiosa</i> (Greater Knapweed)	-	-	1
<i>Centranthus ruber</i> (Red Valerian)	1	-	-
<i>Cirsium vulgare</i> (Spear Thistle)	-	-	1
<i>Crithmum maritimum</i> (Rock Samphire)	-	4	-
<i>Dactylis glomerata</i> (Cock's-foot)	3	4	3
<i>Daucus carota</i> ssp. <i>gummifer</i> (Sea Carrot)	2	2	5
<i>Dipsacus fullonum</i> (Teasel)	1	-	-
<i>Festuca rubra</i> (Red Fescue)	-	4	9
<i>Galium verum</i> (Lady's Bedstraw)	-	-	3
<i>Geranium molle</i> (Dove's-foot Crane's-bill)	-	-	1
<i>Hedera helix</i> (Ivy)	1	1	-
<i>Holcus lanatus</i> (Yorkshire-fog)	-	-	2
<i>Hypochaeris radicata</i> (Cat's-ear)	-	-	1
<i>Inula conyzae</i> (Ploughman's-spikenard)	1	-	1
<i>Iris foetidissima</i> (Stinking Iris)	1	-	-
<i>Jacobaea erucifolius</i> (Hoary Ragwort)	-	2	-
<i>Leontodon saxatilis</i> (Lesser Hawkbit)	3	-	-
<i>Ligustrum vulgare</i> (Wild Privet)	8	-	-
<i>Lolium perenne</i> (Perennial Rye-grass)	-	-	1
<i>Lotus corniculatus</i> (Common Bird's-foot-trefoil)	2	-	-
<i>Medicago arabica</i> (Spotted Medick)	-	-	4
<i>Medicago lupulina</i> (Black Medick)	2	-	2
<i>Ononis repens</i> (Common Restharrow)	5	-	-
<i>Origanum vulgare</i> (Wild Marjoram)	4	-	-
<i>Phleum pratense</i> (Timothy)	-	-	2
<i>Pilosella officinarum</i> (Mouse-ear-hawkweed)	4	-	-
<i>Plantago lanceolata</i> (Ribwort Plantain)	2	6	5
<i>Poa pratensis</i> (Smooth Meadow-grass)	-	-	3
<i>Prunella vulgaris</i> (Selfheal)	1	-	-
<i>Ranunculus bulbosus</i> (Bulbous Buttercup)	-	-	4
<i>Rubia peregrina</i> (Wild Madder)	2	-	-
<i>Rumex acetosa</i> (Common Sorrel)	-	-	1
<i>Scrophularia scorodonia</i> (Balm-leaved Figwort)	3	-	-
<i>Smyrniolum olusatrum</i> (Alexanders)	-	5	4
<i>Sonchus oleraceus</i> (Smooth Sow-thistle)	1	1	-
<i>Trifolium pratense</i> (Red Clover)	-	-	4
Bare ground	1	3	-

APPENDIX D – NOTEWORTHY SPECIES RECORDS

Table A4 displays noteworthy species records that are located within 1 km of the site boundary. These species records were obtained from Isle of Wight Local Records Centre. The Latin and common names for species are given as well as their level of designation. A glossary defining abbreviations used in the table is given in Table A5, Appendix E. If a species is not included in the table below it does not necessarily mean the species is absent from the search area, but rather that data-holding organizations do not have records of it in these locations.

Table A4: Noteworthy species records within 1 km of the site boundary

Latin Name	Common name	Designation
Birds		
<i>Acanthis cabaret</i>	lesser redpoll	S41, Red
<i>Actitis hypoleucos</i>	common sandpiper	Amber, GB RDB(VU)
<i>Alauda arvensis</i>	skylark	S41, Red
<i>Anas platyrhynchos</i>	mallard	Amber
<i>Anthus pratensis</i>	meadow pipit	Amber
<i>Apus apus</i>	swift	Amber, GB RDB(EN)
<i>Asio flammeus</i>	short-eared owl	Amber, GB RDB(EN)
<i>Calidris alpina</i>	dunlin	Amber, GB RDB(EN), LBAP
<i>Calidris maritima</i>	purple sandpiper	WCA1.1, Amber, GB RDB(CR)
<i>Caprimulgus europaeus</i>	nightjar	S41, Amber
<i>Chroicocephalus ridibundus</i>	black-headed gull	Amber, GB RDB(VU)
<i>Cuculus canorus</i>	cuckoo	S41, Red, GB RDB(VU)
<i>Delichon urbicum</i>	house martin	Amber, GB RDB(VU), LBAP
<i>Emberiza citrinella</i>	yellowhammer	S41, Red
<i>Falco peregrinus</i>	peregrine	WCA1.1
<i>Falco subbuteo</i>	hobby	WCA1.1, LBAP
<i>Falco tinnunculus</i>	kestrel	Amber, GB RDB(VU)
<i>Fringilla montifringilla</i>	brambling	WCA1.1
<i>Fulmarus glacialis</i>	fulmar	Amber
<i>Gavia stellata</i>	red-throated diver	WCA1.1
<i>Haematopus ostralegus</i>	oystercatcher	Amber, LBAP
<i>Hirundo rustica</i>	swallow	LBAP
<i>Larus canus</i>	common gull	Amber
<i>Larus fuscus</i>	lesser black-backed gull	Amber
<i>Larus marinus</i>	great black-backed gull	Amber, GB RDB(EN)

Latin Name	Common name	Designation
<i>Linaria cannabina</i>	linnet	S41, Red
<i>Melanitta fusca</i>	velvet scoter	WCA1.1, Red, GB RDB(VU)
<i>Milvus milvus</i>	red kite	WCA1.1
<i>Morus bassanus</i>	gannet	Amber
<i>Motacilla cinerea</i>	grey wagtail	Red
<i>Numenius arquata</i>	curlew	S41, Red, GB RDB(EN)
<i>Pandion haliaetus</i>	osprey	WCA1.1, Amber
<i>Panurus biarmicus</i>	bearded tit	WCA1.1
<i>Passer domesticus</i>	house sparrow	S41, Red, LBAP
<i>Phylloscopus trochilus</i>	willow warbler	Amber, LBAP
<i>Prunella modularis</i>	duncock	Amber, LBAP
<i>Puffinus mauretanicus</i>	balearic shearwater	S41, Red, GB RDB(VU), OSPAR
<i>Puffinus puffinus</i>	manx shearwater	Amber
<i>Rissa tridactyla</i>	kittiwake	Red, GB RDB(CR), OSPAR
<i>Stercorarius parasiticus</i>	arctic skua	Red, GB RDB(CR)
<i>Sterna hirundo</i>	common tern	Amber, LBAP
<i>Streptopelia turtur</i>	turtle dove	S41, Red, GB RDB(CR), LBAP
<i>Sylvia undata</i>	Dartford warbler	WCA1.1, Amber, GB RDB(VU), LBAP
<i>Tadorna tadorna</i>	shelduck	Amber, GB RDB(EN), LBAP
<i>Tringa totanus</i>	redshank	Amber, GB RDB(VU), LBAP
<i>Turdus philomelos</i>	song thrush	Red
<i>Uria aalge</i>	guillemot	Amber, LBAP
Fish		
<i>Anguilla anguilla</i>	European eel	S41, OSPAR
Fungi		
<i>Sarcosphaera coronaria</i>	violet crowncup	LBAP
Higher Plants - Flowering Plants		
<i>Agrostis curtisii</i>	bristle bent	LBAP
<i>Allium oleraceum</i>	field garlic	GB RDB(VU), LBAP
<i>Anacamptis pyramidalis</i>	pyramidal orchid	LBAP
<i>Arum italicum subsp. Neglectum</i>	a flowering plant	NS, LBAP
<i>Atropa belladonna</i>	deadly nightshade	LBAP
<i>Berula erecta</i>	lesser water-parsnip	LBAP
<i>Centaurium erythraea</i>	common centaury	LBAP
<i>Chenopodium murale</i>	nettle-leaved goosefoot	GB RDB(EN), ENG BSBI RDB(EN), LBAP
<i>Gentianella anglica</i>	early gentian	EPS(Sch5), WCA8, S41

Latin Name	Common name	Designation
<i>Groenlandia densa</i>	opposite-leaved pondweed	GB RDB(VU), ENG BSBI RDB(VU), LBAP
<i>Hyacinthoides non-scripta</i>	bluebell	WCA8 – only inc in Appendix
<i>Moenchia erecta</i>	upright chickweed	GB RDB(VU), ENG BSBI RDB(VU), LBAP
<i>Neottia nidus-avis</i>	bird's-nest orchid	GB RDB(VU), ENG BSBI RDB(VU), LBAP
<i>Onobrychis viciifolia</i>	sainfoin	GB RDB(VU), ENG BSBI RDB(VU), LBAP
<i>Orobanche purpurea</i>	yarrow broomrape	GB RDB(VU), ENG BSBI RDB(VU), NR, LBAP
<i>Poa infirma</i>	early meadow-grass	NS
<i>Populus nigra</i> subsp. <i>betulifolia</i>	black poplar	LBAP
<i>Spergula arvensis</i>	corn spurrey	GB RDB(VU), ENG BSBI RDB(VU)
<i>Spiranthes spiralis</i>	autumn lady's-tresses	LBAP
<i>Thesium humifusum</i>	bastard-toadflax	NS
<i>Trifolium fragiferum</i>	strawberry clover	GB RDB(VU), ENG BSBI RDB(VU)
<i>Verbascum pulverulentum</i>	hoary mullein	NS
<i>Vicia parviflora</i>	slender tare	GB RDB(VU), ENG BSBI RDB(VU), NS, LBAP
Invertebrates - Ants, Bees, Sawflies & Wasps		
<i>Andrena fulvago</i>	hawksbeard mining bee	NN
<i>Andrena humilis</i>	buff-tailed mining bee	NN
<i>Andrena labiata</i>	red-girdled mining bee	NN
<i>Andrena nitidiuscula</i>	carrot mining bee	NN
<i>Andrena trimmerana</i>	trimmer's mining bee	NN
<i>Aporus unicolor</i>	N/A	Notable:A
<i>Dasypoda hirtipes</i>	pantaloone bee	Notable:B
<i>Ectemnius sexcinctus</i>	N/A	NN
<i>Eucera longicornis</i>	long-horned bee	S41, NN
<i>Lasioglossum malachurum</i>	sharp-collared furrow bee	NN
<i>Lasioglossum puncticolle</i>	ridge-cheeked furrow bee	NN
<i>Microdynerus exilis</i>	N/A	Notable:B
<i>Nomada conjungens</i>	fringeless nomad bee	LBAP
<i>Nomada fucata</i>	painted nomad bee	Notable:A
<i>Odynerus melanocephalus</i>	black-headed mason wasp	S41, NN
<i>Sphecodes crassus</i>	swollen-thighed blood bee	Notable:B
<i>Sphecodes reticulatus</i>	reticulate blood bee	Notable:A
<i>Sphecodes rubicundus</i>	red-tailed blood bee	Notable:A
Invertebrates - Beetles		
<i>Cryptocephalus aureolus</i>	N/A	Notable:B
<i>Meloe proscarabaeus</i>	black oil-beetle	S41
<i>Mononychus punctumalbum</i>	iris weevil	Notable:A

Latin Name	Common name	Designation
Invertebrates - Butterflies		
<i>Anthocharis cardamines</i>	orange-tip	LBAP
<i>Coenonympha pamphilus</i>	small heath	S41
<i>Cupido minimus</i>	small blue	WCA5, S41
<i>Hipparchia semele</i>	grayling	S41, GB RDB(VU)
<i>Lasiommata megera</i>	wall	S41
<i>Nymphalis polychloros</i>	large tortoiseshell	WCA5
<i>Papilio machaon</i>	swallowtail	WCA5
<i>Polyommatus bellargus</i>	adonis blue	WCA5
Invertebrates - Cockroaches		
<i>Ectobius panzeri</i>	lesser cockroach	NS, LBAP
Invertebrates - Dragonflies & Damselflies		
<i>Cordulegaster boltonii</i>	golden-ringed dragonfly	LBAP
Invertebrates - Grasshoppers & Crickets		
<i>Metrioptera roeselii</i>	Roesel's bush-cricket	LBAP
Invertebrates – Moths		
<i>Acronicta rumicis</i>	knot grass	S41
<i>Agrotera nemoralis</i>	beautiful pearl	S41
<i>Agrotis trux</i>	crescent dart	LBAP
<i>Amphipyra tragopoginis</i>	mouse moth	S41
<i>Apamea remissa</i>	dusky brocade	S41
<i>Arctia caja</i>	garden tiger	S41, LBAP
<i>Bembecia ichneumoniformis</i>	six-belted clearwing	LBAP
<i>Brachylomia viminalis</i>	minor shoulder-knot	S41
<i>Caradrina Morpheus</i>	mottled rustic	S41
<i>Catarhoe rubidata</i>	ruddy carpet	LBAP
<i>Dolicharthria punctalis</i>	long-legged china-mark	Notable:B, LBAP
<i>Ecliptopera silaceata</i>	small phoenix	S41
<i>Epirrhoe galiata</i>	galium carpet	S41
<i>Ethmia dodecea</i>	dotted ermel	Notable:B
<i>Hemistola chrysoprasaria</i>	small emerald	S41
<i>Hoplodrina blanda</i>	rustic	S41
<i>Hydraecia micacea</i>	rosy rustic	S41
<i>Malacosoma Neustria</i>	lackey	S41
<i>Mecyna asinalis</i>	coastal pearl	Notable:B, LBAP
<i>Melanthia procellata</i>	pretty chalk carpet	S41
<i>Nephoterix angustella</i>	spindle knot-horn	Notable:B, LBAP

Latin Name	Common name	Designation
<i>Oncocera semirubella</i>	rosy-striped knot-horn	Notable:B
<i>Schrankia taenialis</i>	white-line snout	LBAP
<i>Sitochroa palealis</i>	sulphur pearl	Notable
<i>Spilosoma lutea</i>	buff ermine	S41
<i>Synaphe punctalis</i>	long-legged tabby	Notable:B
<i>Tholera cespitis</i>	hedge rustic	S41
<i>Timandra comae</i>	blood-vein	S41
<i>Tyria jacobaeae</i>	cinnabar	S41
<i>Watsonalla binaria</i>	oak hook-tip	S41
Invertebrates - Sea Anemones, Jellyfish & Corals		
<i>Actinia fragacea</i>	strawberry anemone	LBAP
Invertebrates – Spiders		
<i>Argiope bruennichi</i>	wasp spider	LBAP
Invertebrates - True Bugs		
<i>Canthophorus impressus</i>	bastard-toadflax bug	NS, Notable:B, LBAP
Invertebrates - True Flies		
<i>Bombylius discolor</i>	dotted bee-fly	NS, Notable, LBAP
<i>Myopites apicatus</i>	N/A	LBAP
<i>Oxycera morrisii</i>	white-barred soldier	NS, Notable
<i>Thereva strigata</i>	cliff stiletto	GB RDB(EN), NR, LBAP
Lower Plants - Liverworts		
<i>Microbryum davallianum</i>	smallest pottia	LBAP
<i>Riccia glauca</i>	glaucous crystalwort	LBAP
<i>Scorpiurium circinatum</i>	curving feather-moss	LBAP
Mammals		
<i>Barbastella barbastellus</i>	western Barbastelle	EPS(Sch2), WCA5, S41, GB RDB(VU)
<i>Eptesicus serotinus</i>	serotine	EPS(Sch2), WCA5, GB RDB(VU), LBAP
<i>Erinaceus europaeus</i>	European hedgehog	S41, GB RDB(VU)
<i>Meles meles</i>	badger	BA
<i>Muscardinus avellanarius</i>	hazel dormouse	EPS(Sch2), WCA5, S41, GB RDB(VU)
<i>Pipistrellus nathusii</i>	Nathusius's pipistrelle	EPS(Sch2), WCA5, LBAP
<i>Pipistrellus pipistrellus</i>	common pipistrelle	EPS(Sch2), WCA5
Reptiles		
<i>Anguis fragilis</i>	slow-worm	WCA5, S41
<i>Natrix helvetica</i>	grass snake	WCA5, S41
<i>Vipera berus</i>	adder	WCA5, S41

APPENDIX E – ABBREVIATIONS

Table A5: Glossary of abbreviations used in this report:

Code	Full Title	Explanation
Amber	Amber list	Amber listed species have a population status in the UK of medium conservation concern.
BA	The Protection of Badgers Act 1992	Legislation making it an offence to kill, injure or take a Badger, or to damage or interfere with a sett unless a licence is obtained from a statutory authority.
BAP	Biodiversity Action Plan	A plan that identifies threats to significantly important species and habitats, and sets out targets and actions to enhance or maintain biodiversity.
ENG BSBI RDB	A Vascular Plant Red List for England	A list published in 2014 by the Botanical Society of Britain and Ireland of the red list status of plants in England. Measured against standardised IUCN criteria.
ENG BSBI RDB(CR)	Critically Endangered	A BSBI Red List designation for species at an extremely high risk of extinction.
ENG BSBI RDB(EN)	Endangered	A BSBI Red List designation for species at a very high risk of extinction.
ENG BSBI RDB(VU)	Vulnerable	A BSBI Red List designation for species at high risk of extinction.
EPS (Sch 2)	European Protected Species (Schedule 2)	European protected species (listed on Schedules 2 of The Conservation of Habitats and Species Regulations 2017)
EPS (Sch 5)	European Protected Species (Schedule 5)	European protected species (listed on Schedules 5 of The Conservation of Habitats and Species Regulations 2017)
GB RDB	Red Data Book Species	Species identified in one of the UK Red Data 2001.
GB RDB(CR)	Critically Endangered	An IUCN Red List designation for species at an extremely high risk of extinction.
GB RDB(EN)	Endangered	An IUCN Red List designation for species at a very high risk of extinction.
GB RDB(VU)	Vulnerable	An IUCN Red List designation for species at high risk of extinction.
HAP	Habitat Action Plan	A plan that identifies threats to a priority habitat and sets out targets and actions to enhance or maintain that habitat.
IUCN	International Union for Conservation of Nature and Natural Resources (also known as The	A worldwide partnership and conservation network to influence, encourage and assist societies throughout the world to conserve the integrity and diversity of nature and to ensure that any use of natural resources is equitable and ecologically sustainable.

Code	Full Title	Explanation
	World Conservation Union)	
LBAP	Local Biodiversity Action Plan	A plan that identifies threats to locally important species and habitats, and sets out targets and actions in Species Action Plans and Habitat Action Plans to enhance or maintain biodiversity at the county or regional level.
LHAP	Local Habitat Action Plan	A plan that identifies threats to a locally important priority habitat and sets out targets and actions to enhance or maintain that habitat.
LSAP	Local Species Action Plan	A plan that identifies threats to locally important species, and sets out targets and actions to prevent losing that species from the local area.
Notable	Scarce and threatened invertebrates	Invertebrate species which are estimated to occur within the range of 16 to 100 10km squares but subdivision into Notable A and Notable B categories is not possible as there is insufficient information available).
Notable:A	Scarce and threatened invertebrates	Taxa which do not fall within Red Data Book categories but which are none-the-less uncommon in Great Britain and thought to occur in 30 or fewer 10km squares of the National Grid or, for less well-recorded groups, within seven or fewer vice-counties.
Notable: B	Scarce and threatened invertebrates	Taxa which do not fall within Red Data Book categories but which are none-the-less uncommon in Great Britain and thought to occur in between 31 and 100 10km squares of the National Grid or, for less-well recorded groups between eight and twenty vice-counties.
NN	Nationally Notable	Designation for invertebrate taxa that are thought to be notably important in the UK.
NR	Nationally Rare	Species in 15 or fewer hectads in Great Britain.
NS	National Scarce	Species in 16-100 hectads in Great Britain.
OSPAR	OSPAR	Species listed on The Convention for the Protection of the Marine Environment of the North-East Atlantic
Red	Red List	Red listed species have a population status in the UK with high conservation concern.
SAP	Species Action Plan	A plan that identifies threats to significantly important species, and sets out targets and actions to prevent losing that species to extinction.
S41	Species of Principal Importance	Species of Principal Importance in England under The Natural Environment and Rural Communities (NERC) Act (2006)
UKBAP	UK Biodiversity Action Plan	A plan that identifies threats to locally important species and habitats, and sets out targets and actions in Species Action

Code	Full Title	Explanation
		Plans and Habitat Action Plans to enhance or maintain biodiversity in the UK.
WCA	<i>The Wildlife and Countryside Act 1981</i> (as amended)	Containing 4 Parts and 17 Schedules, the Act covers protection of wildlife (birds, and some animals and plants), the countryside, National Parks, and the designation of protected areas, and public rights of way. All wild plants in Britain are protected from intentional uprooting by an unauthorized person, but land owners, land occupiers, persons authorized by either of these or persons authorized in writing by the Local Authority for the area are exempt. Protection for some species may be limited to certain Sections of the Act (e.g. S13(2)).
WCA1	Schedule 1 of <i>The Wildlife and Countryside Act 1981</i> (as amended)	This Schedule lists birds protected by special penalties at all times, but virtually all wild birds have some protection in law. Acts which are prohibited for all wild birds (except derogated 'pest' species) include intentional killing, injuring or taking; taking, damaging or destroying nests in use or being built; taking or destroying eggs; possessing or having control of (with certain exceptions but including live for dead birds, parts or derivative); setting or permitting certain traps, weapons, decoys or poisons. Selling, offering or exposing for sale, possessing or transporting for sale any live wild bird, egg or part of an egg or advertising any of these for sale, or dead wild bird including parts or derivatives are also prohibited. Many birds must be formally registered and ringed if kept in captivity. Schedule I WCA birds are additionally protected from intentional or reckless disturbance while building a nest, or when such a bird is in, on or near a nest containing eggs or young, or intentional or reckless disturbance of dependent young.
WCA5	Schedule 5 of <i>The Wildlife and Countryside Act 1981</i> (as amended)	Schedule 5 animals are protected from intentional killing, injuring or taking; possessing (including parts or derivatives); intentional or reckless damage, destruction or obstruction of any structure or place used for shelter or protection; selling, offering or exposing for sale, possessing or transporting for the purpose of sale (alive or dead, including parts or derivatives). Protection of some species is limited to certain Sections of the Act (e.g. S9(1), S9(4a), S9(4b), S9(5)).
WCA8	Schedule 8 of <i>The Wildlife and Countryside Act 1981</i> (as amended)	Plants and fungi protected from intentional picking, uprooting, destroying, trading (including parts or derivatives), etc.

APPENDIX F – RELEVANT LEGISLATION AND POLICY

Badgers

Badgers are protected in Britain under the Protection of Badgers Act 1992 and Schedule 6 of the Wildlife and Countryside Act 1981 (as amended).

The legislation affords protection to badgers and badger setts, and makes it a criminal offence to:

- willfully kill, injure, take, possess or cruelly ill-treat a badger, or to attempt to do so;
- intentionally or recklessly interfere with a sett by damaging or destroying it;
- to obstruct access to, or any entrance of, a badger sett; or
- to disturb a badger when it is occupying a sett.

Nesting Birds

All species of bird are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended).

- The legislation makes it an offence to intentionally:
- kill, injure or take any wild bird;
- take, damage or destroy the nest of any wild bird while that nest is in use or being built; or
- take or destroy an egg of any wild bird.



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