



PHASE 1 HABITAT SURVEY UPDATE

Folkestone to Cliff End Strategy PARs - Lydd Ranges

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1 INTRODUCTION

1.1 *Terms of reference*

Flag Ecology was commissioned by Ricardo Energy & Environment to carry out an updated Phase 1 Habitat Survey on behalf of the Environment Agency in relation to the proposed works for the management of coastal flooding and erosion risk at Lydd Ranges in Kent. The central grid reference for the site is TR0131 1760). The site boundary (survey area) is shown in Appendix 2, Figure 1. The survey was undertaken by Brian Banks BSc MIEEM.

1.2 *Scope of works*

The purpose of this report is to provide updated Phase 1 habitat information of the site, since the previous Phase 1 survey by Atkins is now five years old and was based on an Extended Phase 1 Survey carried out by Royal Haskoning in 2010.

The updated Phase 1 survey comprised a site visit to assess any changes to the habitat composition and floristic abundance within the survey area since the previous Phase 1 habitat survey and an assessment of associated changes to the likelihood of protected species and invasive species occurring within the survey area. In addition to this, records of protected species are shown in a wider 1 km desk-study envelope around the survey area.

The survey and identification of potential ecological constraints was based on current information about the proposed scheme available at the time. If this information should change, the scheme may need to be re-visited to establish if there are any further ecological constraints arising from changes to the design.

1.3 *Proposed works*

The works proposed by the Environment Agency are to be carried out along a 7.5 km stretch of existing shingle beach which received an annual placement of recycled beach material to reduce the flood risk from a breach in the beach's defences. An existing embankment known as the 'Green Wall' runs behind the main beach and acts as a secondary line of defence. The strategy proposed option is to 'hold the line' by raising and reinforcing the Green Wall, continue with beach recharge, install timber groynes and carry out works to Denge Marsh sewer outfall at the eastern end of the survey area. The immediate hinterland is owned by the Ministry of Defence (MoD).

1.4 *Previous Surveys*

An Extended Phase 1 Survey was carried out by Royal Haskoning on behalf of Atkins on 17th and 18th August 2010.

This exercise was repeated on 5th September 2013 by Atkins.

2 METHODS

2.1 *Background Data Search*

The Multi-Agency Geographic Information for the Countryside (MAGIC) website (magic.defra.gov.uk) was reviewed for information on internationally, nationally and locally designated sites of nature conservation importance (statutory sites only) within 2 km of the survey area. Previous biological searches had been undertaken by Royal Haskoning and Atkins and are reported in those Phase 1 survey reports (2010 and 2013). No new biological records search has been undertaken for this current study, as multiple detailed species and vegetation community surveys have been undertaken since 2013 which are reported in the scheme's Environmental Statement (December 2018) to which this report forms an appendix.

2.2 *Field survey*

In 2018 the site was subject to a Phase 1 habitat survey by Brian Banks between 24th and 28th of July with a further survey on 3rd September 2018. The area surveyed comprised two areas:

The larger of the two was at the south-west end of Lydd Ranges stretching eastwards over approximately 4.3 km. It followed the course of the Green Wall, an old embankment, extending 10 m to the north of this structure, and the boundary of the coast. The coastal shingle strip gets progressively broader to the east.

The second, smaller, area was about 70 m wide, and stretched 410 m inland, to the start of the exposed Denge Marsh Sewer (this water course following a subterranean route to through pipes to the sea under the survey area).

2.3 *Constraints*

Ecological surveys are limited by factors which affect the presence of plants and animals such as the time of year, migration patterns and behaviour. Therefore, the survey of this site has not produced a complete list of plants and animals and the absence of evidence of any species should not be taken as conclusive proof that the species is not present or that it will not be present in the future. The hot dry summer limited growth of some species, plants being affected by poor growth conditions.

3 RESULTS

3.1 *Background Data Search*

The reader is referred to the scheme's Environmental Statement (December 2018) Chapter 7 and its accompanying appendices for details of previous habitat and species surveys and records reported between 2010 and 2018. These are not repeated here.

3.2 *Field survey: Habitats*

The mapped results of the Phase 1 habitat survey are provided in Appendix 2, along with target notes (Figures 2 a-c, and Figure 3).

The larger western survey area supported stands of shingle vegetation with both Annual Vegetation of Drift-lines (characterised by abundant Babington's orache and sea mayweed), and Perennial Vegetation of Stony Banks. To the south of the Green Wall the shingle beach was broader to the east, supporting a greater range of PVSb habitats, including the maritime variant of the ancient lichen heath vegetation (A2F), as well as coastal pioneer vegetation (the *Crambe* Community and Annual Drift-line Vegetation). In damper locations saltmarsh vegetation was present on the shingle, dominated by the Nationally Scarce shrubby sea-blite. To the east, at Southbrooks, the broader shingle beach supported several large saline lagoons, fringed by a mosaic of saltmarsh and rough grassland. An artificial bulldozed coastal ridge was present almost along the entire length of shingle, burying strand-line vegetation to the west of the site.

North of the Green Wall the shingle beach was divided by three strips of alluvial grassland (Midrips, The Wicks and Southbrooks). Here there was more extensive cover of maritime grassland (shingle community A2F) since 2015, at the expense of ancient A2 and A2S lichen heath communities, most likely a result of increased salt spray or flooding. There also appears to have been colonisation of shrubby sea-blite saltmarsh on the shingle in this area. The alluvial areas supported percolation saline lagoons, fringed by saltmarsh, and the eastern-most section also had a main drainage ditch, the Southbrooks Sewer, which passed through the Green Wall before discharging into the shingle to the south. The saline lagoons are fed by sea water percolating through the coastal shingle ridge, and in the case of those north of the Green Wall by water flowing through shingle underneath the Green Wall (target note 6).

The Green Wall itself is an artificial raised structure, containing fine sediments that have given rise to rough grassland and ruderal communities on its northern face, and modified shingle communities to the south.

3.3 Field survey: Protected or notable species potential

The mapped results of the Phase 1 habitat survey are provided in Appendix 2, along with target notes.

3.3.1 Badger *Meles meles*

In 2018 there were no signs of badger using the survey area (setts, snuffle holes, tracks). The most likely area to be affected by short-term badger establishment would be the Green Wall and this should be inspected prior to works taking place.

3.3.2 Brown hare *Lepus europaeus*

A single specimen was recorded just outside the 1 km envelope at TR 0738 1773. No specimens of this mammal were noted in the survey area.

3.3.3 Bats

There are no structures or trees in the survey area suitable for roosting bats. The ditches inland from the Green Wall are considered likely to be used by foraging and commuting bats and there should be no significant night-time working or lighting in these areas.

3.3.4 Water vole *Arvicola amphibius*

The ditch with a reed dominated margin at target note 39 has potential to support this species, as it is recorded further north on Southbrooks. The ditch at target note 34 was considered a less suitable site as it was dry.

3.3.5 Nesting birds

The habitats on the shingle and on and around the lagoons have potential for nesting birds. Avocet with young were noted at target note 16. Wheatear are known to nest under concrete rubble on the shingle by the Green Wall. The shingle, lagoons, saltmarsh and intertidal sandflats have the potential to support over-wintering birds. The site's suitability is reduced due to disturbance from the active firing range. However, due to the number of Schedule 1 bird species within 1 km, the presence of an RSPB reserve adjacent to the survey area, and the survey location within the SPA and RAMSAR site the site remains very important for birds.

3.3.6 Reptile species

The rough habitats along the Green Wall provided good cover for reptiles, particularly viviparous lizard *Zootoca vivipara* and grass snake *Natrix helvetica* as did some of the rougher grassland at Southbrooks. More open shingle vegetation was of lower suitability for these species.

3.3.7 Great crested newt *Triturus cristatus*

This species does not occur within the survey area, the habitats generally being too saline. It is recorded on the RSPB reserve and the eastern end of Lydd

Ranges. There is just one great crested newt breeding pond within 500 m of the eastern survey area, but more than 500m away from the proposed works, at TR 06052 17422. This pond was dry in 2018 and has had limited survey effort. The author has visited the pond on five occasions and found it dry by early spring in 2003, 2009 and 2018, but in 2002 and 2007 it contained water and great crested newt eggs. Smooth newts were present in the dry pond basin in 2018 suggesting it was still capable of supporting amphibians or attracting amphibians from other water bodies.

The HSI score for this pond depends on interpretation of terrestrial habitat quality. At first sight the habitat is exposed stony ground, however newts can use crevices between large flints as shelter, and there is a shingle grassland margin near the site too, so the terrestrial habitat was scored as “Poor” rather than “None”, which would have produced an overall score of 0.44 (Poor). See Table 1 below.

Table 1 Great crested newt habitat suitability index scores for pond at TR 06052 17422

Measure	Score
Geographic location	1
Surface area	0.3
Drying	0.1
Water quality	1
Shade	1
Waterfowl	1
Fish	1
Ponds	0.975
Terrestrial habitat	0.33*
Aquatic macrophytes	1
HSI score	0.63*
HSI category	Average

4.3.8 Invertebrates

Three S41 NERC Act bumblebee species were observed during the Phase 1 survey. The ruderal bumblebee *Bombus ruderatus* was observed at target note 20 a, three males including an all-black form, foraging on marsh mallow. Moss carder bee *B. muscorum* and brown banded carder bee *B. humilis* were observed at target note 48.

4.3.9 Flowering plants

A number of flowering plants were found during the survey that are Red listed, Red Data Book species or Nationally Scarce.

Several stands of the Nationally Scarce marsh mallow (target notes 13, 14, 20 and 23) were found in the survey area, on the Green Wall. The Nationally

Scarce Shrubby sea blite (target note 13, 15, 20, 23, and 29) was locally abundant in the survey area and the envelope. Sea Pea, which was not found in 2015, by the author, was found at one location at Southbrooks target note 35). Conversely non-flowering tassel weed species were found in 2015 along with yellow-vetch. The Red Listed and Vulnerable slender hare's ear was not found during the survey. It was reported to have been found along the northern edge of the Green Wall in August 2017 by Owen Leyshon (target note 24 westwards).

4.3.10 Non-native species

No Schedule 9 invasive species were found on the site. Japanese rose found previously may have been buried under shingle during beach feeding, or by the in-rolling shingle crest.

One non-native species (not on Schedule 9 but considered a pest species on Dungeness), red valerian, was noted on the Green Wall near target note 27.

4 REFERENCES

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Appendix 1 Legislation

The Wildlife & Countryside Act 1981 (as amended)

Provides for **designation** and protection of Sites of Special Scientific Interest (SSSI), which are areas that represent the most valuable habitats in the UK for nature conservation.

The Act creates the following **offences**:

- To intentionally kill, injure, or take any wild bird or their eggs or nests (with exception to species listed in Schedule 2). Special penalties are available for offences related to birds listed on Schedule 1, for which there are additional offences of disturbing these birds at their nests, or their dependent young.
- To intentionally kill, injure, or take, possess, or trade in any wild animal listed in Schedule 5, and interference with places used for shelter or protection, or intentionally disturbing animals occupying such places.
- Certain methods of killing, injuring, or taking wild animals listed in Schedule 6.
- To pick, uproot, trade in, or possess (for the purposes of trade) any wild plant listed in Schedule 8, and prohibits the unauthorised intentional uprooting of such plants.
- The release of certain non-native animals and planting of plants listed in Schedule 9.

It also provides a mechanism making any of the above offences legal through the granting of licences by the appropriate authorities.

Conservation of Habitats and Species Regulations 2017 (as amended)

The principal means by which the European Habitats Directive is transposed in England and Wales.

Provide for the **designation** and protection of a network of 'European Sites' (also termed Natura 2000), including Special Areas of Conservation (SAC) and Special Protection Areas (SPA).

Regulation 43 creates the following offences relating to European Protected Species (EPS):

- deliberately capture, injure or kill any wild animal of a European Protected Species;
- deliberately disturb animals of any such species in such a way as to be likely to:
- impair their ability to survive, breed, rear or nurture their young, hibernate or migrate, or
- significantly affect the local distribution or abundance of the species to which they belong;
- deliberately take or destroy the eggs of such an animal; or
- damage or destroy a breeding site or resting place of such an animal.

The Regulations also make it an offence (subject to exceptions) to deliberately pick, collect, cut, uproot, destroy, or trade in the plants listed in Schedule 5.

However, the actions listed above can be made lawful through the granting of licences (European Protected Species Licence) by the appropriate authorities (Natural England in England). Licences may be granted for several purposes, but only after the appropriate authority has determined that the following regulations are satisfied:

- the works under the licence are being carried out for the purposes of 'preserving public health and public safety, or for other imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment'.
- there is 'no satisfactory alternative'
- the action 'will not be detrimental to the maintenance of the population of the species concerned at favourable conservation status in their natural range'.

To apply for a licence, the following information is required:

- The species concerned.

- The relative size of the population at the site (note this may require a survey to be carried out at a particular time of the year).
- The impact(s) (if any) that the development is likely to have upon the populations.
- What measures will be conducted to mitigate for the impact(s).

Natural Environment & Rural Communities (NERC) Act 2006

Section 40 of NERC carries an extension of the earlier CRow Act biodiversity **duty to public bodies and statutory undertakers** to ensure due regard to the conservation of biodiversity. Section 41 requires the Secretary of State, as respects England, to publish a list of species and habitats which are of 'principal importance for the purpose of conserving biodiversity'. These lists generally reflect the species and habitats previously listed as priorities under the UK Biodiversity Action Plan.

The Protection of Badgers Act 1992

This makes it an offence to willfully kill, injure, take, possess or cruelly ill-treat a badger, or to attempt to do so and to intentionally or recklessly interfere with a sett. Sett interference includes disturbing badgers whilst they are occupying a sett, as well as damaging or destroying a sett or obstructing access to it.

Under Section 10 (1)(d) of the Protection of Badgers Act 1992, a licence may be granted by Natural England to interfere with a badger sett for the purpose of development, as defined by Section 55(1) of the Town & Country Planning Act 1990.

The Wild Mammals (Protection) Act 1996

The Wild Mammals (Protection) Act 1996 makes it an offence for any person to mutilate, kick, beat, nail or otherwise impale, stab, burn, stone, crush, drown, drag or asphyxiate any wild mammal with intent to inflict unnecessary suffering.

The Animal Welfare Act 2006

This imposes a duty of care on anyone responsible for an animal to take reasonable steps to ensure that the animal's needs are met. This means that a

person has to look after the animal's welfare and ensure that it does not suffer. The Act says that an animal's welfare needs include:

- a suitable environment;
- a suitable diet;
- the ability to exhibit normal behaviour patterns;
- any need it has to be housed with, or apart from, other animals; and
- protection from pain, suffering, injury and disease.

With regards to development, this may have implications when capture and translocations of animals are proposed.

National Planning Policy Framework

This framework replaces Planning Policy Statement 9: Biodiversity and Geological Conservation (PPS 9) (ODPM 2005b) and sets out the view of central Government on how planners should balance nature conservation with development.

The NPPF states that development plan policies and planning decisions should be based upon up-to-date information about the environmental characteristics of their areas, including biodiversity. It also states that the aim of planning decisions should be to prevent harm to biodiversity conservation interests and to 'promote the preservation, restoration and re-creation of priority habitats, ecological networks and the recovery of priority species'.

Where determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by applying the following principals; 'if significant harm resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused'; and, 'planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the need for, and benefits of, the development in that location clearly outweigh the loss'.

This means that full ecological surveys should be carried out and suitable mitigation measures proposed prior to any planning application being submitted.

Biodiversity 2020: A strategy for England's wildlife and ecosystem services

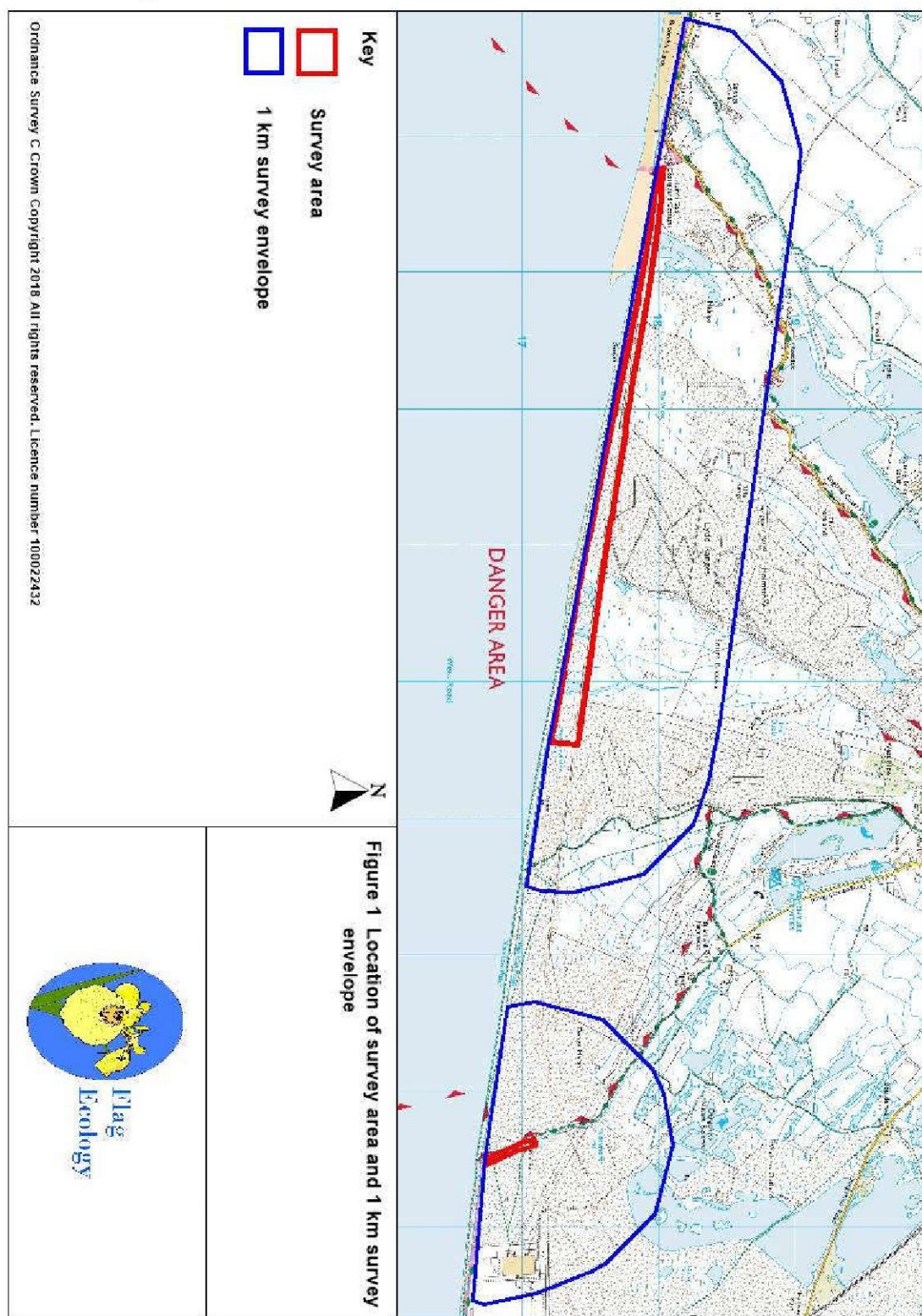
This biodiversity strategy for England builds on the Natural Environment White Paper and the earlier UK Biodiversity Action Plan. It provides a comprehensive picture of how Government is implementing our international and EU commitments and sets out the strategic direction for biodiversity policy up to 2020. Its mission is to:

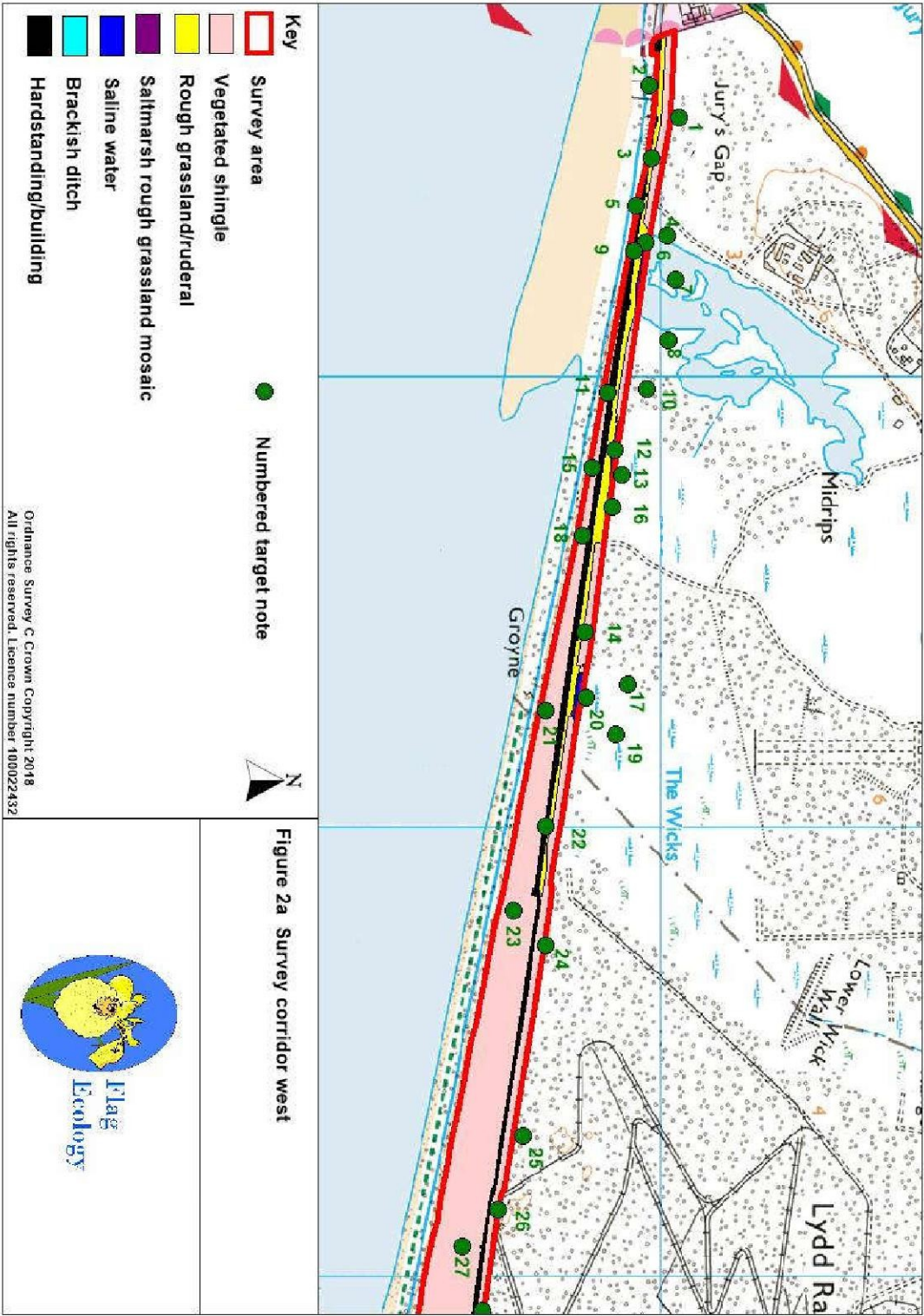
“halt overall biodiversity loss, support healthy well-functioning ecosystems and establish coherent ecological networks, with more and better places for nature for the benefit of wildlife and people.”

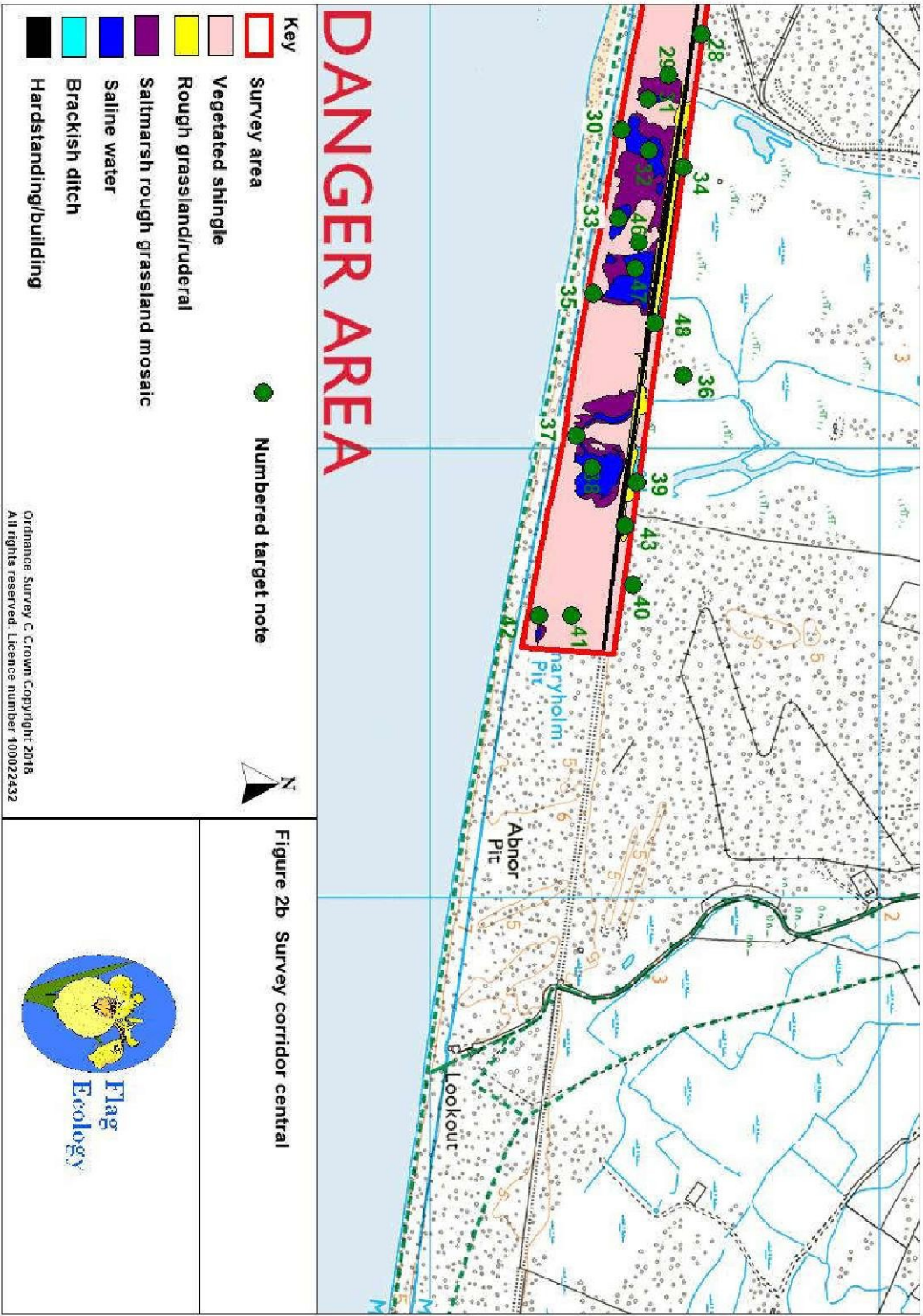
In relation to planning and development its priority is to:

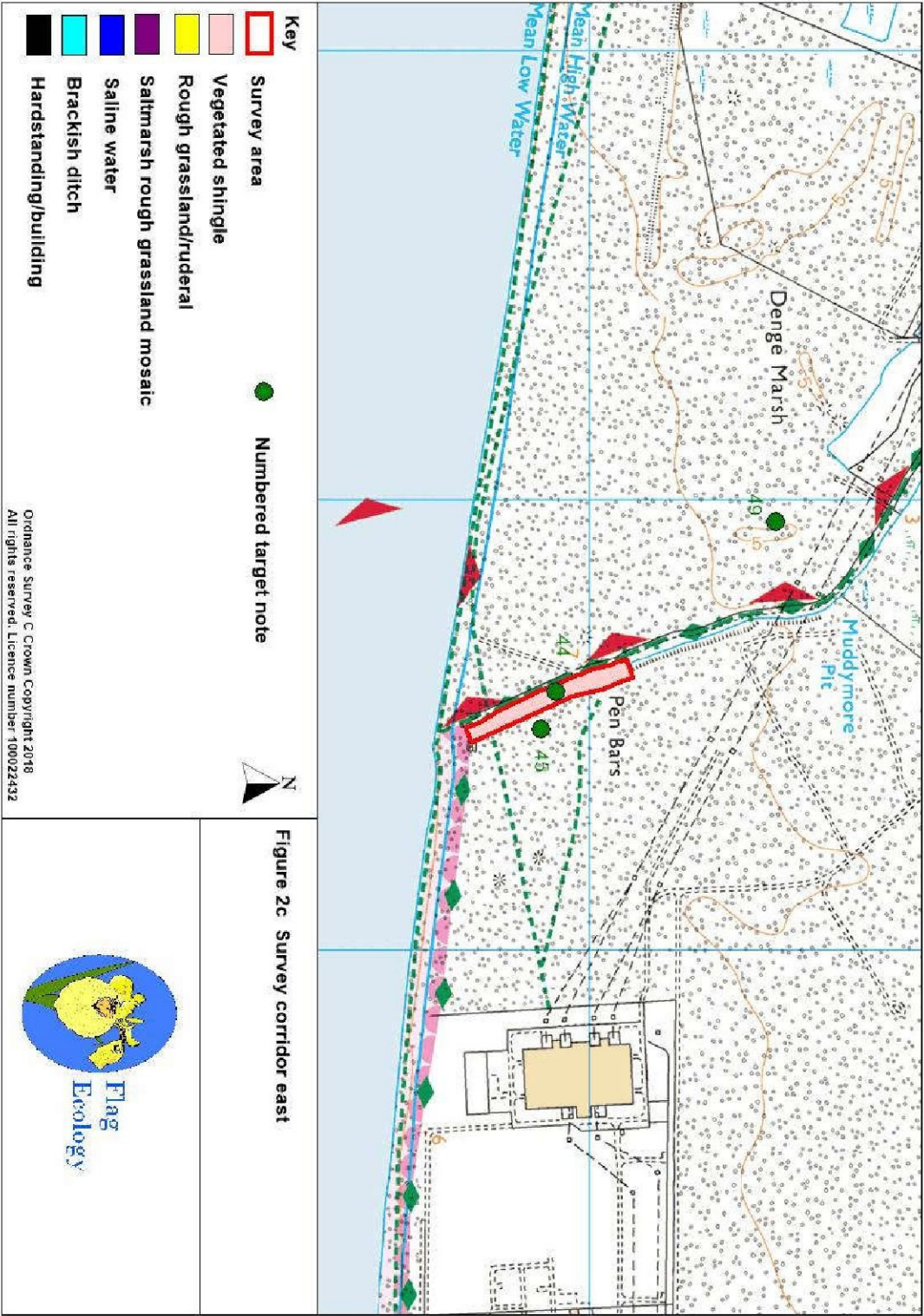
“take a strategic approach to planning for nature within and across local areas. This approach will guide development to the best locations, encourage greener design and enable development to enhance natural networks. We will retain the protection and improvement of the natural environment as core objectives of the planning system.”

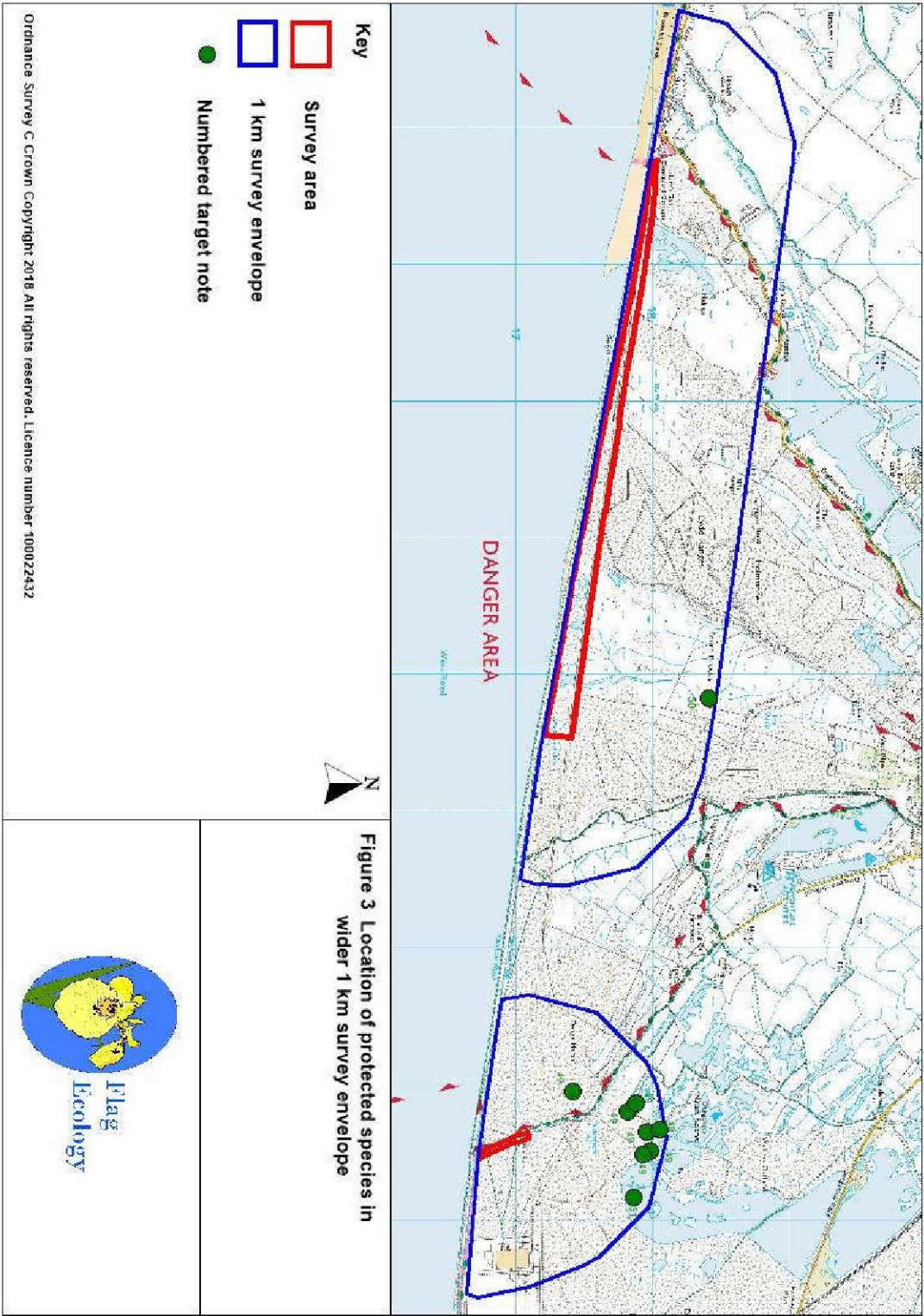
Appendix 2 Location Map and Phase 1 Habitat Map with Target Notes











Target notes, Figures 2a-c and 3.

Target note	Description 2018
1	Shingle to north of Green Wall, with <i>Crambe</i> , B3 grassland, broom scrub, lichen heath and prostrate blackthorn in a scattered mosaic with bare shingle
2	Replenished beach stretching over 300 m with mix of shingle and sand. Coastal margin forming vertical cliffs. Very sparsely vegetated south of track
3	Hardstanding on top of Green wall, annual drift line species scattered along its northern margin, growing along the edge of a rough grassland sward with scattered blackthorn scrub
4	Extensive shingle vegetation showing transition from A2S to A2F
5	Point at which shingle vegetation between the Green Wall track and the Coast appears.
6	Saline spring, emerging from shingle under the Green Wall
7	Lagoon, showing a gradation in salinity from very brackish near the coast, becoming less so further inland. Ephemeral water body with reduced diversity but supporting specialist lagoon snail <i>Ventrosia ventrosa</i> . The saline lagoons at Midrips are potentially home to the rare and specially protected DeFolin's lagoon snail <i>Caecum armoricum</i> . <i>Fringing saltmarsh vegetation</i>
8	Extensive shingle vegetation (A2F/ A2S)
9	Vegetation becoming increasingly broad from this point eastwards, behind the artificially managed coastal ridge. B1 vegetation, reflecting sand/ shingle mix.
10	A2S lichen heath, with A2F grassland closer to lagoon
11	Start of continuous strip of AVDL vegetation, continuing eastwards
12	Saline lagoon with <i>Phragmites</i> beds on western side, indicative of lower salinity. Prone to drying out. <i>Ruppia</i> sp. reported in 1998.
13	Rough grassland with several stands of marsh mallow, grading down to shrubby sea-blite saltmarsh
14	Stand of marsh mallow
15	Shrubby sea blite from here westwards to south of Green Wall
16	Saline lagoon with <i>Ruppia</i> sp in 2015
17	A2F grassland extending some way inland around margin of lagoon.
18	Broad band of B1 vegetation to south of Green Wall
19	Saline lagoon with <i>Ruppia</i> sp. Supported the characteristic saline lagoon species <i>Ventrosia ventrosa</i> in 2005. Possible location of specially protected DeFolin's lagoon snail
20	Stands of marsh mallow and shrubby sea-blite
21	Area of bulldozed shingle north of bulldozed coastal ridge. The bulldozed coastal ridge extends along 99% of coastal frontage.

Target note	Description 2018 (continued)
22	Stands of marsh mallow
23	Well vegetated coastal shingle vegetation with AVDL, C, A2F, G and Shrubby sea-blite
24	Well preserved shingle ridges with A2S and A1 vegetation.
25	Poorly preserved bare shingle with limited vegetation
26	Complex of military bunker with associated Bi mesotrophic vegetation and other disturbance related scrub, with railway line and gabion wall to south, east and west. Possible potential for roosting bats.
27	Coastal shingle, heavily modified with B1 vegetation due to military activities.
28	More disturbed shingle ridge with numerous vehicle tracks. Limited vegetation.
29	Mosaic of sea purslane saltmarsh, shrubby sea-blite saltmarsh and A2F vegetation.
30	Considerable in-rolling of coastal shingle ridge since 2013, part infilling saline lagoon and saltmarsh habitats
31	Very shallow saline lagoon/mudflat. DeFolin's Lagoon snail recorded here in 2007.
32	Percolation saline lagoon with scattered <i>Salicornia</i> spp. Comparatively diverse flora and fauna with maritime species <i>Abra tenuis</i> and <i>Capitella capitata</i> in 2005. The cluster of Percolation saline lagoons at Southbrooks are habitat to the rare and specially protected DeFolin's lagoon snail <i>Caecum armoricum</i>
33	Percolation saline lagoon.
34	Wet grassland with brackish ditch. Dry in July 2018 but contained <i>Ruppia</i> spp in July 2015.
35	Nationally scarce sea pea recorded on in-rolling shingle ridge (nationally scarce species)
36	Yellow vetch found here in 2015 (Nationally scarce species)
37	Brackish outfall from Southbrooks Sewer, surrounded by sea purslane saltmarsh, and subject to infilling by coastal ridge
38	Saline lagoon with fringing saltmarsh species, including <i>Spartina anglica</i> . Slightly lower salinity due to brackish water inflow from stream. The cluster of percolation saline lagoons at Southbrooks are habitat to the rare and specially protected DeFolin's lagoon snail <i>Caecum armoricum</i>
39	Saline ditch, bordered by common reed
40	Relatively disturbed shingle with fragmented A2S vegetation, and A1 broom scrub.

Target note	Description 2018 (continued)
41	Well vegetated shingle ridges with a mixture of A2F, G, A1, and C communities.
42	Natural saline pit (Wickmaryholm Pit), mostly infilled by coastal ridge, with relict area of open water. Surrounded by sea purslane saltmarsh with occasional shrubby sea-blite.
43	The rough grassland and densely vegetated habitats along the Green Wall are potential habitat for reptiles such as viviparous lizard
44	Previously excavated shingle, to lay a pipeline. Recolonised by a mix of vegetation types associated with disturbed shingle (B1, U (gorse scrub) but also adjacent to this there are A2 lichen heath communities. The central area is a low-lying gulley, and to the south this supports the Nationally scarce sea heath <i>Frankenia laevis</i> .
45	Vegetated shingle ridges - largely intact ridges
46	Record from Natural England of the RDB Dance Fly <i>Poecilobothrus ducalis</i>
47	The cluster of percolation saline lagoons at Southbrooks are habitat to the rare and specially protected DeFolin's lagoon snail <i>Caecum armoricum</i>
48	Brown banded and moss carder bee foraging on northern face of Green Wall
49	Ponds or ditches with records of breeding great crested newt
50	Ditch network supporting water vole
51	Series of gravel pits supporting SPA and Ramsar qualifying breeding and wintering bird populations on RSPB reserve

Appendix 3 Botanical species list

English name	Latin name	Characteristic of		Non-native	Status
		AVDL	PVSB		
Marsh mallow	<i>Althaea officinalis</i>				Nat Scarce
Babington's orache	<i>Atriplex glabriuscula</i>	*			
Slender hare's-ear	<i>Bupleurum tenuissimum</i>		*		Vulnerable
Red valerian	<i>Centranthus ruber</i>			*	
Sea kale	<i>Crambe maritima</i>		*		
Broom	<i>Cytisus scoparius</i>		*		
Sea heath	<i>Frankenia laevis</i>		*		Near threatened
Sea pea	<i>Lathyrus japonicus</i>		*		Nat scarce
Common reed	<i>Phragmites australis</i>				
Japanese rose	<i>Rosa rugosa</i>			*	
Spiral tassell-weed	<i>Ruppia cirrhosa</i>				Nat scarce
Samphire	<i>Salicornia sp</i>		*		
Cord grass	<i>Spartina anglica</i>				
Shrubby sea-blite	<i>Suaeda vera</i>		*		Nat scarce
Shepherd's cress	<i>Teesdalia nudicaulis</i>		*		Near threatened
Sea mayweed	<i>Tripleurospermum maritimum</i>	*			
Yellow-vetch	<i>Vicia lutea</i>		*		Near threatened

Appendix 4 Photographs



View from Midrips westwards, showing artificial shingle sea-defence crest. Rough vegetation along Green Wall, and inland of this percolation saline lagoon and shingle habitats.



Actively in-rolling crest of shingle on coastal ridge, burying old shingle ridge habitat, in this case supporting shrubby sea-blite saltmarsh.



Nationally scarce sea pea at target note 44.



Percolation saline lagoon habitat surrounded by mosaic of saltmarsh and rough grassland with patches of vegetated shingle at Southbrooks.