



Habitats Regulations Assessment of England Coast Path proposals between Gretna and Allonby on: Solway Firth SAC River Eden SAC Upper Solway Flats & Marshes Ramsar site and Solway Firth SPA

Version 2.0

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Summary

I) Introduction

This is a record of the Habitats Regulations Assessment ('HRA') undertaken by Natural England, on behalf of the Secretary of State in accordance with the assessment and review provisions of the Conservation of Habitats and Species Regulations 2017 (as amended) ('the Habitats Regulations').

Natural England has a statutory duty under the Marine and Coastal Access Act 2009 to improve access to the English coast. This assessment considers the potential impacts of our detailed proposals for coastal access from Gretna to Allonby on the following sites of international importance for wildlife: Solway Firth SAC, River Eden SAC, Upper Solway Flats & Marshes Ramsar site, Solway Firth SPA.

England Coast Path proposals are within scope of a European Court judgment which was handed down in April 2018. Known colloquially as 'People over Wind', the judgment clarified how the impact of proposals on European protected sites is to be assessed. As a consequence, Natural England has reviewed the HRA previously undertaken and provided this updated HRA to the Secretary of State, to consider alongside the previously made proposals. This revised and updated version of HRA replaces the HRA element of the previously published Access and Sensitive Features Appraisal.

This assessment should be read alongside Natural England's related Coastal Access Report published on 25th July 2016 which fully describes and explains the access proposals for this stretch. The Overview explains common principles and background and the chapters explain how we propose to implement coastal access along each of the constituent lengths within the stretch.

<https://www.gov.uk/government/consultations/england-coast-path-from-gretna-to-allonby-comment-on-proposals>

II) Background

The main wildlife interests for this stretch of coast are summarised in Table 1 below (see Table 4 for a full list of qualifying features).

Table 1: Main wildlife interests

Interest	Description
Non-breeding waterbirds.	The Solway Firth is internationally important for numerous species of wintering waterbirds, whose numbers reach 121,325 individuals and include the entire Svalbard breeding population of the goose <i>Branta leucopsis</i> .
Subtidal and intertidal habitats.	<p>The SAC comprises large areas of intertidal sand and mudflats and saltmarshes along with subtidal sandbanks, reefs, vegetated shingle and fixed dunes. This is the third largest continuous area of intertidal habitat in the UK.</p> <p>These features are important in their own right and are essential habitats for nationally and internationally important populations of waterbirds.</p> <p>Saltmarsh and sand dune also provide habitat for natterjack toad and great crested newt.</p>

III) Our approach

Natural England's approach to ensuring the protection of sensitive nature conservation features under the Coastal Access Programme is set out in the Coastal Access Scheme [1]. Note that, following a ruling by the Court of Justice of the European Union (Case C-323/17 – usually cited as People over Wind), we have

issued a technical memorandum concerning the application of this methodology where assessment under the Habitats Regulations is required.

Our final published proposal for a stretch of England Coast Path (ECP) is preceded by detailed local consideration of options for route alignment, the extent of the coastal margin and any requirement for restrictions, exclusions or seasonal alternative routes. The proposal is thoroughly considered before being finalised and initial ideas may be modified or rejected during the iterative design process, drawing on the range of relevant expertise available within Natural England.

Evidence is also gathered as appropriate from a range of other sources which can include information and data held locally by external partners or from the experience of local landowners, environmental consultants and occupiers. The approach includes looking at any current visitor management practices, either informal or formal. It also involves discussing our emerging conclusions as appropriate with key local interests such as landowners or occupiers, conservation organisations or the local access authority. In these ways, any nature conservation concerns are discussed early and constructive solutions identified as necessary.

The conclusions of this assessment are approved by a member of Natural England staff who is not a member of coastal access programme team and who has responsibility for protected sites. This ensures appropriate separation of duties within Natural England.

****Update on data and evidence used to inform this assessment****

As part of revising and updating this HRA, Natural England has checked whether there is any new substantive data or evidence that has become available since the proposals were submitted to Secretary of State and which might have a bearing on the assessment. Where appropriate, we have contacted relevant stakeholders and interests to ask whether they are aware of any such new information.

The following new data and evidence has become available and has been taken into account when revising and updating in this assessment:

- Rockcliffe Marsh monitoring 2020. Bart Donato and Brian Hodgson [11].

IV) Aim and objectives for the design of our proposals

The new national arrangements for coastal access will establish a continuous well-maintained walking route around the coast and clarify where people can access the foreshore and other parts of the coastal margin. These changes will influence how people use the coast for recreation and our aim in designing our detailed proposals has been to secure and enhance opportunities for people to enjoy their visit whilst ensuring appropriate protection for affected European sites.

A key consideration in developing coastal access proposals for this stretch has been the possible impact of disturbance on non-breeding water birds as a result of recreational activities, particularly visitors with dogs.

Objectives for design of our detailed local proposals have been to:

- Avoid exacerbating issues at sensitive locations by making use of established coastal paths;
- Work with local partners to design detailed proposals that take account of and complement efforts to manage access in sensitive locations;
- Where practical, incorporate opportunities to raise awareness of the importance of this stretch of coast for wildlife and how people can help efforts to protect it.

V) Conclusion

We have considered whether our detailed proposals for coastal access between Gretna and Allonby might have an impact on Solway Firth SAC, River Eden SAC, Upper Solway Flats & Marshes Ramsar site, Solway Firth SPA. In Part C of this assessment, we identify some possible risks to the relevant qualifying features and conclude that proposals for coastal access, without incorporated mitigation, may have a significant effect on some of these sites. In Part D we consider these risks in more detail, taking account of avoidance and mitigation measures incorporated into our access proposal, and conclude that there will not be an adverse effect on the integrity any of these sites.

These measures are summarised in Table 2 below.

Table 2: Summary of risks and consequent mitigation built in to our proposals

Risk to conservation objectives	Relevant design features of the access proposals
<p>Saltmarsh</p> <p>More frequent trampling following changes in recreational activities as a result of the access proposal and constructing sections of new path through these habitats leads to reduction in extent of the feature within the site, changes in range and distribution of characteristic communities, sub-communities and transitional communities within the site, changes in vegetation structure, changes in species composition of characteristic saltmarsh communities and changes in creek morphology.</p>	<p>Where the ECP is aligned on saltmarsh, safe routes are promoted avoiding areas that are likely to be damaged by trampling.</p> <p>In places the path crosses channels within the saltmarsh or short sections of wetter ground due to drainage from adjacent land. At these locations, sleeper bridges will be installed to improve the path surface.</p>
<p>Natterjack toad</p> <p>An increase in incidences of dogs accessing breeding ponds, following changes in recreational activities as a result of the access proposal, causes disturbance, injury or death of eggs, larvae or adults, leading to a reduction in population abundance.</p>	<p>Where the ECP is aligned close to breeding ponds we will install signage at key locations along the route of the ECP and at key access points between the ECP and the coastal margin, asking that visitors do not allow dogs to enter ponds.</p>
<p>Non-breeding waterbirds</p> <p>Disturbance to foraging, resting or breeding birds, following changes in recreational activities as a result of the access proposal, leads to reduced fitness and reduction in population and/or contraction in the distribution of Qualifying Features within the site.</p>	<p>The alignment of the ECP avoids sensitive areas.</p> <p>Access restrictions and exclusions are proposed in sensitive areas at times of year when birds are present.</p> <p>Signage is proposed to highlight access restrictions and important roost areas and breeding areas.</p> <p>Various other mitigation measures (e.g. fencing), as described in section D3.2.7.</p>

VI) Implementation

Once a route for the ECP has been confirmed by the Secretary of State, we will work with Cumbria County Council to ensure any works on the ground are carried out with due regard to the conclusions of this appraisal and relevant statutory requirements.

VII) Thanks

The development of our proposals has been informed by input from people with relevant expertise within Natural England and other key organisations. The proposals have been thoroughly considered before being finalised and our initial ideas were modified during an iterative design process. We are particularly grateful to Solway Coast AONB, the RSPB, and to other organisations and local experts whose contributions and advice have helped inform the development of our proposals.

PART A: Introduction and information about the England Coast Path

A1. Introduction

Natural England has a statutory duty under the Marine and Coastal Access Act 2009 to improve access to the English coast. The duty is in two parts: one relating to securing a long-distance walking route around the whole coast -we call this the England Coast Path; the other relating to a margin of coastal land associated with the route where in appropriate places people will be able to spread out and explore, rest or picnic.

To secure these objectives, we must submit reports to the Secretary of State for Environment, Food and Rural Affairs recommending where the route should be and identifying the associated coastal margin. The reports must follow the approach set out in our methodology (the Coastal Access Scheme), which – as the legislation requires – has been approved by the Secretary of State for this purpose.

Where implementation of a Coastal Access Report could impact on a site designated for its international importance for wildlife, called a ‘European site’¹, a Habitats Regulations Assessment must be carried out.

The conclusions of this assessment are approved by a member of Natural England staff who is not a member of coastal access programme team and who has responsibility for protected sites. This ensures appropriate separation of duties within Natural England.

Natural England’s approach to ensuring the protection of sensitive nature conservation features under the Coastal Access Programme is set out in the Coastal Access Scheme [1]. Note that, following a ruling by the Court of Justice of the European Union (Case C-323/17 – usually cited as ‘People over Wind’), we have issued a technical memorandum concerning the application of this methodology where assessment under the Habitats Regulations is required. In order to comply with this ruling, the Secretary of State has asked Natural England to update the HRAs of any proposals that were not determined before April 2018.

A2. Details of the plan or project

This assessment considers Natural England’s proposals for coastal access along the stretch of coast between Gretna and Allonby that were published on 25th July 2016. Our proposals to the Secretary of State for this stretch of coast are presented in a report that explains how we propose to implement coastal access along each of the constituent lengths within the stretch. Within this assessment we consider each of the relevant chapters, both separately and as an overall access proposal for the stretch in question.

We have published an Overview Report and 5 chapters for this stretch which breakdown as outlined in Table 3.

¹ Ramsar sites and proposed Ramsar sites; potential Special Protection Areas (pSPA); candidate Special Areas of Conservation (cSAC); and sites identified, or required, as compensatory measures for adverse effects on European sites are treated in the same way by UK government policy

Table 3: Designated sites in each chapter of the coastal access proposals

Chapter	Start Point	End Point	River Eden SAC	Solway Firth SAC	Upper Solway Flats & Marshes Ramsar site	Solway Firth SPA
1	Gretna	Knockupworth Bridge, Carlisle	✓	✓	✓	✓
2	Knockupworth Bridge, Carlisle	Bowness-on-Solway	✓	✓	✓	✓
3	Bowness-on-Solway	Whitrigg Bridge		✓	✓	✓
4	Whitrigg Bridge	Silloth		✓	✓	✓
5	Silloth	Allonby		✓	✓	✓

Our proposals for coastal access have two main components:

- alignment of the England Coast Path; and
- identification of coastal margin.

England Coast Path

A continuous walking route around the coast – the England Coast Path National Trail - will be established by joining up existing coastal paths and creating new sections of path where necessary. The route will be established and maintained to National Trail quality standards. The coastal path will be able to ‘roll back’ as the coast erodes or where there is significant encroachment by the sea such as occurs in the case of a deliberate breach of sea defences.

Coastal Margin

An area of land associated with the proposed trail will become coastal margin, including all land seawards of the trail down to mean low water.

Coastal margin is typically subject to new coastal access rights, though there are some exceptions to this. The nature and limitations of the new rights, and the key types of land excepted from them, are explained in more detail in Chapter 2 of our Coastal Access Scheme [1]. Where there are already public or local rights to do other things, these are normally unaffected and will continue to exist in parallel to the new coastal access rights. The exception to this principle is any pre-existing open access rights under Part 1 of the Countryside and Rights of Way Act 2000 (CROW) over land falling within the coastal margin; the new coastal access rights will apply in place of these.

Where public access on foot already takes place on land within the coastal margin without any legal right for people to use the land in this way, the new coastal access rights will secure this existing use legally. Access secured in this way is subject to various national restrictions. It remains open to the owner of the land, should they wish, to continue tolerating other types of established public use not provided for by coastal access rights.

Of particular relevance to this assessment is that many areas of saltmarsh and mudflat within the Solway Firth are considered unsuitable for public access and will be excluded from the new coastal access rights at all times, regardless of any other considerations. As above, this will not affect other forms of established use, such as wildfowling or public rights of way (PRoW).

Promotion of the England Coast Path

The England Coast Path will be promoted as part of the family of National Trails. On the ground, the path will be easy to follow, with distinctive signposting at key intersections and places people can join the route. Directional way markers incorporating the National Trail acorn symbol will be used to guide people along the route. The coastal margin will not normally be marked on the ground, except where signage is necessary to highlight dangers that might not be obvious to visitors or clarify to the scope and/or extent of coastal access rights.

Information about the England Coast Path will be available on-line, including via the established National Trails website that has a range of useful information, including things for users to be aware of, such as temporary closures and diversions. The route is depicted on Ordnance Survey maps using the acorn symbol. The extent of the coastal margin is also depicted, together with an explanation about coastal access, where they do and don't apply and how to find out about local restrictions or exclusions.

Maintenance of the England Coast Path

The access proposals provide for the permanent establishment of a path and associated infrastructure, including additional mitigation measures referred to in this assessment and described in the access proposals. The England Coast Path will be part of the National Trails family of routes, for which there are national quality standards. Delivery is by local partnerships and there is regular reporting and scrutiny of key performance indicators, including the condition of the trail.

Responding to future change

The legal framework that underpins coastal access allows for adaptation in light of future change. In such circumstances, Natural England has powers to change the route of the trail and limit access rights over the coastal margin in ways that were not originally envisaged. These new powers can be used, as necessary, alongside informal management techniques and other measures to ensure that the integrity of the site is maintained in light of unforeseen future change.

Establishment of the trail

Establishment works to make the trail fit for use and prepare for opening, including any special measures that have been identified as necessary to protect the environment, will be carried out before the new public rights come into force on this stretch. Details of the works to be carried out and the estimated cost are provided in the access proposals. The cost of establishment works will be met by Natural England. Works on the ground to implement the proposals will be carried out by Cumbria County Council, subject to any further necessary consents being obtained, including to undertake operations on a SSSI. Natural England will provide further advice to the local authority carrying out the work as necessary.

PART B: Information about the European Site(s) which could be affected

B1. Brief description of the European Sites(s) and their Qualifying Features

River Eden SAC

The River Eden is a large river system on limestone and sandstone. The Eden headwaters are in the Yorkshire Dales and its discharge is in the Solway Firth Estuary.

The designated area of the River Eden includes headwaters running off the Orton block limestone, the North Pennine Moors and the eastern fells of the Lake District. The variation in geology, altitude and flow result in an extremely high number of aquatic plant species, with over 180 species recorded, many uncommon and at the edge of their geographical range. In places on the Eden there are still natural riparian habitats of wet woodland, sedge swamp and oxbow lakes.

The River Irthing in particular supports extensive areas of alder-floodplain woodland and the river shingles that this dynamic habitat forms upon. The Eden is one of the finest rivers in the UK for Atlantic salmon, bullhead and the three lamprey species found in the UK. The limestone streams and the upper main river support an extensive white-clawed crayfish population. Otter is found throughout the catchment. Ullswater, part of the River Eden SAC, is the second largest lake in the Lake District. It is a relatively deep lake, with both oligotrophic and mesotrophic elements to its flora and fauna. [3].

Solway Firth SAC

The Solway Firth SAC is a large shallow complex estuary formed by a variety of historical physical influences including glaciation, river erosion, sea level change and geological barriers from hard rock outcrops. Of the few examples of these estuaries within Great Britain, the Solway is the largest. It is also one of the least industrialised and most natural estuary systems in Europe.

Several rivers flow into the Solway Firth which results in the presence of migratory fish such as River and Sea Lamprey. However, it is perhaps best known for its large areas of intertidal sand and mudflats along with subtidal sandbanks, reefs, saltmarsh, vegetated shingle and fixed dunes. This is the third largest continuous area of intertidal habitat in the UK. [2].

Solway Firth SPA

The Solway Firth SPA was not included in the original Access and Sensitive Features Assessment (ASFA) [10] for the coastal access proposals. In October 2016, the Solway Firth SPA was proposed as an extension to the existing Upper Solway Flats & Marshes SPA, which was included in the original ASFA.

The Solway Firth is a large estuary on the west coast of Great Britain. The estuary is internationally important for numerous species of wintering waterbirds, whose numbers reach 121,325 individuals and include the entire Svalbard breeding population of barnacle goose.

In winter, the Solway Firth is also a stronghold for red-throated diver, common scoter and goosander. Over 3% of the British (GB) diver population, nearly 2% of the common scoter and just over 1% of the goosander GB populations regularly over winter here.

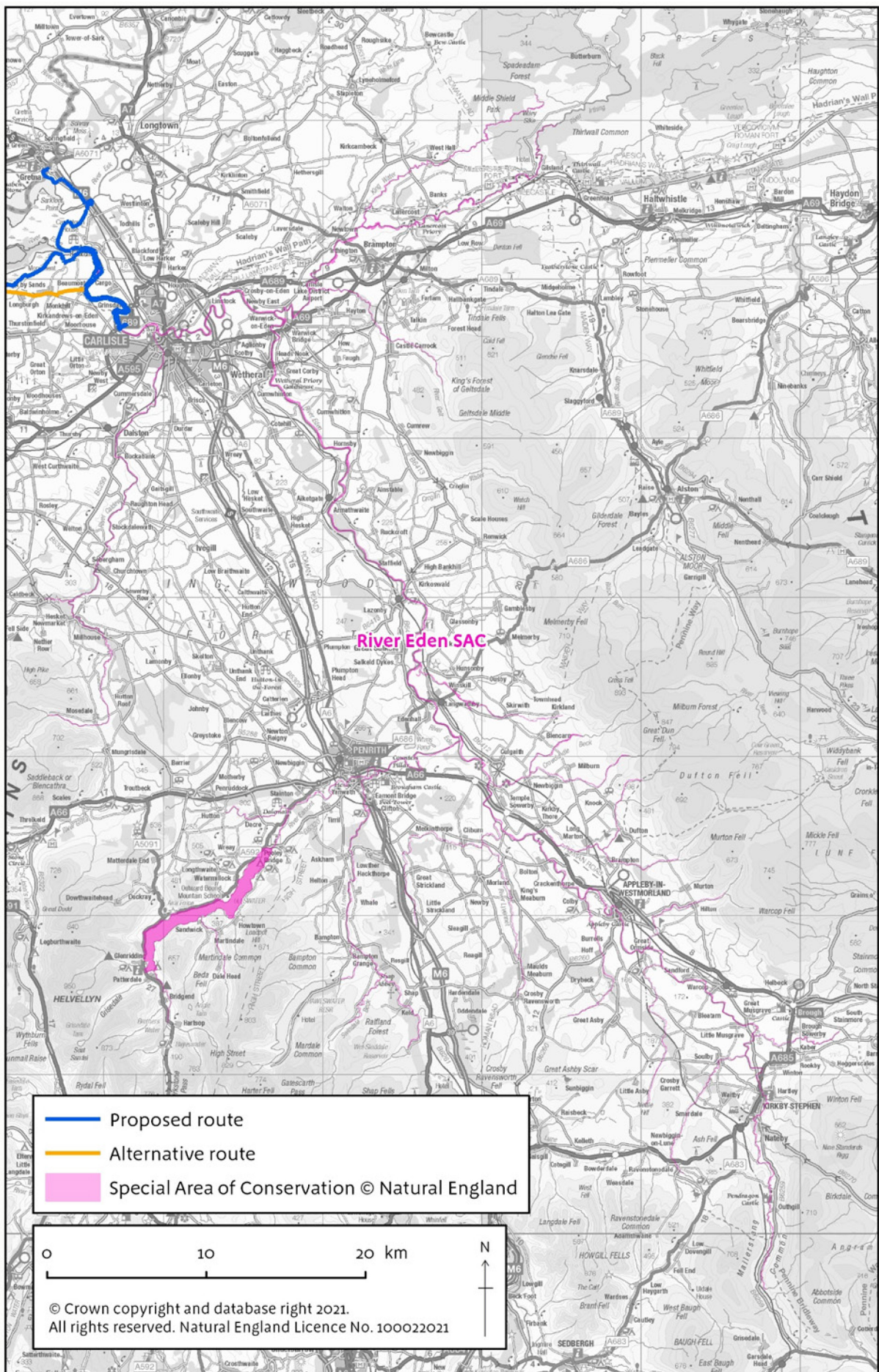
The SPA was proposed as an extension to the existing Upper Solway Flats & Marshes Special Protection Area because it supports these important wintering populations. In addition, a review in 2001 of the existing SPA showed that the mudflats, saltmarshes and grazing marshes also support important numbers of ringed plover, lapwing, cormorant, black headed gull, common gull and herring gull. The addition of these species and others to the existing SPA and renaming of the whole site to the Solway Firth SPA were proposed in October 2016, and the new Solway Firth SPA was designated in December 2020. [2, 4].

Upper Solway Flats & Marshes Ramsar Site

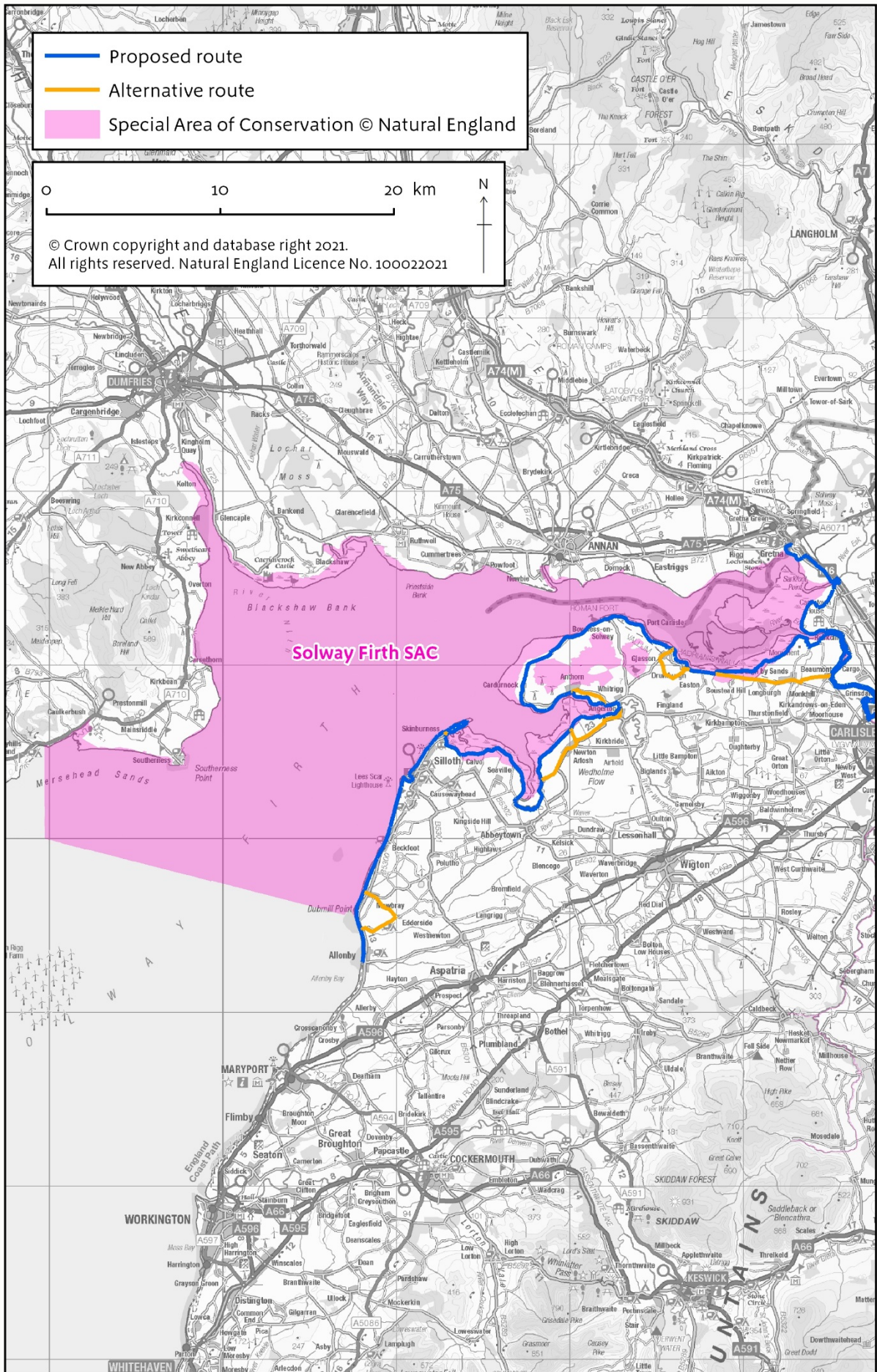
The extensive flats and marshes of the Solway Estuary form one of the largest and most important continuous areas of intertidal habitat in Britain. The site exhibits an outstanding display of vegetation transition from seaward edge communities through grassy saltmarsh to mature marsh.

The estuary is internationally important for numerous species of wintering waterbirds, whose numbers reach 121,325 individuals and include the entire Svalbard breeding population of barnacle goose. The site is a vital estuary link used by various migrating waders, and the area is used for recreation, fishing, and grazing. [5].

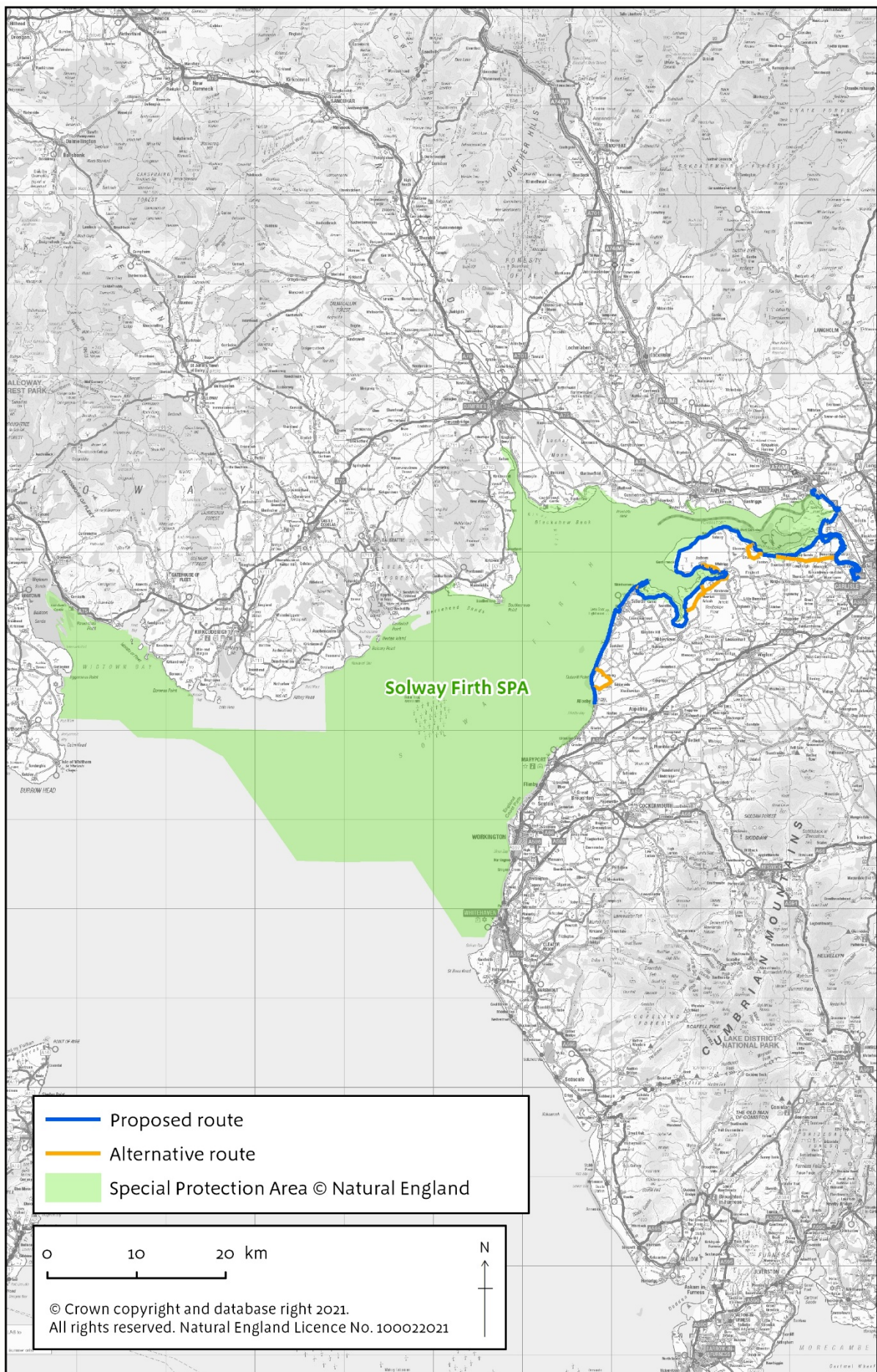
Map of Eden SAC showing proposed route of the ECP



Map of Solway Firth SAC showing proposed route of the ECP



Map of Solway Firth SPA showing proposed route of the ECP



Map of Upper Solway Flats & Marshes Ramsar Site showing proposed route of the ECP

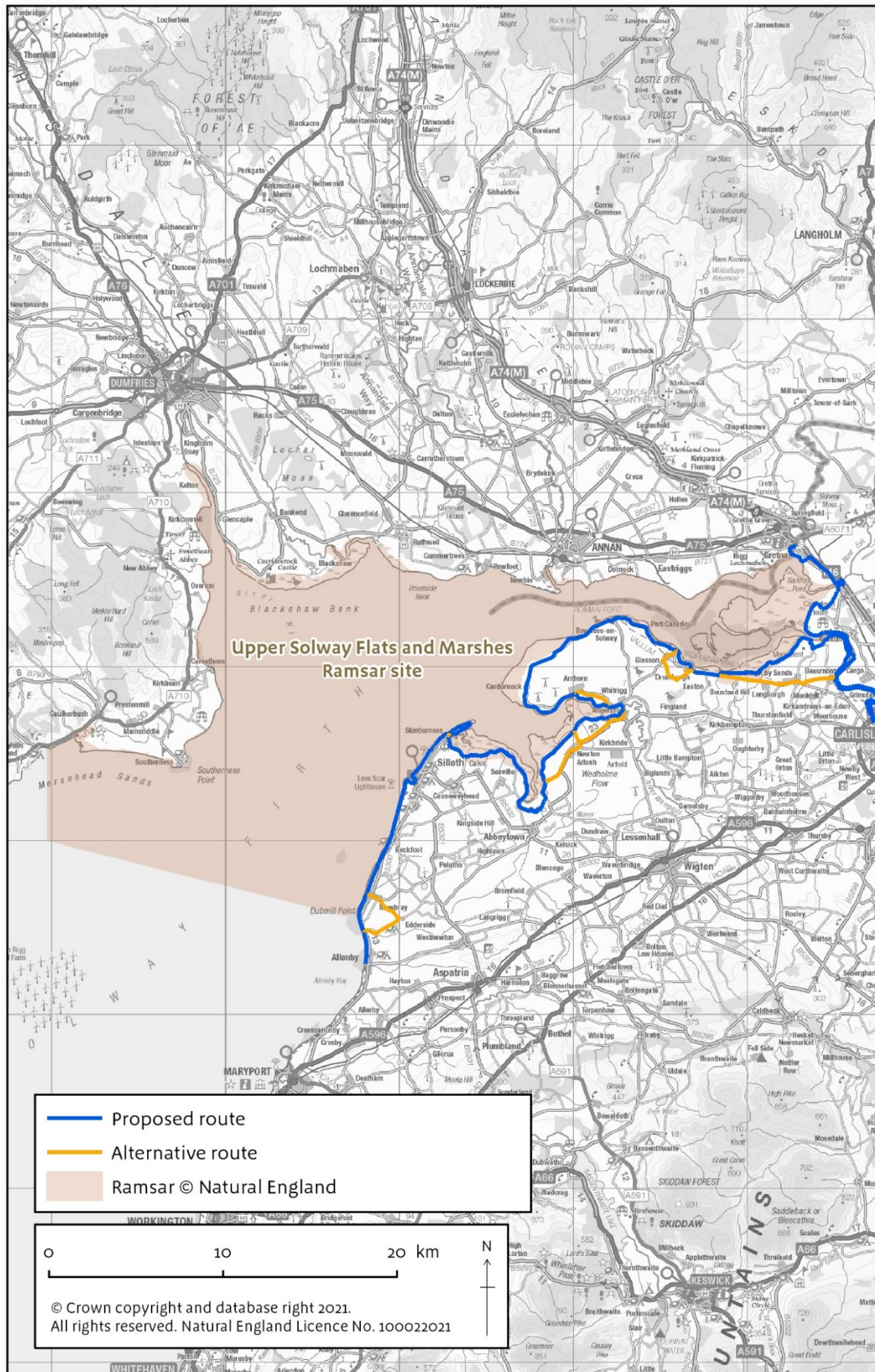


Table 4: Complete list of the qualifying features of the European Sites which could be affected by the access proposals.

Qualifying feature	Solway Firth SAC	River Eden SAC	Solway Firth SPA	Upper Solway Flats & Marshes Ramsar Site
H1110 Sandbanks which are slightly covered by sea water all the time	✓			
H1130 Estuaries ¹	✓			
H1140 Mudflats and sandflats not covered by seawater at low tide	✓			
H1170 Reefs	✓			
H1220 Perennial vegetation of stony banks	✓			
H1310 <i>Salicornia</i> and other annuals colonising mud and sand	✓			
H1330 Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>)	✓			
H2130 Fixed dunes with herbaceous vegetation ('Grey dunes')	✓			
S1095 Sea lamprey, <i>Petromyzon marinus</i>	✓	✓		
S1099 River lamprey, <i>Lampetra fluviatilis</i>	✓	✓		
H3130 Oligotrophic to mesotrophic standing water with vegetation		✓		
H3260 Water courses of plain to montane levels with <i>R. fluitantis</i>		✓		
H91E0 Alluvial woods with <i>A. glutinosa</i> , <i>F. excelsior</i>		✓		
S1092 Freshwater crayfish, <i>Austropotamobius pallipes</i>		✓		
S1096 Brook lamprey, <i>Lampetra planeri</i>		✓		
S1106 Atlantic salmon, <i>Salmo salar</i>		✓		
S1163 Bullhead, <i>Cottus gobio</i>		✓		
S1355 Otter, <i>Lutra lutra</i>		✓		
Barnacle goose, <i>Branta leucopsis</i> - A045-A, non-breeding			✓	✓
Bar-tailed godwit, <i>Limosa lapponica</i> - A157, non-breeding			✓	✓
Curlew, <i>Numenius arquata</i> - A160, non-breeding			✓	✓
Golden plover, <i>Pluvialis apricaria</i> - A140, non-breeding			✓	
Knot, <i>Calidris canutus</i> - A143, non-breeding			✓	✓
Oystercatcher, <i>Haematopus ostralegus</i> - A130, non-breeding			✓	✓
Pink-footed goose, <i>Anser brachyrhynchus</i> - A040, non-breeding			✓	✓
Pintail, <i>Anas acuta</i> - A054, non-breeding			✓	✓
Redshank, <i>Tringa totanus</i> - A162, non-breeding			✓	✓
Red-throated diver <i>Gavia stellata</i> non-breeding			✓	
Ringed plover <i>Charadrius hiaticula</i> non-breeding			✓	
Scaup, <i>Aythya marila</i> - A062, non-breeding			✓	✓
Waterbird assemblage ²			✓	✓
Whooper swan, <i>Cygnus cygnus</i> - A038-B, non-breeding			✓	✓
Wetland animal assemblage ³				✓

¹ The estuaries features comprises the sub-features reefs, *Salicornia* and other annuals colonising mud and sand, Atlantic salt meadows, intertidal mudflats and sandflats, sandbanks which are slightly covered by water at all times, rocky scar communities, river lamprey and sea lamprey.

² Waterbird assemblage - In addition to the qualifying features the assemblage includes nationally important populations of the following species: **shelduck** *Tadorna tadorna*, **shoveler** *Anas clypeata*, **goldeneye** *Bucphala clangula*, **grey plover** *Pluvialis squatorola*, **sanderling** *Calidris alba*, **dunlin** *Calidris alpina*, **turnstone** *Arenaria interpres*, **teal** *Anas crecca*, **common scoter** *Melanitta nigra*, **goosander** *Mergus merganser*, **lapwing** *Vanellus vanellus*, **cormorant** *Phalacrocorax carbo*, **black-headed gull** *Larus ridibundus*, **common gull** *Larus canus*, **herring gull** [REF. 22]

³ Natterjack toad *Epidalea calamita* and great crested newt *Triturus cristatus*)

B2. European Site Conservation Objectives (including supplementary advice)

Natural England provides advice about the Conservation Objectives for European Sites in England in its role as the statutory nature conservation body. These Objectives (including any Supplementary Advice which may be available) are the necessary context for all HRAs.

The overarching Conservation Objectives for every European Site in England are to ensure that the integrity of each site is maintained or restored as appropriate, and that each site contributes to achieving the aims of the Habitats Regulations, by either maintaining or restoring (as appropriate):

- The extent and distribution of their qualifying natural habitats,
- The structure and function (including typical species) of their qualifying natural habitats,
- The supporting processes on which their qualifying natural habitats rely,
- The supporting processes on which the habitats of their qualifying features rely,
- The population of each of their qualifying features, and
- The distribution of their qualifying features within the site.

Where Conservation Objectives Supplementary Advice is available, which provides further detail about the features' structure, function and supporting processes mentioned above, the implications of the plan or project on the specific attributes and targets listed in the advice will be taken into account in this assessment.

Supplementary advice on the conservation objectives for Solway Firth SAC can be viewed at:

<https://designatedsites.naturalengland.org.uk/SiteGeneralDetail.aspx?SiteCode=UK0013025&SiteName=solway&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=>

Supplementary advice on the conservation objectives for River Eden SAC can be viewed at:

https://designatedsites.naturalengland.org.uk/SiteGeneralDetail.aspx?SiteCode=UK0012643&SiteName=river_eden&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=

Advice to support management, Solway Firth SPA can be viewed at:

<https://designatedsites.naturalengland.org.uk/SiteGeneralDetail.aspx?SiteCode=UK9005012&SiteName=solway&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=>

For Ramsar sites, a decision has been made by Defra and Natural England not to produce Conservation Advice packages, instead focussing on the production of Conservation Objectives. As the provisions on the Habitats Regulations relating to Habitat Regulations Assessments extend to Ramsar sites, Natural England considers the Conservation Advice packages for the overlapping European Marine Site designations to be, in most cases, sufficient to support the management of the Ramsar interests.

PART C: Screening of the plan or project for appropriate assessment

C1. Is the plan or project either directly connected with or necessary to the (conservation) management (of the European Site's qualifying features)?

The Coastal Access Plan is not directly connected with or necessary to the management of the European sites for nature conservation listed in B1 above.

Conclusion:

As the plan or project is not either directly connected or necessary to the management of all of the European site(s)'s qualifying features, and/or contains non-conservation elements, further Habitats Regulations assessment is required.

C2. Is there a likelihood [or risk] of significant [adverse] effects ('LSE')?

This section details whether those constituent elements of the plan or project which are (a) not directly connected with or necessary to the management of the European Site(s) features and (b) could conceivably adversely affect a European site, would have a **likely significant effect**, either alone or in combination with other plans and projects, upon the European sites and which could undermine the achievement of the site's conservation objectives referred to in section B2.

In accordance with case law, this HRA has considered an effect to be 'likely' if it '*cannot be excluded on the basis of objective information*' and is 'significant' if it '*undermines the conservation objectives*'. In accordance with Defra guidance on the approach to be taken to this decision, in plain English, the test asks whether the plan or project '*may*' have a significant effect (i.e. there is a risk or a possibility of such an effect).

This assessment of risk therefore takes into account the precautionary principle (where there is scientific doubt) and **excludes**, at this stage, any measures proposed in the submitted details of the plan/project that are specifically intended to avoid or reduce harmful effects on the European site(s).

Each of the project elements has been tested in view of the European Site Conservation Objectives and against each of the relevant European site qualifying features. An assessment of potential effects using best available evidence and information has been made.

C2.1 Risk of Significant Effects Alone

The first step is to consider whether any elements of the project are likely to have a significant effect upon a European site 'alone' (that is when considered in the context of the prevailing environmental conditions at the site but in isolation of the combined effects of any other 'plans and projects'). Such effects do not include those deemed to be so insignificant as to be trivial or inconsequential.

In this section, we assess risks to qualifying features, taking account of their sensitivity to coastal walking and other recreational activities associated with coastal access proposals, and in view of each site's Conservation Objectives.

Some of the qualifying features considered in this assessment occupy similar ecological niches and share ways in which they might be sensitive to the access proposals. To avoid

repetition and improve the clarity of this assessment we have grouped the qualifying features as shown in Table 5 below.

Table 5: Feature groups

Feature group	Qualifying feature(s)
Mudflats and sandflats not covered by seawater at low tide	Mudflats and sandflats not covered by seawater at low tide
Perennial vegetation of stony banks	Perennial vegetation of stony banks
Saltmarshes	<i>Salicornia</i> and other annuals colonising mud and sand Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>)
Fixed dunes with herbaceous vegetation	Fixed dunes with herbaceous vegetation ("grey dunes")
Reefs and rocky scar communities	Reefs
Sandbanks which are slightly covered by water at all times	Sandbanks which are slightly covered by sea water all the time
Estuaries	Estuaries
Fish (River Eden SAC)	Sea lamprey, <i>Petromyzon marinus</i> River lamprey, <i>Lampetra fluviatilis</i> Brook lamprey, <i>Lampetra planeri</i> Atlantic salmon, <i>Salmo salar</i> Bullhead, <i>Cottus gobio</i>
Lampreys (Solway Firth SAC)	Sea lamprey, <i>Petromyzon marinus</i> River lamprey, <i>Lampetra fluviatilis</i>
Oligotrophic to mesotrophic standing water with vegetation	Oligotrophic to mesotrophic standing water with vegetation
Water courses of plain to montane levels with <i>R. fluitantis</i>	Water courses of plain to montane levels with <i>R. fluitantis</i>
Alluvial woods with <i>A. glutinosa</i>, <i>F. excelsior</i>	Alluvial woods with <i>A. glutinosa</i> , <i>F. excelsior</i>
Freshwater crayfish	Freshwater crayfish, <i>Austropotamobius pallipes</i>

Feature group	Qualifying feature(s)
Otter	Otter, <i>Lutra lutra</i>
Non-breeding waterbirds (all features except scaup, red throated diver and waterbird assemblage named feature common scoter).	Barnacle goose, <i>Branta leucopsis</i> , non-breeding Bar-tailed godwit, <i>Limosa lapponica</i> , non-breeding Curlew, <i>Numenius arquata</i> , non-breeding Golden plover, <i>Pluvialis apricaria</i> , non-breeding Knot, <i>Calidris canutus</i> , non-breeding Oystercatcher, <i>Haematopus ostralegus</i> , non-breeding Pink-footed goose, <i>Anser brachyrhynchus</i> , non-breeding Pintail, <i>Anas acuta</i> , non-breeding Redshank, <i>Tringa totanus</i> , non-breeding Ringed plover <i>Charadrius hiaticula</i> , non-breeding Waterbird assemblage (excluding common scoter) Whooper swan, <i>Cygnus cygnus</i> , non-breeding
Non-breeding waterbirds (scaup, red-throated diver and waterbird assemblage named feature common scoter).	Red-throated diver <i>Gavia stellate</i> , non-breeding Scaup, <i>Aythya marila</i> , non-breeding, waterbird assemblage (in part - common scoter only)
Wetland animal assemblage (natterjack toad and great crested newt)	Wetland animal assemblage (natterjack toad <i>Epidalea calamita</i> , great crested newt <i>Triturus cristatus</i>)

The risk of significant effects alone is considered in tables 6 and 7.

Table 6: Assessment of likely significant effects alone – River Eden SAC

Feature Group	Relevant pressure	Sensitivity to coastal access proposals	Assessment of risk to site conservation objectives	LSE alone?
Fish	Physical damage to supporting habitat	The aquatic environment inhabited by fish is unlikely to be affected by the access proposals. A possible consideration is whether the proposals might enable pedestrian access to areas of shallow water with gravel that are used by spawning fish.	<p>Low risk</p> <p>Sea lamprey, river lamprey, brook lamprey, Atlantic salmon and bullhead require gravel areas in the river for spawning.</p> <p>The proposed route for the ECP follows the River Eden inland to the first crossing point over the River Eden near Carlisle. The route is aligned along the banks of the River Eden on public rights of way and other walked routes. The route along the west bank of the river from Knockupworth to Grinsdale and then just south of Beaumont is already a designated National Trail (the Hadrian's Wall Path). The paths on both sides of the river are already popular with walkers, and the way they are used is not expected to change as a result of the proposals. No new infrastructure will be installed along either bank of the river that will enable or encourage entry to the water. For these reasons, physical damage to fish supporting habitat as a result of the proposals is unlikely to occur.</p>	No
Oligotrophic to mesotrophic standing water with vegetation	n/a	This feature is not found within the project area.	None, as this feature is at Ullswater, which is a long way upstream of the project area.	No
Water courses of plain to montane levels with <i>R. fluitantis</i>	n/a	n/a	<p>The line of the proposed ECP follows existing public rights of way (including the Hadrian's Wall National Trail) and other walked routes where it coincides with the banks of the River Eden downstream of Carlisle. The paths on both sides of the river are already popular with walkers, and the way they are used is not expected to change as a result of the proposals. No new river crossings or other infrastructure works are proposed that would directly affect the River Eden or its tributaries.</p> <p>There are therefore no significant pathways for impacts on this feature.</p>	No
Alluvial woods with <i>Alnus glutinosa</i> , <i>Fraxinus excelsior</i>	n/a	n/a	<p>Low risk</p> <p>The line of the proposed ECP follows existing public rights of way (including the Hadrian's Wall National Trail) and other walked routes where it coincides with the banks of the River Eden downstream of Carlisle. The paths on both sides of the river are already popular with walkers, and the way they are used is not expected to change as a result of the proposals. No new river crossings or other infrastructure works are proposed that would directly affect the River Eden or its tributaries.</p> <p>There are therefore no significant pathways for impacts on this feature.</p>	No
Freshwater crayfish	n/a	n/a	<p>Low risk</p> <p>The tributaries of the Eden, especially those flowing off limestone, are of particular importance for this species. [6].</p> <p>The ECP is aligned along the lower reaches of the River Eden, downstream of Carlisle. There are no significant pathways for impacts on this feature.</p>	No
Otter	Disturbance of resting otter	Otter may be sensitive to disturbance from recreational activities if the abundance and/or quality of sites for breeding and resting is reduced.	<p>Low risk</p> <p>Otter are highly mobile and are able to avoid disturbing activities whilst active. They are active at night, when disturbance from walkers is unlikely. Otter usually use several sites for breeding or resting and choose locations where they can avoid being disturbed. Roaming dogs are a possible source of disturbance to resting otter.</p> <p>The line of the proposed ECP follows existing rights of way and other walked routes where it coincides with the River Eden SAC. The paths on both sides of the river are already popular with walkers, and the way they are used, including by dog walkers, is not expected to change as a result of the proposals. No new infrastructure will be installed along either bank of the river that will enable or encourage people or their dogs to leave the path. For these reasons, additional disturbance to resting otter is unlikely to occur as a result of the proposals.</p>	No

Table 7: Assessment of likely significant effects alone – Solway Firth SAC, Upper Solway flats and Marshes Ramsar and Solway Firth SPA

Feature Group	Relevant pressure	Sensitivity to coastal access proposals	Assessment of risk to site conservation objectives	LSE alone?
Mudflats and sandflats not covered by seawater at low tide.	Trampling of sensitive habitats.	<p>Small plants and the burrows of small creatures living in the top layer of sand and mud flats may be compacted if people walk on them. Compaction can cause the burrows to collapse.</p> <p>These communities are resilient to occasional compaction caused by people who venture out at low tide, because the structure of the surrounding substrate is restored by the next tide.</p> <p>However, repeated or widespread compaction may result in localised losses of sensitive species and/or reduce food availability for waterbirds and some fish species.</p>	<p>The level of risk is low.</p> <p>It is well understood locally that the extensive flats of the Solway are dangerous to walk on because of soft mud and the rate of incoming tides.</p> <p>There will be widespread exclusion of coastal access rights to areas of mud and sand that are considered unsuitable for a general right of access.</p> <p>Where exclusions are not proposed, it is because the flats closest to the shore are already used for beach activities.</p> <p>Therefore, there is no credible risk of significant damage to this feature as a result of the proposals.</p>	No
Perennial vegetation of stony banks.	Trampling of fragile vegetation.	Vegetation may be lost, damaged and prevented from establishing on shingle where people regularly walk.	The level of risk is higher where access proposals would be likely to bring people onto areas of vegetated shingle.	Yes
Saltmarshes	Trampling of fragile vegetation.	Vegetation may be lost, damaged and prevented from establishing on soft, wet substrates where people regularly walk.	The level of risk is higher in areas where the ECP is aligned on or very close to saltmarsh.	Yes
Saltmarshes	Habitat loss due to path construction and other associated infrastructure.	Vegetation may be lost under path surfacing or infrastructure.	The level of risk is higher in areas where the ECP is aligned on or very close to saltmarsh.	Yes
Fixed dunes with herbaceous vegetation.	Trampling of dune vegetation.	<p>Fixed dune habitat is not especially sensitive to trampling damage.</p> <p>The main concern would be if levels of trampling within the coastal margin became so high as to change the fixed dunes on a large scale into a different, dynamic, dune habitat.</p>	<p>The ECP is aligned through fixed dunes at Grune point on existing paths. The existing paths are already popular so we wouldn't expect to see anything but a small increase in use as a result of promoting the route as a National Trail.</p> <p>Fixed dunes fall within the coastal margin at Grune Point. These dunes are an area of open ground which the public already access. The majority of people stick to the paths through this area and we do not expect the established levels and pattern of use in the dunes to change as a result of becoming part of the coastal margin. New signage, waymarking and improved route alignment will help to manage access more effectively in this area. Therefore, there is a low risk of the proposals having an impact on the fixed dune habitat.</p>	No
Fixed dunes with herbaceous vegetation.	Habitat loss due to path construction and other associated infrastructure.	Habitat may be lost under path surfacing or infrastructure.	The level of risk is higher in areas where the ECP is aligned through sand dunes.	Yes
Fixed dunes with herbaceous vegetation.	Nutrient enrichment of soils by dog faeces.	Sand dune vegetation can be sensitive to localised nutrient enrichment from dogs leading to changes in vegetation composition; this is particularly an issue due to the otherwise very nutrient-poor conditions. [REF. 1 & 7]	<p>The level of risk is low.</p> <p>Research shows that impacts from nutrient enrichment tend to occur alongside paths at large car parks and popular access points. This is because defecation will normally take place within about 10 minutes of the walk starting. In addition, most faeces will be deposited close to the path [Ref. 8].</p>	No

Feature Group	Relevant pressure	Sensitivity to coastal access proposals	Assessment of risk to site conservation objectives	LSE alone?
			<p>No new car parks or access points to dune habitat in the SAC will be created by the access proposals and the proposed route of the ECP follows established paths.</p> <p>Once walkers and their dogs are on the line of the ECP, any enrichment will be widely dispersed along the path and therefore the risk of significant enrichment in the wider dunes is low. We will also put signs on the ECP way-marker posts asking dog owners to bag and remove dog faeces. Therefore, there is a low risk that the proposals will lead to changes in vegetation composition in the dune systems.</p>	
Fixed dunes with herbaceous vegetation.	Changes in conservation grazing patterns.	There is the potential for disturbance of grazing animals by dogs, leading to changes in the pattern of conservation grazing.	The level of risk is higher in areas with grazing animals where access is expected to increase.	Yes
Reefs	Trampling.	Reefs supporting intertidal mussels and biogenic reef structures such as honeycomb worm reef are sensitive to trampling damage.	The level of risk is higher where access proposals would be likely to bring people onto areas of reef.	Yes
Sandbanks which are slightly covered by water at all times.	None.	None.	This SAC qualifying feature is not present within the proposal area. As the sandbanks are covered by water at all times, they will not be accessible.	No
<p>Estuaries</p> <p>Comprising the sub-features reefs, saltmarsh, intertidal mudflats and sandflats, Sandbanks which are slightly covered by water at all times, rocky scar communities, river lamprey and sea lamprey.</p>	Trampling of fragile vegetation / substrate.	Some of the sub-features within this feature are sensitive to trampling; these are saltmarshes, reefs and rocky scar communities. The rest of the sub-features are not sensitive to trampling or are below mean low water and so are not affected by our proposals.	The level of risk is higher where access proposals would be likely to bring people into contact with reefs and saltmarsh.	Yes – for the sub-features reefs, <i>Salicornia</i> and other annuals colonising mud and sand, Atlantic salt meadows and rocky scar communities.
<p>Estuaries</p> <p>Comprising the sub-features reefs, saltmarsh, intertidal mudflats and sandflats, Sandbanks which are slightly covered by water at all times, rocky scar communities, river lamprey and sea lamprey</p>	Habitat loss due to path construction and other associated infrastructure.	Some of the sub-features within this feature could be affected by habitat loss due to path construction and associated infrastructure; these are saltmarshes.	The level of risk is higher where the ECP is aligned across saltmarsh.	Yes - for the sub-features <i>Salicornia</i> and other annuals colonising mud and sand, Atlantic salt meadows.
Fish (sea and river lamprey)	n/a	n/a	The Solway Firth provides migratory passage for river and sea lamprey to and from spawning and nursery grounds in a number of rivers, including the Eden. There is little if any scope for interaction between the coastal path proposals and these species in the Solway Firth.	No

Feature Group	Relevant pressure	Sensitivity to coastal access proposals	Assessment of risk to site conservation objectives	LSE alone?
Non-breeding waterbirds (scaup, red-throated diver and waterbird assemblage species common scoter).	Disturbance of feeding or resting birds.	Birds feeding on intertidal areas (including saltmarsh) or resting in the vicinity of the ECP or within the coastal margin may be disturbed by recreational activities including walking and walking with a dog.	These species feed offshore and roost on the water offshore. They spend little time in the areas affected by the proposals, instead both feeding and roosting on the shallow offshore waters of the Solway. There are no areas where coastal access provision is considered likely to impact either directly or indirectly on these species.	No
Non-breeding waterbirds (all features except scaup, red-throated diver and waterbird assemblage species common scoter).	Disturbance of feeding or resting birds.	Birds feeding on intertidal areas (including saltmarsh) or farmland; or resting in the vicinity of the ECP or within the coastal margin may be disturbed by recreational activities including walking and walking with a dog.	The level of risk is higher where access proposals would be likely to bring people close to places on which large numbers of birds depend including undisturbed roost sites and important feeding areas.	Yes
Non-breeding waterbirds (all features except scaup, red-throated diver and waterbird assemblage species common scoter).	Disturbance of breeding birds.	The breeding population of a species may contribute to the non-breeding population of a site by being wholly or largely resident. Breeding birds are potentially at risk from disturbance by recreational activities including walking and walking with a dog. Ground-nesting birds may leave their nests when disturbed; this leaves their eggs and chicks more vulnerable to mortality through exposure and/or predation. Juvenile birds, having left the nest, are also at risk from disturbance. Before they are able to fly, they are vulnerable to predation by dogs.	The level of risk is higher at places where a breeding population of a species significantly contributes to the non-breeding population. Most adult waterbirds leave the Solway Firth to breed. For most species, any adults that do remain to breed are not considered to contribute significantly to the non-breeding population. However, there are resident populations of oystercatcher, redshank & ringed plover that breed in the area and may contribute significantly to the non-breeding populations of these species. The following named features of the waterbird assemblage are also included in the assessment: herring gull, black headed gull and cormorant. Breeding herring gulls largely stay in the local area in the winter, forming an important proportion of the wintering population. Breeding success is important for recovery of the wintering population, and so there is a pathway for impact between the two seasons. Whilst the link is less strong, there is also a pathway for impact for black-headed gulls. Breeding cormorants represent an important proportion of the wintering population and hence are important in maintaining the species as part of the wintering assemblage.	Yes: for oystercatcher, redshank, ringed plover, herring gull, black headed gull and cormorant only.
Non-breeding waterbirds (all features except scaup, red-throated diver and waterbird assemblage species common scoter).	Path construction and other associated infrastructure.	Supporting habitat could be lost under path surfacing and infrastructure.	The level of risk is higher where the ECP is aligned through supporting habitats.	Yes
Non-breeding waterbirds (all features except scaup, red-throated diver and waterbird assemblage species common scoter).	Establishment works.	Roosting, feeding or breeding birds could be disturbed during establishment works.	The level of risk is higher where establishment works are required close to areas where these birds roost, feed or breed.	Yes
Wetland animal assemblage: Natterjack toad <i>Bufo calamita</i> , great crested newt <i>Triturus cristatus</i> .	Disturbance or injury to amphibians from recreational activities.	Dogs running around the shallow edges of ponds where natterjacks are present could cause injury to the adult toads, eggs or tadpoles. People walking near breeding ponds could tread on emerging toadlets in early summer. Dogs running around the shallow edges of ponds where great crested newts are present could cause injury to the adult newts, eggs or newt larvae.	The level of risk is higher where the access proposals would be likely to bring people and dogs near to breeding ponds.	Yes

Feature Group	Relevant pressure	Sensitivity to coastal access proposals	Assessment of risk to site conservation objectives	LSE alone?
Wetland animal assemblage: Natterjack toad <i>Bufo calamita</i> , great crested newt <i>Triturus cristatus</i> .	Path construction and maintenance.	Path construction and installation of infrastructure could result in natterjacks and great crested newts being injured or killed and lead to loss of supporting habitat. Leaving holes exposed could lead to animals being trapped, and they could be squashed while sheltering in stacked materials. Animals could be disturbed, injured or killed during vegetation clearance and other on-going maintenance work.	The level of risk is high in areas where natterjacks or great crested newts are known to occur.	Yes
Wetland animal assemblage: Natterjack toad <i>Bufo calamita</i> , great crested newt <i>Triturus cristatus</i> .	Spread of disease by people and dogs.	Potential for chytrid fungus <i>Batrachochytrium dendrobatidis</i> and other diseases to be spread by people and dogs.	The level of risk is higher in areas where the ECP connects sites where natterjacks or great crested newts are known to occur, particularly if this is new access.	Yes

Conclusion, River Eden SAC:

The plan or project alone is unlikely to have a significant effect on the following qualifying features:

- H3130 Oligotrophic to mesotrophic standing water with vegetation
- H3260 Water courses of plain to montane levels with *R. fluitantis*
- H91E0 Alluvial woods with *A. glutinosa*, *F. excelsior*
- S1092 Freshwater crayfish, *Austropotamobius pallipes*
- S1096 Brook lamprey, *Lampetra planeri*
- S1106 Atlantic salmon, *Salmo salar*
- S1163 Bullhead, *Cottus gobio*
- S1355 Otter, *Lutra lutra*
- S1095 Sea lamprey, *Petromyzon marinus*
- S1099 River lamprey, *Lampetra fluviatilis*

Go to C2.2 (Any appreciable risks identified that are not significant alone are further considered in section C2.2).

Conclusion, Solway Firth SAC:

The plan or project alone is likely to have a significant effect on the following qualifying features:

- H1130 Estuaries (sub-features reefs, *Salicornia* and other annuals colonising mud and sand, Atlantic salt meadows, rocky scar communities)
- H1170 Reefs
- H1220 Perennial vegetation of stony banks
- H1310 *Salicornia* and other annuals colonising mud and sand
- H1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)
- H2130 Fixed dunes with herbaceous vegetation ('Grey dunes')

Go to C3.

The plan or project alone is unlikely to have a significant effect on the following qualifying features:

- H1130 Estuaries (sub-features intertidal mudflats and sandflats, sandbanks which are slightly covered by water at all times, river lamprey and Sea lamprey.)
- H1110 Sandbanks which are slightly covered by sea water all the time
- H1140 Mudflats and sandflats not covered by seawater at low tide
- S1095 Sea lamprey, *Petromyzon marinus*
- S1099 River lamprey, *Lampetra fluviatilis*

Go to C2.2 (Any appreciable risks identified that are not significant alone are further considered in section C2.2).

Conclusion, Solway Firth SPA, Upper Solway Flats and Marshes Ramsar site

The plan or project alone is likely to have a significant effect on the following qualifying features:

- Barnacle goose, *Branta leucopsis* - A045-A, non-breeding
- Bar-tailed godwit, *Limosa lapponica* - A157, non-breeding
- Curlew, *Numenius arquata* - A160, non-breeding
- Golden plover, *Pluvialis apricaria* - A140, non-breeding
- Knot, *Calidris canutus* - A143, non-breeding
- Oystercatcher, *Haematopus ostralegus* - A130, non-breeding
- Pink-footed goose, *Anser brachyrhynchus* - A040, non-breeding
- Pintail, *Anas acuta* - A054, non-breeding
- Redshank, *Tringa totanus* - A162, non-breeding
- Ringed plover *Charadrius hiaticula* non-breeding
- Waterbird assemblage (excluding common scoter)
- Whooper swan, *Cygnus cygnus* - A038-B, non-breeding
- Wetland animal assemblage

Go to C3.

The plan or project alone is unlikely to have a significant effect on the following qualifying features:

- Red-throated diver *Gavia stellata* non-breeding
- Scaup, *Aythya marila* - A062, non-breeding
- waterbird assemblage (in part - common scoter only)

Go to C2.2 (Any appreciable risks identified that are not significant alone are further considered in section C2.2).

C2.2 Risk of Significant Effects in-combination with the effects from other plans and projects

The need for further assessment of the risk of in-combination effects is considered here.

Natural England considers that it is the appreciable risks of effects (from a proposed plan or project) that are not themselves considered to be significant alone which must be further assessed to determine whether they could have a combined effect significant enough to require an appropriate assessment.

In C2.1 the qualifying features on which the access proposals might have an effect alone are identified – these are considered further in Part D of this assessment. For all other features, no other appreciable risks arising from the access proposals were identified that have the potential to act in combination with similar risks from other proposed plans or projects to also become significant. It has therefore been excluded, on the basis of objective information, that the project is likely to have a significant effect in-combination with other proposed plans or projects.

C3. Overall Screening Decision for the Plan/Project

On the basis of the details submitted, Natural England has considered the plan or project under Regulation 63(1)(a) of the Habitats Regulations and made an assessment of whether it will have a likely significant effect on a European site, either alone or in combination with other plans and projects.

In light of sections C1 and C2 of this assessment above, Natural England has concluded:

As the plan or project is likely to have significant effects (or *may* have significant effects) on some or all of the Qualifying Features of the European Site(s) 'alone', further appropriate assessment of the project 'alone' is required.

PART D: Appropriate Assessment and Conclusions on Site Integrity

D1. Scope of Appropriate Assessment

In light of the screening decision above in section C3, this section contains the Appropriate Assessment of the implications of the plan or project in view of the Conservation Objectives for the European Site(s) at risk.

The Sites and the Qualifying Feature for which significant effects (whether 'alone' or 'in combination') are likely or cannot be ruled out and which are initially relevant to this appropriate assessment are:

Solway Firth SAC

- Estuaries (sub-features reefs, *Salicornia* and other annuals colonising mud and sand, Atlantic salt meadows, rocky scar communities)
- Reefs
- Perennial vegetation of stony banks
- *Salicornia* and other annuals colonising mud and sand
- Atlantic salt meadows (*Glauco-Puccinellietalia maritima*)
- Fixed dunes with herbaceous vegetation ('Grey dunes')

Upper Solway Flats and Marshes Ramsar

- Barnacle goose, *Branta leucopsis*, non-breeding
- Bar-tailed godwit, *Limosa lapponica*, non-breeding
- Curlew, *Numenius arquata*, non-breeding
- Golden plover, *Pluvialis apricaria*, non-breeding
- Knot, *Calidris canutus*, non-breeding
- Oystercatcher, *Haematopus ostralegus*, non-breeding
- Pink-footed goose, *Anser brachyrhynchus*, non-breeding
- Pintail, *Anas acuta*, non-breeding
- Redshank, *Tringa tetanus*, non-breeding
- Waterbird assemblage
- Whooper swan, *Cygnus Cygnus*, non-breeding
- Wetland animal assemblage

Solway Firth SPA

- Barnacle goose, *Branta leucopsis*, non-breeding
- Bar-tailed godwit, *Limosa lapponica*, non-breeding
- Curlew, *Numenius arquata*, non-breeding
- Golden plover, *Pluvialis apricaria*, non-breeding
- Knot, *Calidris canutus*, non-breeding
- Oystercatcher, *Haematopus ostralegus*, non-breeding

- Pink-footed goose, *Anser brachyrhynchus*, non-breeding
- Pintail, *Anas acuta*, non-breeding
- Redshank, *Tringa totanus*, non-breeding
- Ringed plover *Charadrius hiaticula* non-breeding
- Waterbird assemblage (excluding common scoter)
- Whooper swan, *Cygnus cygnus*, non-breeding

Tables 8 and 9 outline the environmental pressures and the affected qualifying features within each designated site which are covered by the appropriate assessment.

Table 8: Scope of Appropriate Assessment: Solway Firth SAC

Environmental pressure	Qualifying features affected	Risk to Conservation Objectives
Trampling of vegetation and / or substrate.	<p>Saltmarshes (H1310 <i>Salicornia</i> and other annuals colonising mud and sand, H1330 Atlantic salt meadows).</p> <p>H1220 Perennial vegetation of stony banks.</p> <p>H1130 Estuaries (subfeatures: <i>Salicornia</i> and other annuals colonising mud and sand, Atlantic salt meadows).</p>	<p>More frequent trampling, following changes in recreational activities as a result of the access proposal, leads to:</p> <p>Reduction in extent of the feature within the site,</p> <p>Changes in range and distribution of characteristic communities, sub-communities and transitional communities within the site,</p> <p>Changes in vegetation structure,</p> <p>Changes in species composition of characteristic communities.</p>
Physical damage by abrasion.	<p>H1170 Reefs.</p> <p>H1130 Estuaries (subfeatures: reef and rocky scar communities).</p>	<p>More frequent physical damage from abrasion, following changes in recreational activities as a result of the access proposal, leads to:</p> <p>Reduction in extent of the feature within the site,</p> <p>Changes in age structure of common mussel <i>Mytilus edulis</i> and honeycomb worm <i>Sabellaria alveolata</i>,</p> <p>Biotope composition of the biogenic reef.</p>
Path construction and other associated infrastructure.	<p>Saltmarshes (H1310 <i>Salicornia</i> and other annuals colonising mud and sand, H1330 Atlantic salt meadows).</p> <p>H2130 Fixed dunes with herbaceous vegetation ('Grey dunes')</p> <p>H1130 Estuaries (subfeatures: <i>Salicornia</i> and other annuals colonising mud and sand, Atlantic salt meadows).</p>	<p>Construction of the ECP through these habitats leads to:</p> <p>Reduction in extent of the feature within the site,</p> <p>Changes in range and distribution of characteristic communities, sub-communities and transitional communities within the site,</p> <p>Changes in vegetation structure,</p> <p>Changes in species composition of characteristic communities,</p> <p>Changes in creek morphology (saltmarsh only).</p>
Disruption of conservation grazing.	<p>H2130 Fixed dunes with herbaceous vegetation ('Grey dunes')</p>	<p>Changes in conservation grazing patterns as a result of disturbance of grazing animals by dogs as a result of the access proposal, leads to:</p> <p>Changes in range and distribution of characteristic communities, sub-communities and transitional communities within the site,</p> <p>Changes in vegetation structure.</p> <p>Changes in species composition of characteristic communities.</p>

Table 9: Scope of Appropriate Assessment, Solway Firth SPA, Upper Solway Flats & Marshes Ramsar Site

Environmental pressure	Qualifying features affected	Risk to Conservation Objectives
Disturbance of non-breeding birds.	Barnacle goose, <i>Branta leucopsis</i> - A045-A, non-breeding Bar-tailed godwit, <i>Limosa lapponica</i> - A157, non-breeding Curlew, <i>Numenius arquata</i> - A160, non-breeding Golden plover, <i>Pluvialis apricaria</i> - A140, non-breeding Knot, <i>Calidris canutus</i> - A143, non-breeding Oystercatcher, <i>Haematopus ostralegus</i> - A130, non-breeding Pink-footed goose, <i>Anser brachyrhynchus</i> - A040, non-breeding Pintail, <i>Anas acuta</i> - A054, non-breeding Redshank, <i>Tringa totanus</i> - A162, non-breeding Waterbird assemblage (excluding common scoter) Whooper swan, <i>Cygnus cygnus</i> - A038-B, non-breeding	Repeated disturbance to foraging or resting non-breeding waterbirds, following changes in recreational activities as a result of the access proposal, leads to reduced fitness and reduction in population and/or contraction in the distribution of Qualifying Features within the site. Loss of extent of supporting habitat due to an increase in disturbance reducing the area of habitat available for non-breeding waterbirds.
Disturbance of birds in the breeding season.	Breeding populations of non-breeding waterbird features: oystercatcher, redshank, ringed plover, Waterbird assemblage in part (herring gull, black headed gull and cormorant).	Repeated disturbance to breeding birds, direct predation of eggs by dogs or trampling of nest, eggs and chick by walkers, following changes in recreational activities as a result of the access proposal, leads to reduction in population and/or contraction in the distribution of Qualifying Features within the site. Loss of extent of supporting habitat due to an increase in disturbance reducing the area of habitat available for breeding birds.
Path construction and other associated infrastructure.	Barnacle goose, <i>Branta leucopsis</i> - A045-A, non-breeding Bar-tailed godwit, <i>Limosa lapponica</i> - A157, non-breeding Curlew, <i>Numenius arquata</i> - A160, non-breeding Golden plover, <i>Pluvialis apricaria</i> - A140, non-breeding Knot, <i>Calidris canutus</i> - A143, non-breeding Oystercatcher, <i>Haematopus ostralegus</i> - A130, non-breeding Pink-footed goose, <i>Anser brachyrhynchus</i> - A040, non-breeding	Construction of the ECP leads to loss of extent of supporting habitat. Disturbance to feeding, breeding or roosting waterbirds, during path establishment work, leads to reduced fitness and reduction in population and/or contraction in the distribution of Qualifying Features within the site.

Environmental pressure	Qualifying features affected	Risk to Conservation Objectives
	Pintail, <i>Anas acuta</i> - A054, non-breeding Redshank, <i>Tringa totanus</i> - A162, non-breeding Waterbird assemblage (excluding common scoter) Whooper swan, <i>Cygnus cygnus</i> - A038-B, non-breeding	
Disturbance or injury to amphibians from recreational activities.	Wetland assemblage (natterjack toad, great crested newt).	<p>An increase in incidences of dogs accessing breeding ponds, following changes in recreational activities as a result of the access proposal, causes disturbance, injury or death of eggs, tadpoles or adults. This leads to a reduction in population abundance.</p> <p>An increase in people walking next to breeding ponds following changes in recreational activities as a result of the access proposal, causes disturbance, injury or death of emerging natterjack toadlets or newts. This leads to a reduction in population abundance.</p>
Path construction and maintenance.	Wetland assemblage (natterjack toad, great crested newt).	Works to construct or maintain the England Coast Path causes disturbance, injury or death of these species, leading to reduction in population abundance. Path construction leads to loss of supporting habitat.
Spread of disease by people and dogs.	Wetland assemblage (natterjack toad, great crested newt).	Potential for chytrid fungus <i>Batrachochytrium dendrobatidis</i> and other diseases to be spread by people and dogs. This leads to a reduction in population abundance.

D2. Contextual statement on the current status, influences, management and condition of the European Site and those qualifying features affected by the plan or project

Solway Firth SAC

Qualifying Features affected by the plan or project

Unless otherwise stated, the information below comes from Solway Firth EMS Interim Reviewed Regulation 33 Conservation Advice Package. [2].

H1130 Estuaries

As described in table 7 (Assessment of likely significant effects alone – Solway Firth SAC, Upper Solway flats and Marshes Ramsar, Solway Firth SPA), the following estuary subfeatures are sensitive to changes in access and need to be considered in this section of the assessment:

- rocky scar communities
- *Salicornia* and other annuals colonising mud and sand
- Atlantic salt meadows
- reefs

Rocky scar communities - Intertidal and subtidal scar ground (exposed boulders and rocks) is a characteristic feature of the Solway Firth with extensive areas of scar ground present on the English side. These scar areas which remain clear of sand, support a rich and well developed epifauna typical of rocky areas, such as the brown seaweed (fucoids) and the edible mussel *Mytilus edulis*. The habitat is also important for crabs, various species of fish and supports the reef building polychaete worm *Sabellaria alveolata* in the intertidal and *Sabellaria spinulosa* in the subtidal. These are specialist communities that can tolerate scour and are considered to be nationally scarce. The extent of exposed scar varies as it is scoured and buried by the constantly shifting intertidal flats. However, an estimated 400 ha of scar is thought to be currently uncovered by sediment.

Reefs, *Salicornia* and other annuals colonising mud and sand and Atlantic salt meadows are features in their own right and are discussed below.

H1170 Reefs

Reefs are rocky marine habitats or biological concretions that rise from the seabed. They are usually subtidal but may extend as an unbroken transition into the intertidal zone, in which case they are exposed at low tide. Reefs are very variable in form and in the communities they support. Reefs comprise two main types: those where animal and plant communities develop on bedrock or stable boulders and cobbles, and those where structure is created by the animals themselves, called biogenic reefs. Those found in the Solway Firth are biogenic reefs. In the UK the most important reef forming species in inshore waters are *Sabellaria alveolata*, *S. spinulosa*, *Mytilus edulis*, *Modiolus modiolus* and *Serpula vermicularis*.

Biogenic reefs may affect the physical environment by stabilising loose sediments; they can form important areas for supporting marine organisms by providing a variety of substrates, surfaces and cavities for shelter or colonisation and a food source derived from accumulated faeces. Biogenic reefs are characterised by a rich associated fauna and flora, more diverse

than other subtidal marine habitats and are considered important for conservation of marine diversity. Of the reef forming species listed above, two are known to form biogenic reef features in the Solway – *Mytilus edulis* and *Sabellaria alveolata*. Reef structures formed by both species go through a cyclical process of reef formation and growth then loss before reformation at predictable localities.

Although the coverage of reef at a site level is low, coverage of the habitat at a national level is equally low which is why the Solway reefs are so important.

H1220 Perennial vegetation of stony banks

Within the project area, this feature is found at Grune Point, and supports a typical range of plant species including sea-holly *Eryngium maritimum*, and the uncommon Isle of Man cabbage *Rhynchosinapis monensis*. [9].

H1310 *Salicornia* and other annuals colonising mud and sand

Pioneer saltmarsh occurs at the lowest levels of the saltmarsh zone, where immersion occurs at nearly every tide. It colonises intertidal mudflats and sandflats in areas protected from strong wave action and is an important precursor to the development of more stable vegetation. Pioneer saltmarsh develops at the lower reaches of saltmarshes where vegetation is frequently flooded by the tide and can also colonise open creek sides, depressions or pans within saltmarsh, as well as disturbed areas of upper saltmarshes.

Pioneer saltmarsh on the Solway Firth has been selected to represent the habitat type in north-west England and south-west Scotland. It is part of a complete sequence of saltmarsh types which occur on the Solway Firth from pioneer communities through to mid and high saltmarsh and tidal grazing marsh (Brown et al. 1997). The distribution of pioneer saltmarsh varies in response to changing river channels and erosion of existing marsh and forms part of a dynamic suite of maritime habitat types for which the site has been separately selected.

The communities present in the Solway Firth are dominated by glasswort *Salicornia* spp.

Glasswort, which is largely absent from other Scottish firths (Burd 1987), forms a distinct zone in the lower marshes of the Solway Firth, but is also characteristic of other bare mud and sand habitats such as the sides of creeks, borrow pits, eroded marsh and at lower elevations in tidal range.

H1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)

Atlantic salt meadows *Glauco-puccinellietalia maritimae* occur on North Sea, English Channel and Atlantic shores. They develop when halophytic vegetation colonises soft intertidal sediments of mud and sand protected from strong wave action. This vegetation forms the middle and upper reaches of saltmarshes where tidal inundation occurs, but with decreasing frequency and duration. Saltmarshes play a fundamental role within estuaries bringing stability to coastal margins and operating as a source of primary productivity.

Atlantic salt meadows comprise a wide range of vegetation types which are zoned according to frequency and duration of tidal inundation; this can often be blurred by other factors such as climate, which will affect periods of inundation. Those Atlantic salt meadows which are grazed differ significantly from those which are ungrazed, in terms of both structure and species composition. Areas that are overgrazed are generally more species-poor and dominated by grasses such as *Puccinellia* spp. This in turn affects related invertebrate

communities and breeding and feeding birds. The upper saltmarsh of the Solway is regarded as particularly important because it has been lost in many other estuaries as a result of land claim and overgrazing.

The Solway Firth has been selected for its Atlantic salt meadows for their size and the extent of uninterrupted transitions. The overall area of this saltmarsh type in the UK is some 29,000 ha, of which around 3,800 ha, or 13% occurs on the Solway Firth where they have been little affected by land claim, enclosures and agricultural intensification, with the result that they demonstrate unusually large transitions to freshwater grassland communities.

Unlike more southerly saltmarshes, those of the Solway Firth develop on sediments with a higher sand content. Furthermore, some of the plants that they support, such as sea purslane *Atriplex portulacoides*, common sea lavender *Limonium vulgare* and lax-flowered sea lavender *Limonium humile* are at the northern limits of their range in the UK. As the Atlantic salt meadows of the Solway Firth are important for a variety of wintering waterfowl which graze them, it is also important to maintain their structure to ensure continued use by waterfowl considered as typical or characteristic of these marshes.

H2130 Fixed dunes with herbaceous vegetation ('Grey dunes')

Within the project area, this feature is found at Grune Point [9].

Solway Firth SPA / Upper Solway Flats and Marshes Ramsar

Qualifying Features affected by the plan or project

Unless otherwise stated, the information below comes from Solway Firth EMS Interim Reviewed Regulation 33 Conservation Advice Package. [2].

Barnacle goose, *Branta leucopsis* - A045-A, non-breeding

Virtually the entire Svalbard population of the barnacle goose *Branta leucopsis* overwinters on the Solway Firth, arriving from their arctic breeding grounds in late September. Their distribution on the site mirrors that of the Atlantic salt meadows, as these and adjacent farmland, are their principle feeding grounds. Important roosting areas for the barnacle goose, which vary according to the tide, include Mersehead, Caerlaverock, Blackshaw Bank and the extensive sandflats fronting Rockcliffe saltmarsh. The population of this species of barnacle goose has been steadily increasing since 1986 when the SPA was classified. A huge count of 32,000 birds in February 1998 suggests that some birds from the Greenlandic population wintering in Islay may have moved to the Solway during that year. A count made during the winter of 1999-2000 confirmed that the population was around the 24,000 mark. They are present on site from September until mid-May.

Bar-tailed godwit, *Limosa lapponica* - A157, non-breeding

Since the SPA was originally classified, a further Annex 1 species: bar-tailed godwit *Limosa lapponica*, has been identified at qualifying levels. 4.5% of Great Britain's bar-tailed godwit wintering population utilise the SPA between the months of November and February, flying in from their breeding grounds in arctic Eurasia. They feed across the Solway's intertidal sandflats and mudflats which provide bivalves and worms. The key period of sensitivity is from Sept-April.

Curlew, *Numenius arquata* - A160, non-breeding

Moricambe Bay, on the Inner Solway, is of particular importance for curlew. The SPA supports 1.4% of the UK population of curlew.

Golden plover, *Pluvialis apricaria* - A140, non-breeding

The Solway Firth hosts an internationally important population of the Annex 1 species golden plover *Pluvialis apricaria* and the intertidal mudflat areas on the site comprise important roosting grounds for this species (Solway Firth Partnership 1996). On the north shore there is a strong autumn passage, whilst on the south shore numbers rise steeply around October, remaining high until mid-February. Usage of the site by this species varies although their principle feeding areas include Caerlaverock and Rockcliffe marsh. The key period of sensitivity is from Sept-April.

Knot, *Calidris canutus* - A143, non-breeding

The SPA supports 2% of the UK population of knot.

Knot can be found feeding on intertidal areas of the Solway and aggregate into discreet roost sites at particular points along the foreshore or the seaward edge of the marshes to roost. The distribution of these roosts is determined by factors which include lack of disturbance alongside physical constraints such as good visibility and proximity to feeding resource. Because the roosts act a focal point for birds from a large foraging area, they are particularly sensitive. The key period of sensitivity is from Sept-April. [10].

Knot are mainly found on the Outer Solway from Allonby Bay to Grune Point and around to Bowness-on-Solway.

Oystercatcher, *Haematopus ostralegus* - A130, non-breeding

The Solway is the second most important site in the UK for oystercatcher. The SPA supports 5.5% of the UK population.

Oystercatcher can be found feeding on intertidal areas of the Solway and aggregate into discreet roost sites at particular points along the on foreshore or the seaward edge of the marshes to roost. The distribution of these roosts is determined by factors which include lack of disturbance alongside physical constraints such as good visibility and proximity to feeding resource. Because the roosts act a focal point for birds from a large foraging area they are particularly sensitive.

39 pairs of oystercatcher bred on Rockcliffe Marsh in 2020. [11]. 1 pair bred on Campfield Marsh in 2014. [12]. The 2014 Upper Solway Firth breeding bird survey records oystercatcher as probably breeding on Skinburness Marsh, Calvo Marsh, Cardurnock Marsh and Drumburgh Marsh [13].

The key period of sensitivity is all year, due to the numbers of breeding pairs of this species within the SPA.

Pink-footed goose, *Anser brachyrhynchus* - A040, non-breeding

The SPA supports 1.8% of the UK population of pink-footed goose. They are present from September until April. They feed on farmland and saltmarshes and roost on the estuary.

Pintail, *Anas acuta* - A054, non-breeding

The SPA supports 7.1% of the UK population of pintail.

Redshank, *Tringa totanus* - A162, non-breeding

The SPA supports 1.3% of the UK population of redshank.

Redshank can all be found feeding on intertidal areas of the Solway and aggregate into discreet roost sites at particular points along the foreshore or the seaward edge of the marshes to roost. The distribution of these roosts is determined by factors which include lack of disturbance alongside physical constraints such as good visibility and proximity to of feeding resource. Because the roosts act a focal point for birds from a large foraging area they are particularly sensitive. Redshank are widely distributed around the estuary. [10].

62 pairs of redshank bred on Rockcliffe Marsh in 2020 [11]. 1 pair bred on Campfield Marsh in 2014 [12]. The 2014 Upper Solway Firth breeding bird survey records redshank as probably breeding on Skinburness Marsh, Calvo Marsh, Newton Marsh [13].

The key period of sensitivity is all year, due to the numbers of breeding pairs of this species within the SPA.

Ringed plover *Charadrius hiaticula* non-breeding

Ringed plover can all be found feeding on intertidal areas of the Solway and aggregate into discreet roost sites at particular points along the foreshore or the seaward edge of the marshes to roost. The distribution of these roosts is determined by factors which include lack of disturbance alongside physical constraints such as good visibility and proximity to of feeding resource. Because the roosts act a focal point for birds from a large foraging area they are particularly sensitive. [10].

Ringed plover breed on shingle at Grune Point, on the open coast between Grune and Allonby and on shingle areas of Rockcliffe Marsh. There are approximately 6 pairs breeding on Grune Point and approximately 1 pair per 300m of beach on the open coast, [pers comm. Bart Donato]. There are also 4 pairs on Rockcliffe Marsh [11].

The key period of sensitivity is all year, due to the numbers of breeding pairs of this species within the SPA.

Waterbird assemblage

The area regularly supports over 130,000 individual birds that feed and roost on the site (5 year peak mean 1991/2 – 1995/6).

Three named features of the assemblage have been included in the assessment of impacts of our proposals on breeding birds, these are herring gull, black headed gull and cormorant.

Herring Gull is currently breeding on Rockcliffe Marsh. Black-headed gull is a former breeder on Rockcliffe Marsh and one pair bred on Campfield marsh in 2020. Cormorant have a breeding colony of around 25 pairs off Grune Point on a WWII target range in Moricambe Bay. [Pers comm. Bart Donato].

Whooper swan, *Cygnus cygnus* - A038-B, non-breeding

The Solway Firth is also internationally important for whooper swans *Cygnus cygnus*, which regularly overwinter on the site, mainly at Caerlaverock and Morecambe Bay, and usually arriving from Iceland in early-mid October. Whooper swans feed on saltmarsh vegetation, as well as on adjacent farmland and roost on the estuary.

Natterjack toad

The marshes and sand dunes provide breeding pools and food sources for natterjack toads *Bufo calamita* which are a feature of the Ramsar site. The natterjack toad population within the inner Solway saltmarshes is thought to amount to over 10% of the breeding population in the UK. Natterjacks breed in seasonal ponds on the upper marsh at Skinburness & Calvo Marsh, Anthorn, Campfield Marsh and New Sandsfield and in sand dune habitat on Grune Point, around Mawbray and Silloth [REF 14].

Great crested newts

The locations of great crested newt breeding ponds on the Solway are not necessarily well known and recorded. Any of the larger, deeper ponds may contain breeding great crested newts.

D3. Assessment of potential adverse effects considering the plan or project 'alone'

This section considers the risks identified at the screening stage in section C and assesses whether adverse effects arising from these risks can be ruled out, having regard to the detailed design of proposals for coastal access.

In reviewing the ability of any incorporated measures to avoid harmful effects, Natural England has considered their likely effectiveness, reliability, timeliness, certainty and duration over the full lifetime of the plan or project. A precautionary view has been taken where there is doubt or uncertainty regarding these measures.

D3.1 Design of the access proposal to address possible risks – at a stretch level

In this section of the assessment we describe our overall approach to address the potential impacts and risks from the access proposals.

Solway Firth SAC

In some locations, the proposed route of the ECP is within the boundaries of the SAC and is aligned through saltmarsh and sand dune habitat.

Large extents of saltmarsh, as well as areas of sand dune, shingle, reefs and rocky scars fall within the coastal margin and introducing coastal access rights may lead to changes in patterns and levels of access in these areas.

A detailed assessment of the possible impacts of our proposals, including incorporated mitigation measures, on SAC habitats is given in section D.3.2 below.

Solway Firth SPA and Upper Solway Flats and Marshes Ramsar

Non-breeding waterbirds occur throughout the SPA. Some of these species also breed within the SPA in high enough numbers for the impact on breeding birds to be considered in this appraisal. In this section of the assessment we describe our overall approach to ensuring that these birds are not affected by our proposals, as well as explaining the main mitigation measures proposed to address the impacts and risks.

Of particular concern are the high tide roost sites and key bird breeding sites, which are susceptible to disturbance by walkers and dogs. The alignment of the ECP was carefully considered to ensure that disturbance to roost and breeding sites would not increase as a result of the proposals.

For particularly sensitive sites, we need a high degree of confidence that our proposals will not cause additional disturbance. We do this by aligning the route away from these sites, and also by ensuring there are barriers between the route and the sensitive site. These might be existing barriers like fences, hedges, fields, roads, ditches etc. Where such barriers do not exist, we may propose fencing and screening to reduce the risk of disturbance.

In some locations, disturbance from our proposals is unlikely to impact on key roosting or breeding sites, but SPA bird features still use the area and there is still some risk of disturbance. An example would be where the ECP is aligned across a saltmarsh away from key roost sites or breeding areas, but a general increase in dogs off-lead could lead to an increase in disturbance to any birds near the path. In this scenario, we may propose restrictions requiring dogs to be kept on leads on the line of the trail, as well as other access exclusions or restrictions in the coastal margin, to reduce the risk of people and dogs causing disturbance to birds. We also ensure that any exclusions or restrictions are clearly promoted on site.

While we acknowledge that there is a risk that there may not be complete compliance with access exclusions and restrictions, complete compliance is not always needed in order for us to conclude no adverse effect on site integrity. Where this is the case, an exclusion or restriction may be proposed without additional management measures being in place (such as fencing or screening). In this assessment we do conclude that there will be some residual risk of insignificant impact to non-breeding waterbirds due to our proposals, and this is in part due to the fact that access exclusions or restrictions may not be 100% effective.

We have developed our proposals for dog and access management through close work with partners such as the Kennel Club and through work on our own National Nature Reserve (NNR) estate. We have also taken advice from Stephen Jenkinson, a consultant who specialises in the management of walkers with dogs in town, coast and country, to promote the human and canine health benefits of dog walking, and minimise any adverse impacts on other people, livestock and wildlife. Compliance with access exclusions or restrictions can be increased by careful design of the proposals, and effective on-site signage and information is critical to this. The following are some of the factors to be considered:

- In order for access management to work effectively, it is essential to accept that exercising a dog is one of the main motivations for visits to the outdoors. Exercising a dog is much more likely to be a motivation for local visitors than those travelling from further afield.
- Signs should be appealing, welcoming, pitched at an appropriate level – and concise (people will tend to avoid or fail to finish reading any sign with excessive word count).
- Whilst signs might target specific interest groups, they should not seem to unfairly target those groups in terms of restrictive measures any more than is essential (it is more effective to appeal to all access users for shared behaviours, even if dogs might be the primary cause of concern).
- Compliance with access restrictions is likely to be significantly improved if the restrictions are seen to be proportionate and reasonable (i.e. we should not restrict access more widely than essential, just because it might do some good – it's more likely to have the opposite effect overall).
- Compliance with 'dogs on leads' messages is likely to be much improved if these do not occur immediately at main access points. Dog owners will be much more likely to put their dog on a lead for a walk if they've already had the opportunity to exercise the dog 'off the lead' as soon as they arrive at their chosen location.
- Where possible, alternative 'dog off lead' opportunities should be promoted, reasonably nearby, if these are available.
- 'No' messages should always be kept to a minimum – these will tend to lead to rapid disengagement, if not worse. Far better to ask positively for good behaviour than try to prevent less good behaviour.
- A signage strategy should be developed with all key stakeholders in any given area – to ensure that messages are consistent and to avoid signage clutter. A single, friendly and informative information panel at a main access point will have a much greater impact than two or three different panels of varying style and content.

The project team sees an opportunity to positively influence the behaviour of people using the ECP by explaining the importance of the site to wintering and migratory birds, the risk of disturbance and how to avoid it. New on-site signage with appropriate messages to users will be installed at key locations.

A detailed assessment of the possible impacts of our proposals, including incorporated mitigation measures, on SPA and Ramsar features is given in sections D.3.2.6 and D3.2.7.

D3.2 Design of the access proposal to address possible risks – at a local level

In this part of the assessment we consider the impact of the coastal access proposals on each of the feature groups.

To inform our assessment of risk, we have reviewed how relevant sections of coast are currently used for recreation, and how the established patterns and levels of access might be affected by our proposed improvement to access. The predictions we have made from this work are informed by available information, on-line mapping and aerial photography, travel and visitor information, site visits and input from local access managers. The findings of this work are incorporated into the assessments below.

Solway Firth SAC

D3.2.1 Estuaries

The following sub-features of the Estuary feature may be sensitive to changes in access:

- Saltmarshes
- Reefs
- Rocky scar communities

The impact of the access proposals on these sub-features are described in sections D3.2.2 and D3.2.4 below.

See also **Section D.3.3 Assessment of adverse effect on site integrity alone, Table 20** for our conclusions concerning adverse effect on site integrity.

D3.2.2 Reefs and rocky scar communities

Distribution within the project area

Biogenic reef formed by *Mytilus edulis* and *Sabellaria alveolata* and rocky scar communities are found in the intertidal zones between Silloth and Dubmill Point.

Sensitivities to changes in access

Biogenic reef structures and rocky scar communities can be sensitive to damage by trampling. Of particular concern were the *Sabellaria* reefs in the intertidal zone between Silloth and Dubmill Point.

General approach to alignment

Because these features fall within the intertidal and are difficult to walk on, the ECP is never aligned on them. This habitat usually falls within the coastal margin by default, as a result of being to the seaward side of the proposed trail (see 4.8.8 of the approved Coastal Access Scheme [1]).

Impact of the access proposal on reefs

Current habitat condition

Cumbria Sea Fisheries Committee Survey of 2009 notes a reduction in the amount of mussel and cockle within this unit but this is believed to be natural variation and appropriate management of the fishery is in place based on annual surveys. [15].

Existing recreational use

The beaches / intertidal between Silloth and Dubmill Point have high levels of existing use by walkers and other recreational beach users. This section of coast, including the coastal sand dunes, is promoted by Allerdale Council and the Solway Coast AONB as a place to visit.

Access proposal

England Coast Path - The proposed ECP between Silloth and Dubmill Point is aligned on existing walked routes through sand dunes and along the edge of a golf course.

Coastal margin - The proposed coastal margin in this section comprises sand dunes and beaches. Reef and rocky scar habitats fall within the coastal margin.

See Coastal Access Report Chapter 5 maps 5a-5f.

Consideration of possible impacts

It is expected that there will be a small increase in use of the ECP between Silloth and Dubmill Point as a result of promoting the route as a national trail. The proposed coastal margin is already popular for recreation and levels of use are not expected to change as a result of our proposals.

From Silloth to Beckfoot, the current levels of de facto access to the beach are reasonably high, given its proximity to the town. It is expected that there will be negligible change in access as a result of the proposals.

Between Beckfoot and Mawbray Yard the current levels of access to the foreshore are moderate to high, with many choosing to park and walk to the beach from car parks along this section of coast, including the car park at Mawbray Yard which is one of the main Solway Coast Area of Outstanding Natural Beauty (AONB) promoted car parks. The project team does not expect levels of access to the beach to change significantly; it is possible that the promotion of a new national trail above the foreshore may in fact decrease levels of use along the beach itself.

From Mawbray Yard to Dubmill Point, the levels of access to the beach are unlikely to change significantly following introduction of coastal access rights.

Physical damage by abrasion of this habitat by walkers is unlikely to increase as a result of the proposals. The reefs are located in the coastal margin, well away from the ECP route. We expect that there will be negligible change in access to the coastal margin as a result of the proposals.

See **Section D.3.3 Assessment of adverse effect on site integrity alone, Table 19** for our conclusions concerning adverse effect on site integrity.

D3.2.3 Perennial vegetation of stony banks

Distribution within the project area

This feature is found at Grune Point.

Sensitivities to changes in access

Perennial vegetation of stony banks can be damaged or destroyed by people repeatedly walking on it. This can change the composition of the vegetation and lead to habitat loss.

This habitat usually falls within the coastal margin by default, as a result of being to the seaward side of the proposed trail (see 4.8.8 of the approved Coastal Access Scheme [1]).

Impact of the access proposal

On Grune Point, perennial vegetation of stony banks is found all along the northern side and at the tip of the peninsular.

Current habitat condition

People are currently walking on a short section of shingle (between Chichester Hall and Grune House), due to coastal erosion having washed away part of the PRoW. This could be causing damage to the habitat.

Existing recreational use

Grune Point is a particularly popular area and attracts both locals and visitors alike. The area is included on several websites promoting access and wildlife in the AONB.

There is a public right of way around Grune Point. Part of the PRoW, on the northern side of Grune Point (between Chichester Hall and Grune House) has been lost to coastal erosion and people are instead walking on the foreshore or in adjacent fields. Further north of Grune House, the PRoW continues through fields before returning along the southern side of the point via an existing access track

There appears to be some access away from the PRoW on the northern side of Grune Point, with people walking on the foreshore / shingle beach. A few other desire lines are evident on the ground on the northern side and far north eastern edge of Grune Point that suggest people also follow routes that are some way off the definitive line of the existing PRoW.

Access proposal

England Coast Path - The ECP is aligned on the existing PRoW around Grune Point. On the northern side, where part of the existing PRoW has been lost to coastal erosion, a new path is proposed within the adjacent fields.

Coastal margin - An area of perennial vegetation of stony banks will fall within the coastal margin.

See Coastal Access Report Chapter 4, map 4m.

Consideration of possible impacts (including measures incorporated into the proposals for conservation reasons).

There is likely to be a small increase in access on the route of the ECP as a result of promoting the route as a national trail. The ECP route itself is not aligned on perennial vegetation of stony banks, however this habitat falls within the coastal margin.

Part of the PRow, on the northern side of Grune Point has been lost to coastal erosion and people are currently walking on the foreshore. In order to avoid aligning the ECP on the foreshore, a new section of route is proposed within adjacent field. This would lead to an increase in use of the path through the fields, and a decrease in people walking on the stony banks / shingle.

We do not expect to see an increase in use of the stony banks within the coastal margin as a result of the proposals. New signage, waymarking, improved route alignment and replacing a damaged fence seaward of the trail at the tip of Grune Point is likely to lead to a reduction in access on the stony banks.

In conclusion, the access proposals will benefit this habitat at Grune Point by:

- rolling back a section of path on the eroding northern side of the peninsular from an area of shingle into fields;
- re-instating fencing next to an area of shingle at the tip of Grune Point.

See *Section D.3.3 Assessment of adverse effect on site integrity alone, table 18* for our conclusions concerning adverse effect on site integrity.

D3.2.4 Saltmarshes

Distribution within the project area

There are approximately 3,404ha of saltmarshes in the English part of the SAC. They all fall within the project area, between Gretna and Grune Point.

Sensitivities to changes in access

Trampling

The research available suggests that:

- Saltmarsh is sensitive to trampling
- Plant composition may change as a result of trampling
- Saltmarshes are partly self-protective because of the difficulties of traversing them [7].

Installation of Infrastructure

Access infrastructure such as bridges may damage and reduce the area of saltmarsh, both in terms of construction impacts and the permanent footprint of the structures.

Site specific considerations on saltmarsh sensitivity for the Solway Firth

The Solway Firth is relatively remote and sits within a majority rural setting, it therefore sees relatively low access levels currently and is less at risk from coastal squeeze than other saltmarsh areas where there is greater pressure from development. Some of the saltmarshes in the project area are very large in extent (with a distance of up to 1.5km between the landward and seaward edge of the saltmarsh) and any access that does occur

is usually toward the landward edge of each marsh, due to the unsuitability of much of the terrain for access (multiple deep creeks and wet ground). Existing access on each marsh is discussed in table 11 and 12 below. The majority of the saltmarsh in the Solway Firth is grazed and therefore the communities present reflect this level of ongoing pressure on the saltmarsh.

Impact of the access proposal

England Coast Path - Between Gretna and Allonby, 24.1 km of the ECP will be aligned over saltmarsh. Of this, 1.3 km follows existing public rights of way, 7.8 km follows existing walked routes which are not public rights of way, and a further 15 km which follows entirely new routes.

Coastal margin - Almost all the saltmarsh on the English side of the SAC will fall within the proposed landward or seaward of coastal margin.

However, despite falling into the coastal margin, no new access rights will be created over the majority of saltmarsh area affected by the proposals, either because the marsh is unsuitable for access (and new access rights would be excluded year-round under s25A), or because new access rights would be excluded under s26 to protect roosting, feeding and breeding birds.

Accessible areas within the coastal margin will be created at Demesne Marsh, Easton Marsh, Westfield and Campfield Marsh, which are all relatively small marshes. Two large marshes, Skinburness and Calvo Marsh and Burgh Marsh already have established access rights under CROW. These access rights will be replaced with coastal access rights and will become spreading room.

Table 10 shows the saltmarshes in the project area and explains whether the ECP is aligned across the marsh, and whether new access rights will be created on saltmarsh in the coastal margin.

Table 10: Saltmarshes in the project area

Location / Cross reference to coastal access report	ECP aligned on the saltmarsh (yes / no)	Length of ECP on public right of way on saltmarsh (km)	Length of ECP on existing walked route on saltmarsh (km)	Length of ECP aligned on new route on saltmarsh (km)	Total length of ECP aligned saltmarsh (km)	Coastal margin
Mossband Hall Marsh See Coastal Access Report Overview, maps F & I, and Chapter 1, maps 1a - c.	No	-	-	-	-	No new access rights will be created on the saltmarsh in the coastal margin.
Saltmarsh near Casson Dyke Farm See Coastal Access Report Overview, map F and Chapter 2, map 2e.	Yes	0.3	0.8	0	1.1	No new access rights will be created on the saltmarsh in the coastal margin.
Rockcliffe Marsh and Garristown Marshes See Coastal Access Report Overview, maps F & J, and Chapter 1, maps 1c - e.	No	-	-	-	-	No new access rights will be created on the saltmarsh in the coastal margin.
Demesne Marsh See Coastal Access Report Chapter 1, map 1e.	No	-	-	-	-	The saltmarsh will become spreading room.
Burgh Marsh See Coastal Access Report Overview, maps F & K, and Chapter 2, maps 2f - i.	Yes	0	0	5.6	5.6	Coastal margin is currently open access under CROW and will become spreading room.
Easton Marsh See Coastal Access Report Chapter 2, map 2j.	No	-	-	-	-	The saltmarsh will become spreading room.
Drumburgh Marsh See Coastal Access Report Overview, maps F & L, and Chapter 2, maps 2k.	No	-	-	-	-	No new access rights will be created on the saltmarsh in the coastal margin.
Westfield marsh See Coastal Access Report Overview, map F, and Chapter 2, maps 2k & l.	Yes	1	1	0	2	The saltmarsh will become spreading room.

Location / Cross reference to coastal access report	ECP aligned on the saltmarsh (yes / no)	Length of ECP on public right of way on saltmarsh (km)	Length of ECP on existing walked route on saltmarsh (km)	Length of ECP aligned on new route on saltmarsh (km)	Total length of ECP aligned saltmarsh (km)	Coastal margin
Campfield Marsh See Coastal Access Report Chapter 3, maps 3a - b.	No	-	-	-	-	The saltmarsh will become spreading room.
Anthorn and Cardurnock Marsh See Coastal Access Report Overview, maps G & M, and Chapter 3, maps 3c - f.	No	-	-	-	-	No new access rights will be created on the saltmarsh in the coastal margin.
Anthorn, Longcroft and Whitrigg Marshes. See Coastal Access Report Overview, maps G & N, and Chapter 3, maps 3g - i.	Yes	0	1	1.3	2.3	No new access rights will be created on the saltmarsh in the coastal margin.
Angerton Marsh See Coastal Access Report Overview, maps H & O, and Chapter 4, maps 4a.	Yes	0	0	0.3	0.3	No new access rights will be created on the saltmarsh in the coastal margin.
Newton and Saltcoates Marsh See Coastal Access Report Overview, maps H, O & P, and Chapter 4, maps 4b - f.	Yes	0	0	6.5	6.5	No new access rights will be created on the saltmarsh in the coastal margin.
Rabycote Marsh See Coastal Access Report Overview, maps H and Chapter 4, maps 4g-h.	No	0	0	0	0	The saltmarsh will become spreading room.
Skinburness and Calvo Marsh See Coastal Access Report Overview, maps H & R, and Chapter 4, maps 4h-l.	Yes	0	5	1.3	6.3	Coastal margin is currently open access under CROW and will become spreading room.
Total length of ECP (km)		1.3	7.8	15	24.1	

Consideration of the impact of an increase in trampling due to an increase in access on saltmarshes

We have undertaken a detailed survey checking the suitability of paths to be used as part of the ECP. The ECP is mainly aligned on raised, firmer ground and with vegetation that will withstand regular use. Sleeper bridges and footbridges will be installed where the route crosses wide channels in the saltmarsh. In places, existing paths have widened as people fan out to find a place to cross ditches and channels. The proposed sleeper bridges will provide clear and easy crossing points, aiding restoration of the vegetation and help to prevent further erosion. We are not proposing to install path surfacing on the route of the ECP on saltmarshes.

Where existing public access to a stretch of the ECP is already moderate to high and has been established for a number of years, it will be considered that the vegetation and soil structure along the stretch will likely have already been altered from a pristine condition by the passage of people over many years. The increase in walkers expected on the ECP will not create significantly more soil compaction, nor will it create significant changes in vegetation composition or structure compared to existing/baseline condition which is likely to be fairly resilient.

See table 11 for an assessment of the impact of increased trampling of saltmarsh habitat where the ECP is aligned on saltmarsh and table 12 for an assessment of the impact of increased trampling of saltmarsh habitat on saltmarshes that fall in the coastal margin.

Table 11: Assessment of the impact of increased trampling of saltmarsh habitat where the ECP is aligned on saltmarsh.

Location / Cross reference to coastal access report	Existing recreational use in this area	Access proposal	Consideration of the risk of an increase in trampling of saltmarsh habitat
<p>Saltmarsh near Casson Dyke Farm</p> <p>See Coastal Access Report: Overview, map F and Chapter 2, map 2e</p>	<p>There is a public right of way on the marsh which is reasonably well used by locals.</p>	<p>The proposed ECP is aligned on the PRoW and an existing walked line across the saltmarsh. The existing walked line is currently used instead of the definitive line of the PRoW, as it is easier to follow on the ground.</p> <p>Although the marsh falls within the coastal margin, it will not become spreading room. Coastal access rights will be excluded from the saltmarsh under s25A as it is unsuitable for access.</p>	<p><u>Trail</u></p> <p>There is likely to be an increase in numbers of walkers using the ECP as a result of promoting it as a National Trail.</p> <p>The vegetation here is fairly robust and shows some resilience to trampling; however, long term usage of the ECP could cause a degradation of vegetation here. There could be some soil compaction and reduction in density of the saltmarsh vegetation. For the 1.1 km stretch there could be a reduction in saltmarsh condition through a change in species composition on the line of the trail.</p> <p><u>Coastal Margin</u></p> <p>Current access on the saltmarsh appears to be largely confined to the existing path as this is the easiest way to cross the marsh, and there is no reason to think this pattern of activity will change as a result of the proposals. As no new access rights will be created to the saltmarsh seawards of the ECP, we do not expect access to saltmarsh in the coastal margin to increase, and we do not expect trampling to increase on saltmarsh in the coastal margin.</p>
<p>Burgh Marsh</p> <p>See Coastal Access Report: Overview, maps F & K, and Chapter 2, maps 2f-i.</p>	<p>Burgh Marsh is already designated as CROW access land by virtue of it being registered common land. There are some PRoW that allow people to gain access out onto the marsh, but there are no PRoW, defined routes or other walked lines that run laterally across the main body of the marsh itself.</p> <p>Parts of the marsh are well used by walkers. There are several informal lay-bys close to the marsh that provide direct access onto and across the marsh. However, it is unlikely that the majority of those using the marsh walk too far, due to the nature of the terrain and difficulty in crossing drainage channels without bridges in place.</p>	<p>The ECP is aligned on a new route across the marsh. The marsh falls within the coastal margin and will become spreading room. The existing CROW access rights will be replaced with new Coastal Access rights.</p>	<p><u>Trail</u></p> <p>Access on the line of the trail will increase as a result of creating a new route across the marsh and promoting it as a National Trail. The area where the ECP will be aligned is mainly grazing marsh, rather than true saltmarsh. It is robust vegetation and will withstand an increase in trampling.</p> <p><u>Coastal Margin</u></p> <p>The existing CROW access rights will be replaced with new Coastal Access rights including a direction to restrict access to dogs all year round (under s26(3)(a)).</p> <p>The line of the ECP will be reasonably convenient and easy to follow on the ground and we do not expect trampling to increase in areas away from the path. Ground conditions in the coastal margin and the difficulties in crossing drainage channels without bridges would make it unlikely that many people would venture far off the line of the trail.</p> <p>The line of the ECP across the marsh is likely to encourage more people to follow the route itself and, as a result, could have the effect of channelling and managing existing users of the marsh.</p> <p>Therefore, we do not expect trampling to increase on saltmarsh in the coastal margin.</p>
<p>Westfield marsh</p> <p>See Coastal Access Report: Overview, map F, and Chapter 2, maps 2k & l.</p>	<p>A public right of way and existing walked line across Westfield Marsh is well used by walkers.</p>	<p>The ECP is aligned on the PRoW and existing walked route. The marsh falls within the coastal margin and will become spreading room.</p>	<p><u>Trail</u></p> <p>Access on the line of the trail is likely to increase as a result of it being promoted as a National Trail.</p> <p>The vegetation here is fairly robust and shows some resilience to trampling; however, long term use of the ECP could cause a degradation of vegetation here. There could be some soil compaction and reduction in density of the saltmarsh vegetation. For the 2km stretch there could be a reduction in saltmarsh condition through a change in species composition on the line of the trail.</p>

Location / Cross reference to coastal access report	Existing recreational use in this area	Access proposal	Consideration of the risk of an increase in trampling of saltmarsh habitat
<p>Anthorn, Longcroft and Whitrigg Marshes</p> <p>See Coastal Access Report: Overview, maps G & N, and Chapter 3, maps 3g - i.</p>	<p>East of the village of Anthorn, there are no formal rights of access on any of the marshes (Anthorn, Longcroft and Whitrigg Marshes) apart from a small parcel of 'landlocked' CROW access land (registered common land) located between Whitrigg and Longcroft Marsh.</p> <p>There is evidence on the ground of an existing walked route across part of Anthorn Marsh along the northern bank of the River Wampool.</p> <p>There are very low levels of existing access on Longcroft or Whitrigg Marshes.</p>	<p>The ECP is aligned on an existing walked line across Anthorn Marsh before following a new route at the back edge of Longcroft Marsh.</p> <p>Although the marshes fall within the coastal margin, they will not become spreading room.</p> <p>Access will be excluded from the marshes either because they are unsuitable for access or because of nature conservation reasons.</p>	<p><u>Coastal Margin</u></p> <p>The line of the ECP will be convenient and easy to follow on the ground and walkers are likely to follow the ECP as it is the easiest route across the marsh. Therefore, we do not expect trampling to increase on saltmarsh in the coastal margin.</p> <p><u>Trail</u></p> <p>Access on the line of the trail is likely to increase as a result of it being promoted as a National Trail.</p> <p>Long term use of the ECP could cause a degradation of vegetation here. There could be some soil compaction and reduction in density of the saltmarsh vegetation and saltmarsh transition (reed bed) vegetation. For the 2.3 km stretch there could be a reduction in saltmarsh condition through a change in species composition on the line of the trail.</p> <p><u>Coastal Margin</u></p> <p>Access to the margin is not expected to increase, as walkers are likely to follow the ECP as it will be convenient and easy to follow on the ground, and because access to the coastal margin will be excluded. Therefore, we do not expect trampling to increase on saltmarsh in the coastal margin.</p>
<p>Angerton Marsh</p> <p>See Coastal Access Report: Overview, maps H & O, and Chapter 4, maps 4a.</p>	<p>There are currently no rights of access to the public on Angerton Marsh.</p>	<p>The ECP is aligned on a new route that crosses Angerton Marsh. Although the marsh falls within the coastal margin, it will not become spreading room. Access will be excluded from the marsh for nature conservation reasons.</p>	<p><u>Trail</u></p> <p>Access on the line of the trail is likely to increase as a result of it being promoted as a National Trail.</p> <p>Long term use of the ECP could cause a degradation of vegetation here. There could be some soil compaction and reduction in density of the saltmarsh vegetation and saltmarsh transition (reed bed) vegetation. For the 0.3 km stretch there could be a reduction in saltmarsh condition through a change in species composition on the line of the trail.</p> <p><u>Coastal Margin</u></p> <p>Access to the coastal margin is not expected to increase, as walkers are likely to follow the ECP as it will be convenient and easy to follow on the ground, and because access to the coastal margin will be excluded under s26 (nature conservation) restrictions. Therefore, we do not expect trampling to increase on saltmarsh in the coastal margin.</p>
<p>Newton and Saltcoates Marsh</p> <p>See Coastal Access Report: Overview, maps H, O & P, and Chapter 4, maps 4b - f.</p>	<p>There are currently no public rights of access on Newton and Saltcoates Marsh. There is some evidence to suggest that locals may use the marsh along with Wildfowlers.</p>	<p>The ECP is aligned on a new route at the back edge of Newton and Saltcoates Marsh. Although the marsh falls within the coastal margin, it will not become spreading room.</p>	<p><u>Trail</u></p> <p>Access on the line of the trail is likely to increase as a result of it being promoted as a National Trail.</p> <p>This is a large marsh, the distance between the landward and seaward edge of the marsh varies from 300m up to 1.2 km. The ECP is aligned at the landward edge of the marsh, where true saltmarsh vegetation is transitioning into grazing marsh.</p>

Location / Cross reference to coastal access report	Existing recreational use in this area	Access proposal	Consideration of the risk of an increase in trampling of saltmarsh habitat
<p>Skinburness and Calvo Marsh</p> <p>See Coastal Access Report: Overview, maps H & R, and Chapter 4, maps 4h - l.</p>	<p>The whole of Skinburness and Calvo Marsh is currently designated as CROW access land and there are no local restrictions or exclusions in place. There are few obvious established routes or desire lines across the marsh but one route running approximately along the line of the Cumbria Coastal Way is occasionally visible on the ground. There are some old waymark signs along this route and stiles in a few existing fences, but it does not appear as if the route is particularly well used.</p>	<p>The proposed ECP is aligned on a combination of existing walked routes and new routes across saltmarsh and along a road verge, approximately following the route of the former Cumbria Coastal Way.</p> <p>The marsh falls within the coastal margin and will become spreading room. The existing CROW access rights will be replaced with Coastal Access rights.</p>	<p>Trail</p> <p>Access is likely to increase on the ECP, due to footpath improvements (sleeper bridges across creeks, signage), and promoting the route as national trail.</p> <p>This is a large marsh, the distance between the landward and seaward edge of the marsh varies from 400m up to 1.5 km. The ECP is aligned mainly toward the edge of the marsh, where true saltmarsh vegetation is transitioning into grazing marsh.</p> <p>The ECP is aligned on robust vegetation which is more resilient to trampling. For the 6.3 km stretch there is likely to be some change in the species composition along the walked line of the trail with some soil compaction and reduction in vegetation density.</p> <p><u>Coastal Margin</u></p> <p>The existing CROW access rights will be replaced with new Coastal Access rights including a direction to restrict access to dogs all year round (under s26(3)(a)).</p> <p>The line of the ECP will be reasonably convenient and easy to follow on the ground and we do not expect trampling to increase in areas away from the path. Ground conditions in the coastal margin and the difficulties in crossing drainage channels without bridges would make it unlikely that many people would venture far off the line of the trail.</p> <p>Therefore, we do not expect trampling to increase on saltmarsh in the coastal margin.</p>
<p>Total</p>			<p>Length of path where trampling will increase leading to some change in the species composition along the walked line of the trail with some soil compaction and reduction in vegetation density.</p> <p>18.5km</p>

This table describes that there is likely to be some change in the species composition along **18.5km** of the ECP with some soil compaction and reduction in vegetation density. Assuming a path width of 2m, this means **3.7ha** of saltmarsh habitat may be affected. In practice, with the level of use experience by comparable saltmarsh paths in the area, regular passage of feet is likely to be confined to a narrower line.

This equates to a total of 0.11% of the saltmarsh area on the English side of the SAC which may experience some degradation in saltmarsh vegetation structure due to alignment of the ECP on saltmarsh. There will be some localised compaction of substrate and changes in vegetation composition as a result, but the structure and functioning of the saltmarsh will not be affected. See appendix 1 for detailed assessment of saltmarsh integrity attributes.

The scale of these impacts is small and widely distributed across the SAC.

For the seven saltmarsh areas described in table 11, where ECP is aligned on the saltmarsh, we do not expect access or trampling of saltmarsh vegetation to increase in the coastal margin.

Table 12 below assesses the impact of increased trampling on the rest of the saltmarshes that fall within the coastal margin (but which do not have the ECP aligned across them).

Table 12: Assessment of the impact of increased trampling of saltmarsh habitat on saltmarshes that fall in the coastal margin.

Location / Cross reference to coastal access report	Existing recreational use	Will new access rights be created on saltmarsh in the coastal margin?	Consideration of the risk of an increase in trampling of saltmarsh habitat
<p>Mossband Hall Marsh</p> <p>See Coastal Access Report: Overview, maps F & I, and Chapter 1, maps 1a-c.</p>	<p>There are no formal access rights on Mossband Hall Marsh. Current levels of use are low.</p>	<p>No</p>	<p>The proposed ECP is aligned on a new route through fields and on existing farm tracks, inland of the marsh. The inland alignment was chosen as it takes walkers away from the marsh, thereby reducing the risk of disturbance to birds. Access to the marsh will be excluded as it is unsuitable for access. Access on the embankment at the landward edge of the marsh is excluded for nature conservation reasons. We do not expect access on the marsh to increase as a result of the proposals.</p> <p>No new access rights will be created on the marsh. Trampling of the saltmarsh is unlikely to increase as a result of the proposals.</p>
<p>Rockcliffe & Garriestown Marshes</p> <p>See Coastal Access Report: Overview, maps F & J, and Chapter 1, maps 1c - e.</p>	<p>There are no existing public access rights over Rockcliffe & Garriestown marshes or around the majority of the landward edge of the marshes. All access is currently managed by Castletown Estate and a permit system is in operation.</p>	<p>No</p>	<p>The ECP is aligned inland of Garriestown Marsh and on an embankment landward of Rockcliffe Marsh. There is ongoing work to improve the nature conservation status of the marshes and some of these measures, such as stock fencing and gapping up of hedge lines, will help to keep people on the line of the ECP and make it more difficult to access Rockcliffe Marsh from the ECP. We do not expect access increase in people accessing Rockcliffe & Garriestown Marshes as a result of the proposals.</p> <p>No new access rights will be created on the marshes. Trampling of the saltmarsh is unlikely to increase as a result of the proposals.</p>
<p>Demesne Marsh</p>	<p>There are already several popular routes and public</p>	<p>Yes</p>	<p>The ECP is aligned on an embankment at the landward edge of the marsh. Demesne Marsh will fall within the coastal margin and will become spreading room.</p>

Location / Cross reference to coastal access report	Existing recreational use	Will new access rights be created on saltmarsh in the coastal margin?	Consideration of the risk of an increase in trampling of saltmarsh habitat
See Coastal Access Report: Chapter 1, map 1e.	rights of way on Demesne Marsh.		This area is already popular with local people, who use existing PRow on the marsh. We do not expect an increase in people accessing the margin at Demesne Marsh as a result of our proposals. Creation of the ECP on an embankment landward of the marsh will probably lead to a reduction in use of the path at the landward edge of the marsh, as it will be a higher and drier line with better views. Trampling of the saltmarsh which falls within the coastal margin is unlikely to increase as a result of the proposals.
Easton Marsh See Coastal Access Report: Chapter 2, maps 2j.	Easton Marsh has no formal access rights but is well visited by walkers. The informal car park on the western edge of Easton Marsh, just outside Drumburgh, is a popular place for place for people to start their walk over the marsh.	Yes	The ECP is aligned landward of the coast road. Easton Marsh will fall within the coastal margin and will become spreading room. This area is already popular, and we do not expect that the current use of marsh is likely to change significantly following the introduction of coastal access rights. Trampling of the salt marsh which falls within the coastal margin is unlikely to increase as a result of the proposals.
Drumburgh Marsh See Coastal Access Report: Overview, maps F & L, and Chapter 2, maps 2k.	There are currently no formal public access rights across Drumburgh Marsh, although there is some evidence of informal public access in this area.	No	The proposed ECP is aligned on a new route and an existing walked route landward of Drumburgh Marsh. Drumburgh Marsh will fall within the coastal margin but will not become spreading room, access will be excluded from the marsh as it is unsuitable for access. We do not expect that the coastal margin would see any significant increase in access on Drumburgh Marsh due to the uninviting terrain. No new access rights will be created on the marsh. Trampling of the saltmarsh is unlikely to increase as a result of the proposals.

Location / Cross reference to coastal access report	Existing recreational use	Will new access rights be created on saltmarsh in the coastal margin?	Consideration of the risk of an increase in trampling of saltmarsh habitat
<p>Campfield Marsh</p> <p>See Coastal Access Report: Chapter 3, maps 3a - b.</p>	<p>There are currently no formal public access rights on Campfield Marsh, and current use is low. Campfield Marsh is an RSPB reserve. The RSPB actively warden the marsh to reduce the risk of disturbance to birds using the area.</p>	<p>Yes</p>	<p>The proposed ECP is aligned either on the coast road or on the verge seaward of the coast road, and Campfield Marsh falls within the coastal margin.</p> <p>Access to Campfield Marsh is managed by the RSPB to reduce the risk of disturbance to feeding and roosting birds. This management by the RSPB is expected to continue. Whilst we have not proposed any direction to exclude or restrict access over Campfield Marsh, we do not expect levels of access to increase in this area. The road on which the ECP will be aligned is mostly unfenced, dense scrub fringes the seaward side of the road for the overwhelming majority of this part of the coast. Where there are gaps in this scrub, the area of marsh closest to the road is often waterlogged and not particularly attractive to walk on. Therefore, walkers are likely to stick to the line of the trail rather than walk in the coastal margin. The access proposals will provide a well-defined path on a minor road that is easy to follow and use.</p> <p>Trampling of the salt marsh which falls within the coastal margin is unlikely to increase as a result of the proposals.</p>
<p>Anthorn and Cardurnock Marsh</p> <p>See Coastal Access Report: Overview, maps G & M, and Chapter 3, maps 3c - f.</p>	<p>There are no formal public rights of access on Cardurnock and Anthorn Marsh, apart from one public right of way that provides a link from the coastal road at Cardurnock onto the marsh. The PRoW ends on the marsh and does not continue north or</p>	<p>No</p>	<p>Between Bowness on Solway and Anthorn, the proposed ECP is aligned either on the coast road or on the verge seaward of the coast road.</p> <p>Anthorn and Cardurnock Marsh falls within the coastal margin but will not become spreading room, access will be excluded from parts of the marsh as it is unsuitable for access and from the remainder of the marsh for nature conservation reasons. We do not expect access to increase on the marsh due to the access and the fact that the ECP is aligned some distance inland, with fields between the ECP and the marsh.</p> <p>No new access rights will be created on the marsh. Trampling of the saltmarsh is unlikely to increase as a result of the proposals.</p>

Location / Cross reference to coastal access report	Existing recreational use	Will new access rights be created on saltmarsh in the coastal margin?	Consideration of the risk of an increase in trampling of saltmarsh habitat
	south, and there is not much evidence to suggest that this route is a particularly well used path. Current levels of access across the whole marsh are low.		
Rabycote Marsh See Coastal Access Report: Overview, maps H and Chapter 4, maps 4g-h.	There are currently no formal public access rights on Rabycote Marsh, and current use is low.	Yes	<p>The ECP is aligned inland of Rabycote Marsh on a road and then a disused railway line. There are several fields between the ECP and the marsh.</p> <p>Rabycote Marsh will fall within the coastal margin and will become spreading room. However, there is unlikely to be an increase in access on Rabycote marsh, as the proposed ECP is aligned well inland of the marsh, with fields, fences and hedges between the path and the coastal margin, making access into the margin difficult.</p> <p>Trampling of the salt marsh which falls within the coastal margin is unlikely to increase as a result of the proposals.</p>

In conclusion, saltmarsh is generally unsuitable for public access and no new access rights will be created over the majority of saltmarsh falling within the coastal margin. As table 12 describes, access is not expected to increase on any of the marshes as a result of the proposals, and therefore there is a low risk of an increase in trampling damage on saltmarshes within the coastal margin.

Consideration of the impact of establishment works on saltmarshes

Where the ECP is aligned on saltmarsh, 180 sleeper bridges, 5 footbridges, 17 kissing gates, 3 pedestrian gates, 36 way-marker posts, 6 signs and 555m length of fencing will be installed. This access infrastructure may damage and reduce the area of saltmarsh habitat, both in terms of construction impacts and the permanent footprint of the structures. The ECP on saltmarshes will not be a surfaced route.

The infrastructure will not impede water flow or interfere with the natural migration of creeks and channels.

Table 13 lists the infrastructure required on each marsh and calculates the total permanent saltmarsh habitat loss under infrastructure as 232m² (0.0232ha). This equates to 0.00068% of saltmarsh habitat on the English side of the SAC which will be lost under infrastructure.

The scale of these impacts is small and widely distributed across the SAC. The structure and functioning of the saltmarsh will not be affected by the infrastructure. See appendix 1 for detailed assessment of saltmarsh integrity attributes.

In order to reduce damage to saltmarsh habitat during establishment works, installation of all infrastructure items associated with the establishment of the approved coastal access proposals on saltmarsh will be governed by method statements. Method statements will cover the following, as a minimum:

- Timing of works to avoid seasonal and any other identified sensitivities;
- Details of access arrangements for installation of infrastructure, minimising the needs for and extent of vehicular access and where necessary including use of low ground-pressure vehicles on soft terrain;
- Storage of plant and materials to ensure no risk to sensitive habitats and species;
- Pollution prevention and control measures to be employed at all times; and
- Biosecurity measures to be integral to all working methods.

Table 13: Permanent loss of habitat due to establishment works

Location / Cross reference to coastal access report	Sleeper Bridges (number)	Sleeper Bridges (affected area, m ²)	Footbridges (number)	Footbridges (affected area, m ²)	Kissing gates (number)	Kissing gates (affected area, m ²)	Pedestrian gates (number)	Pedestrian gates (affected area, m ²)	Fingerpost and way-marker posts (number)	Fingerpost and way-marker posts (affected area, m ²)	Signs (number)	Signs (affected area, m ²)	Fencing (length, m)	Fencing (affected area, m ²)	Total affected area (m ²)
Saltmarsh near Casson Dyke Farm See Coastal Access Report: Overview, map F and Chapter 2, map 2e.	3	3	2	2.6	1	2.2	0	0	3	0.03	2	0.04	0	0	7.87
Burgh Marsh See Coastal Access Report: Overview, maps F & K, and Chapter 2, maps 2f - i.	78	78	1	1.3	2	4.4	0	0	9	0.09	0	0	0	0	83.79
Westfield Marsh See Coastal Access Report: Overview, map F, and Chapter 2, maps 2k & l.	9	9	0	0	0	0	0	0	2	0.02	0	0	0	0	9.02
Anthorn and Longcroft Marshes See Coastal Access Report: Overview, maps G & N, and Chapter 3, maps 3g - i.	17	17	1	1.3	1	2.2	3	4.5	4	0.04	3	0.06	555	3	28.1
Angerton Marsh See Coastal Access Report: Overview, maps H & O, and Chapter 4, maps 4a.	2	2	0	0	2	4.4	0	0	0	0	0	0	0	0	6.4
Newton and Saltcoates Marsh See Coastal Access Report: Overview, maps H, O & P, and Chapter 4, maps 4b - f.	26	26	1	1.3	6	13.2	0	0	6	0.06	1	0.02	0	0	40.58
Skinburness and Calvo Marsh See Coastal Access Report: Overview, maps H & R, and Chapter 4, maps 4h - l.	45	45	0	0	5	11	0	0	12	0.12	0	0	0	0	56.12
Total number	180		5		17		3		36		6		555		
Total area affected m²		180		6.5		37.4		4.5		0.36		0.12		3	232m² or 0.0232ha

See Section D.3.3 Assessment of adverse effect on site integrity alone table 16, for our conclusions concerning adverse effect on site integrity.

D3.2.5 Fixed dunes with herbaceous vegetation ('Grey dunes')

Distribution within the project area

This feature is found at Grune Point.

Sensitivities to changes in access

The following aspects of our proposals could affect fixed dune habitats:

- Habitat loss due to path construction and other associated infrastructure
- Changes in conservation grazing patterns, caused by disturbance of grazing animals by dogs. This could then affect the species composition of the grazed area.

Impact of the access proposal

Existing recreational use

Grune Point is a particularly popular area that attracts both locals and visitors alike. The area is included on several websites promoting access and wildlife in the AONB.

There is a Public Right of Way (PRoW) around Grune Point. Part of the PRoW, on the northern side of Grune Point (between Chichester Hall and Grune House) has been lost to coastal erosion and people are instead walking on the foreshore or in adjacent fields. Further north of Grune House, the PRoW continues through fields before returning along the southern side of the point via an existing access track

There appears to be some access occurring off the PRoW on the northern side of Grune Point, with people walking on the foreshore / shingle beach. A few other desire lines are evident on the ground on the northern side and far north eastern edge of Grune Point that suggest people also follow routes that are some way off the definitive line of the existing PRoW.

Current habitat condition

The SSSI units are currently in unfavourable no change condition, due to undergrazing and inappropriate scrub control.

Access proposal

England Coast Path - In the main, the proposed ECP follows the existing PROW, and on the northern side of Grune Point it is aligned through sand dune habitat for about 1.4km. Between Chichester Hall and Grune House, a short section of the existing PRoW has been lost to coastal erosion, and a new 300m section of path is proposed within the adjacent fields. Aside from this short section, the surface of the existing PROW path around Grune Point, is in good condition. Aside from replacing some existing kissing gates, the only new infrastructure proposed on sand dune habitat is a number of new waymark posts to help people to follow the trail.

Coastal margin - The sand dunes will fall within the coastal margin.

See Coastal Access Report Chapter 4, map 4m.

Consideration of possible impacts (including measures incorporated into the proposals for conservation reasons)

The trail passes through sand dune habitat on a public right of way and on a 300m section of new path in fields (in an area where the PRoW has been eroded). Minimal infrastructure (3 way-marker posts) and no path surfacing is proposed. Therefore, any habitat loss due to infrastructure is minimal.

The route around Grune Point is already popular so we wouldn't expect to see anything but a small increase in use as a result of promoting the route as a National Trail.

The dunes at Grune Point are an area of open ground which the public already access. The majority of people stick to the paths through this area and we do not expect the established pattern of use in the dunes to change as a result of becoming part of the coastal margin. New signage, waymarking and improved route alignment will help to manage access more effectively in this area.

A small increase in access on the ECP is unlikely to cause a significant displacement of grazing animals, so there is a low risk of the proposals disrupting the conservation grazing regime.

Therefore, the coastal access proposals are unlikely to have an impact on fixed dunes with herbaceous vegetation ('Grey dunes').

See **Section D.3.3 Assessment of adverse effect on site integrity alone, table 17**, for our conclusions concerning adverse effect on site integrity.

Solway Firth SPA and Upper Solway Flats and Marshes Ramsar Site

D3.2.6 Wetland Animal Assemblage (natterjack toad and great crested newt)

Distribution within the project area

Great crested newts are found in saltmarsh and sand dune habitats around the Ramsar site. The locations of newt breeding ponds around the Solway are not necessarily well known and recorded.

Natterjack toads are found in saltmarsh around the Solway Firth and in sand dunes at Grune Point and along the coast from Grune to the Ramsar site boundary at Dubmill Point. They breed in shallow seasonal pools on saltmarsh and dune.

Sensitivities to changes in access

Path construction and other associated infrastructure, footpath maintenance

Infrastructure installation may have a detrimental effect on the natterjack and great crested newt populations through disturbance or accidental killing. Leaving holes exposed could lead to animals being trapped, and they could be squashed while sheltering in stacked materials. Natterjack toads and great crested newts could be disturbed, injured or killed during vegetation clearance and other on-going maintenance work.

Spread of disease by people and dogs

There is the potential for chytrid fungus and other diseases to be spread by people and dogs.

Loss of supporting habitat due to construction of a path

If significant amounts of infrastructure or surfacing is required to create the ECP, this could lead to a loss of supporting habitat for natterjacks and great crested newts.

Recreational activities in or close to breeding pools

Adult natterjack toads are nocturnal and spend the day within burrows (often >20cm deep) where they are unlikely to be harmed by walkers. However, they are vulnerable in the breeding season. At this time, they prefer temporary ponds and the shallow water meaning their spawn is vulnerable, especially to dogs running through the ponds. Dogs entering the pools disturb the silt which then rests on the spawn strings leading to the development of a fungus *Saprolegnia* spp. People walking near breeding ponds can tread on emerging toadlets in early summer (toadlets are active during the daytime).

Dogs running around the shallow edges of ponds where great crested newts are present could cause injury to the adult newts or newt larvae.

General approach to alignment

The ECP is not normally aligned at the edge of natterjack toad or great crested newt breeding ponds, in order to prevent people from walking close to breeding ponds.

The ECP route generally stays on drier ground and avoids places where seasonal pools might form.

Assessment of the impact of the access proposal on natterjack toads and great crested newts.

Path construction and other associated infrastructure & footpath maintenance

To prevent injury, disturbance or death of natterjack toads and great crested newts during establishment and maintenance works, reasonable avoidance measures will be used. Cumbria County Council will submit method statements as part of the SSSI consent process during establishment and maintenance works, outlining how they will carry out the work, getting advice from a suitably qualified ecologist where appropriate.

Spread of disease by people and dogs

Some of the amphibian populations in Cumbria are known to have the chytrid fungus *Batrachochytrium dendrobatidis*. Elsewhere in the world, the chytrid fungus has caused huge declines in amphibian populations. However; these losses have not been seen in the UK, where the risks appear to be low.

Studies in the UK have found that spread of the fungus is most likely linked to where people have deliberately introduced non-native alpine newts into pools with native amphibians or transferred infected animals between pools. Bio-security measures have been introduced for people that work with native amphibians e.g. capturing animals to collect biological data or involved in translocation schemes.

Beyond these specific activities, the risks of spreading the chytrid fungus in UK appear to be low. Dogs entering pools are not thought any more likely to transfer the fungus than other possible agents, such as wild birds. In addition, the fungus is known to be present in some wild populations of natterjack toad without seeming to have caused populations to decline. Therefore, no special measures are currently considered necessary in connection with general recreational activities.

Loss of supporting habitat due to construction of a path

See section D.3.2.4 above for information about loss of saltmarsh habitat and section D.3.2.5 for information about loss of sand dune habitat as a result of our proposals.

In summary – the proposals will lead to a direct total loss of SAC saltmarsh habitat of 146 square metres (representing less than 0.0003% of saltmarsh area within the SAC). The scale of these impacts is small and widely distributed across the SAC. On sand dune habitat, minimal infrastructure (3 way-marker posts) and no path surfacing is proposed, therefore the direct loss of habitat as a result of our proposals is negligible.

This scale of supporting habitat loss is not expected to have an impact on population abundance of natterjack toads or great crested newts.

Recreational activities in or close to breeding pools

The locations of newt breeding ponds around the Solway are not well known and recorded. Any of the larger, deeper ponds may contain breeding great crested newts. Great crested newts usually breed in fresh water and are unlikely to breed in brackish water. Between Gretna and Skinburness, where the ECP is aligned within or adjacent to the Ramsar site, it is almost entirely aligned on saltmarsh or roads. Where the ECP is aligned on saltmarsh, because the ponds are likely to be shallow and brackish / saline, there is a low likelihood of newts breeding in the saltmarsh pools and therefore a low risk of people coming close to ponds used by breeding great crested newts as a result of the proposals. Restrictions requiring dogs to be kept on leads have been proposed over much of this section where the ECP is aligned on saltmarsh or where saltmarsh falls within the coastal margin. These restrictions are intended to avoid disturbance to birds but will also reduce the risk of dogs entering saltmarsh pools.

In sand dune habitats, at Grune Point, and between Skinburness and Dubmill Point, freshwater ponds that may be used by breeding great crested newts will fall within the coastal margin. See assessment of the impacts of the access proposal on newts at these sites on page 68 & 69.

We do have records of locations where natterjacks breed. These areas are discussed below.

Saltmarsh near Casson Dyke Farm

Natterjack toad breed on saltmarsh and fields in an area which will become coastal margin between Casson Dyke Farm and New Sandsfield.

Existing recreational use

There is a PRoW on the saltmarsh which is reasonably well used by locals. There are natterjack breeding pools on the saltmarsh. The remaining pools are in fields to which there is no existing access.

Access proposal

The proposed ECP is partly aligned on an existing walked line across the saltmarsh. The existing walked line is currently used instead of the definitive line of the PRoW, as it is easier to follow on the ground. The ECP is then aligned on a public road landward of the marsh and fields where the natterjack pools are situated. As a consequence of the ECP alignment, the natterjack breeding pools will fall within the coastal margin. Coastal access rights will be excluded from the saltmarsh seaward of the trail under s25A as it is unsuitable for access.

See Coastal Access Report: Overview map F, and Chapter 2, maps 2e - f.

Consideration of possible impacts

There is likely to be an increase in numbers of walkers using the ECP as a result of the route being promoted as a National Trail. There are natterjack breeding ponds on the saltmarsh and the ECP is aligned fairly close to two of them.

Current access on the saltmarsh appears to be largely confined to the path as this is the easiest way to cross the marsh, and there is no reason to think this pattern of activity will change as a result of the proposals. No new access rights will be created to the saltmarsh seawards of the ECP. Therefore, access to saltmarsh in the coastal margin is not expected to increase as a result of the proposals.

People may have a dog with them when using the ECP and dogs entering the pools at sensitive times could damage spawn or toadlets. At present there is no information on site to alert people to the presence of natterjacks or how their dogs might impact upon breeding toads. For this reason, we propose to install new advisory signs where the proposed route enters the saltmarsh.

The rest of the pools that are in the coastal margin are in fields that are separated from the ECP by fences or hedges and also some distance from the ECP. For these reasons, the risk of impacts on breeding toads are much reduced.

As access in the coastal margin is not expected to increase as a result of our proposals, there is a low risk of impact from walkers and their dogs on breeding natterjack toads in this area.

Campfield Marsh

Natterjack toads breed on Campfield Marsh in an area which will become coastal margin.

Existing recreational use

Other than the coastal road, there are very limited existing opportunities to walk along the coast in this location.

Campfield Marsh is an RSPB reserve. The RSPB actively manages the marsh to reduce the risk of disturbance to birds. The availability of an area close to Bowness-on-Solway for local dog walkers is important in removing or reducing any demand for off-lead dog exercise on Campfield Marsh.

Access proposal

The proposed ECP is aligned on the coast road. Campfield Marsh will fall within the coastal margin. See Coastal Access Report: Chapter 3a - 3b.

Consideration of possible impacts

Access on the line of the trail (the coastal road) is likely to increase as a result of it being promoted as a National Trail. If people and dogs remain on the line of the trail, this will not have an impact on breeding natterjack toads.

The natterjack breeding pools fall within the coastal margin. The coastal margin is fairly wet saltmarsh, and not particularly attractive or easy to walk on. The ECP alignment on the road is quiet and elevated above the marsh, providing a good walking surface and views of the Solway. The existing access management from the RSPB will still be in place. Therefore, we expect there to be negligible change in access in the coastal margin as a result of the proposals.

As access is not expected to increase in the areas where natterjack toads breed, there is a low risk of impact from walkers and their dogs on breeding natterjack toads in this area.

Anthorn & Cardurnock Marsh

Natterjack toads breed on Anthorn & Cardurnock Marsh in an area which will become coastal margin.

Existing recreational use

Other than the coastal road, there are very limited existing opportunities to walk along the coast around the entire Cardurnock peninsula.

Access proposal

The proposed ECP is aligned on the coastal road. Anthorn and Cardurnock Marsh will fall within the coastal margin. Access to these saltmarshes will be excluded either because they are unsuitable for access or to reduce the risk of disturbance to waterbirds. See Coastal Access Report: Overview maps G & M, and Chapter 3, maps 3c-f.

The natterjack breeding pools are on saltmarsh and will fall within the coastal margin.

Consideration of possible impacts

Access on the line of the trail (the coastal road) is likely to increase as a result of it being promoted as a National Trail. If people and dogs remain on the line of the trail, this will not have an impact on breeding natterjack toads.

The ECP alignment on the road is quiet, elevated above the marsh and separated from it by agricultural fields with hedges and fence boundaries. The road provides a good walking surface and views of the Solway. There will be no new access rights created on the saltmarsh where natterjacks breed. Therefore, we expect there to be negligible change in access in the coastal margin as a result of the proposals.

As access is not expected to increase in the areas where natterjack toads breed, there is a low risk of impact from walkers and their dogs on breeding natterjack toads in this area.

Anthorn Marsh

The natterjack breeding pools are on saltmarsh landward of the ECP.

Existing recreational use

There are no existing access rights on Anthorn Marsh (a narrow strip of marsh adjacent to the river Wampool). There is, however, evidence on the ground of an informal walked route across the marsh along the northern bank of the River Wampool.

Access proposal

The ECP is aligned on the existing walked line across Anthorn Marsh. Access to the saltmarsh in the coastal margin will be excluded under s25A. See Coastal Access Report: Overview maps G & N, and Chapter 3, maps 3g.

Consideration of possible impacts

The natterjack breeding pools are landward of the proposed ECP and do not fall within the coastal margin. Therefore, no new access rights will be created around the pools. The ECP is separated from the pools by a fence. Therefore, there is a very low risk of impact from walkers and their dogs on breeding natterjack toads in this area.

Skinburness & Calvo Marsh

The natterjack breeding pools are on grazing marsh landward of the ECP.

Existing recreational use

The marsh is currently designated as CROW access land and there are no local restrictions or exclusions in place (other than the general requirement for dogs on leads in the breeding season). There are few obvious established routes or desire lines across the marsh but one route running approximately along the line of the former Cumbria Coastal Way is occasionally visible on the ground. There are some old waymark signs along this route and stiles in a few existing fences, but it does not appear as if the route is particularly well used.

Access proposal

The proposed ECP approximately follows the route of the former Cumbria Coastal Way. The marsh falls within the coastal margin and will become spreading room. The existing CROW access rights will be replaced with coastal access rights. We have proposed a s26 access restriction, requiring people to keep dogs on leads all year round, in order to reduce the risk of disturbance to waterbirds. See Coastal Access Report: Overview maps H & R, and Chapter 4, maps 4k.

Consideration of possible impacts

Access is likely to increase on the ECP, due to footpath improvements and promoting the route as national trail. The natterjack breeding pools are at least 300m inland of the ECP. If people and dogs remain on the line of the trail, they will not have an impact on breeding natterjack toads.

Although the pools fall within the landward coastal margin, as the marsh is already covered by CROW access rights, we expect that any change in access within the margin will be negligible. It is unlikely that walkers would wish to access the coastal margin mainly due to

the nature of the terrain and the difficulties in crossing drainage channels without bridges. In addition, there is a fence between the ECP and the pools.

Therefore, there is a very low risk of impact from walkers and their dogs on breeding natterjack toads in this area.

Grune Point

The natterjack breeding pools are on saltmarsh or dune habitat seaward of the ECP, in the coastal margin. Great crested newt may also breed in pools at this location.

Existing recreational use

Grune Point is a particularly popular area and attracts both locals and visitors alike. The area is included on several websites promoting access and wildlife in the AONB. There is a PRoW around Grune Point.

Access proposal

The proposed ECP is mainly aligned on a PRoW around Grune Point. Part of the PRoW on the northern side of Grune Point has been lost to coastal erosion and, in order to avoid aligning the ECP on the foreshore, a new section of path is proposed within the adjacent fields.

Areas of sand dune, shingle and saltmarsh fall within the coastal margin. See Coastal Access Report: Overview map H, and Chapter 4, maps 4m.

Consideration of possible impacts

The proposed route around Grune Point is already popular so we wouldn't expect to see anything but a small increase in use as a result of promoting the route as a National Trail.

The natterjack pools are located in the coastal margin and relatively close to the trail in some places.

Grune Point is an area which the public already access. Most people stick to the existing paths through this area and we do not expect the established pattern of use in the dunes to change as a result of becoming part of the coastal margin. New signage, waymarking and improved route alignment will help to manage access more effectively in this area and help to ensure that people are more likely to remain on the line of the ECP, rather than walk across the coastal margin.

As access is not expected to increase in the areas where natterjack toads breed, there is a low risk of impact from walkers and their dogs on breeding natterjack toads in this area.

Skinburness to Dubmill Point

The natterjack breeding pools are in sand dunes along the coast. Great crested newt may breed in pools at this location.

Existing recreational use

The main way in which people access the coast between Skinburness and Dubmill Point is by walks along the coast and through the dunes. These walks tend to radiate out from key locations such as Silloth town centre, Skinburness, Mawbray, Allonby and from the many

informal lay-bys and car parks that are located along the coast road. There is existing access through the dunes along this entire length of coast.

Access proposal

Between Grune Point and Silloth, the proposed ECP follows popular public rights of way, promenade and sea defences. Between Silloth and Dubmill Point the proposed ECP is aligned on an existing walked line through dunes. Areas of sand dune habitat fall within the seaward and landward coastal margin.

See Coastal Access Report: Chapter, maps 5a - f.

Consideration of possible impacts

The ECP will follow existing paths through dune habitat and open ground and it is unlikely that establishment patterns of use will change.

As access is not expected to increase in the areas where natterjack toads breed, there is a low risk of impact from walkers and their dogs on breeding natterjack toads in this area.

Conclusion - Wetland animal assemblage (great crested newt & natterjack toad)

See **Section D.3.3 Assessment of adverse effect on site integrity alone**, table 21 for our conclusions concerning adverse effect on site integrity.

D3.2.7 Non-breeding waterbirds

Distribution within the project area

Non-breeding waterbirds roost in many locations around the shoreline of the Solway Firth SPA, and some species also roost on the mudflats and in coastal fields. They feed on the extensive mudflats and saltmarshes within the SPA and in coastal fields adjacent to the SPA.

The breeding population of redshank, oystercatcher and ringed plover within Solway Firth SPA are considered to contribute significantly to the non-breeding population. The following named features of the waterbird assemblage are also included in the assessment: herring gull, black headed gull and cormorant. Breeding herring gulls largely stay in the local area in the winter, forming an important proportion of the wintering population. Breeding success is important for recovery of the wintering population, and so there is a pathway for impact between the two seasons. Whilst the link is less strong, there is also a pathway for impact for black-headed gulls. Breeding cormorants represent an important proportion of the wintering population and hence are important in maintaining the species as part of the wintering assemblage. More details on distribution is given in the sections below.

Sensitivities to changes in access

All of the qualifying features (except scaup and red-throated diver) may be sensitive to changes in access that interrupt them whilst feeding on the exposed tidal mudflats, saltmarshes or coastal fields, or when at roost along the foreshore or on saltmarshes. They are at particular risk of disturbance for several hours around high tide, when the birds are forced into closer proximity with the public and dogs using the foreshore, marshes and flats.

Disturbance at main roost sites is likely to be especially significant because the birds' energy expenditure may be increased both directly (particularly if they are repeatedly flushed) and indirectly (if disturbance forces birds to roost further from their preferred feeding areas).

The distribution of these roosts is determined by factors which include lack of disturbance, low vegetation and good visibility. Because the roosts act as a focal point for birds from a large foraging area they are particularly sensitive.

Disturbance in these species may affect ability to feed and rest and may be most damaging at times of hard frost when food resources are limited, and energy requirements are highest.

Disturbance distances vary between species, and according to activity, with species such as turnstone tolerating people at distances of less than 30m while roosting and tolerating closer approach when feeding, and up to 450m or more for species like curlew, effectively restricting their distribution to the least disturbed areas [16].

The level of disturbance to non-breeding waterbirds from recreational activities is low around the Solway and maintaining this is likely to be an important determinant both of population health and species distribution around the SPA.

Disturbance from roost areas reduces time spent maintaining feather condition and resting, and results in increased energy expenditure as birds relocate to alternative areas. Coastal access has the potential to impact on both habitat extent and availability for these species both while preening and roosting.

Disturbance of breeding birds risks an impact where the breeding population of a species significantly contributes to the non-breeding population. Disturbance of breeding birds can lead to eggs or chicks chilling, trampling of nests, eggs and chicks, desertion, or direct predation of nest or young by dogs. There is also a risk of increased predation of eggs and chicks, due to adults being disturbed from the nest leaving the nest more vulnerable to predation.

Impact of the access proposal

This assessment of the impact of our proposals on non-breeding waterbirds is laid out below.

The assessment is split into sections as listed in table 14.

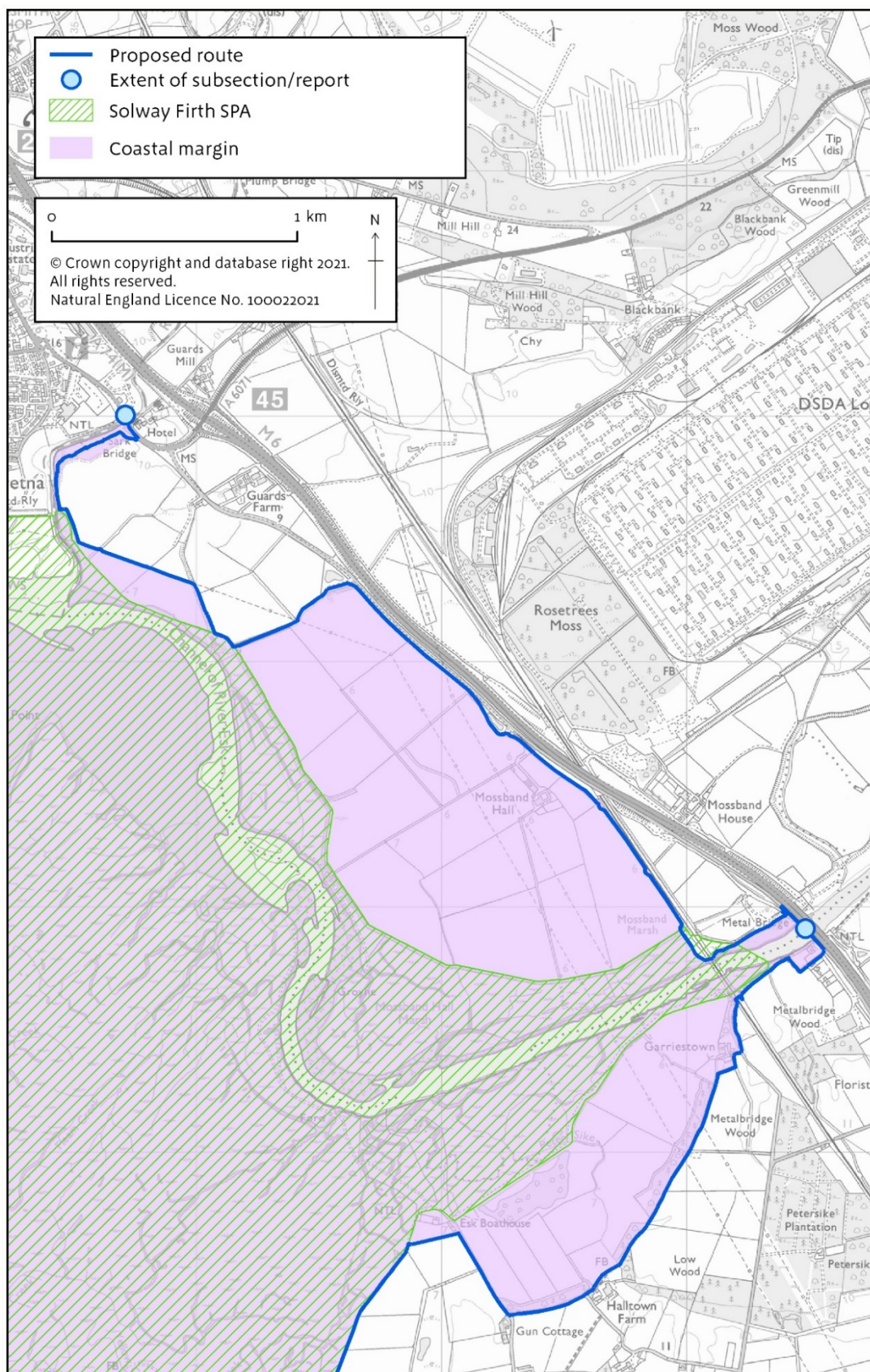
Table 14: Assessment of non-breeding waterbirds

Sections of coast covered by this assessment	Saltmarshes and other habitats used by non-breeding waterbirds on this section of coast	Document section	Coastal Access Report Chapter / Maps
Gretna to Metal Bridge	Mossband Hall Marsh, Esk Channel and coastal fields	D3.2.7a	Coastal Access Report Chapter 1, maps 1a – 1c and Overview maps F & I.
Metal Bridge to Rockcliffe village	Garriestown, Rockcliffe & Demesne Marshes and coastal fields	D3.2.7b	Coastal Access Report chapter 1, maps 1c – 1f and Overview maps E, F & J.
Casson Dyke Farm to Drumburgh	Burgh Marsh, Easton Marsh	D3.2.7c	Coastal Access Report Chapter 2, maps 2f – 2j, Overview maps F, K.

Sections of coast covered by this assessment	Saltmarshes and other habitats used by non-breeding waterbirds on this section of coast	Document section	Coastal Access Report Chapter / Maps
Drumburgh to Bowness-on-Solway	Drumburgh, Westfield & Bowness Marshes.	D3.2.7d	Coastal Access Report Chapter 2, map 2j – 2m, Overview report maps F, L.
Chapter 2 alternative routes	Coastal fields	D3.2.7e	Coastal Access Report, Chapter 2, maps 2n to 2r and maps 2s to 2t.
Bowness-on-Solway to Anthorn	Campfield Marsh, Anthorn & Cardunock Marsh and Coastal Fields	D3.2.7f	Coastal Access Report Chapter 3, maps 3a - 3f, Overview maps G, M.
Anthorn to Whitrigg Bridge	Anthorn, Longcroft & Whitrigg Marshes	D3.2.7g	Coastal Access Report Chapter 3, maps 3g – 3i and Overview maps G & O.
Chapter 3 alternative routes	Coastal Fields	D3.2.7h	Coastal Access Report, Chapter 3, maps 3g and 3h.
Whitrigg Bridge to Rumbling Bridge	Angerton Marsh, Newton and Saltcoates Marsh, Rabycote Marsh	D3.2.7i	Coastal Access Report Chapter 4, maps 4a – 4h and Overview maps H, O - Q.
Rumbling Bridge to Skinburness	Skinburness and Calvo Marsh	D3.2.7j	Coastal Access Report Chapter 4, maps 4h – 4l and Overview maps H & R.
Skinburness to Silloth	Grune Point and open coast	D3.2.7k	Coastal Access Report Chapter 4, maps 4m – 4p and Overview map H.
Chapter 4 alternative routes	Coastal fields and Grune Point	D3.2.7l	Coastal Access Report, Chapter 4, maps 4a to 4e and map 4m.
Silloth to Allonby	Open coast	D3.2.7m	Coastal Access Report Chapter 5, maps 5a – 5h.
Chapter 5 alternative routes	Coastal fields	D3.2.7n	Coastal Access Report, Chapter 5, maps 5i to 5k.

D3.2.7a Impact of the access proposal on non-breeding birds between Gretna and Metal Bridge (including Mossband Hall Marsh, Esk Channel and coastal fields)

Map of the area showing proposed ECP, coastal margin & Solway Firth SPA.



Use of the area by non-breeding waterbirds

The saltmarshes between the Esk Channel and the embankment and fields inland of the embankment are regularly used by non-breeding pink-footed goose, barnacle goose and whooper swans [17, 19].

Oystercatcher, redshank, curlew, ringed plover and waterbird assemblage species (goldeneye, dunlin) use the Esk Channel [20].

Baseline disturbance from recreational activities

Much of this section has low levels of disturbance.

Existing recreational use

There is little existing access in this area. Between Gretna and Metal Bridge there are no existing public rights of way. There is an existing walked line from Gretna along the river Sark, used by local walkers and dog walkers. The road that runs parallel to the M6 and links Gretna to Metal Bridge is fast and unsafe to walk along its entire route as there is no pavement provided.

Access proposal

England Coast Path - Leaving Gretna, the proposed ECP is aligned on an existing walked route along the river and through fields. It is then aligned on a new route along an embankment before turning inland through fields and on existing farm tracks, to Metal Bridge.

Coastal margin - The coastal margin comprises fields, a flood embankment, saltmarsh and flats. Access would be excluded from the saltmarsh and flats under s25A as they are considered to be unsuitable for access.

See Coastal Access Report Chapter 1, maps 1a – 1c and Overview maps F & I.

Consideration of possible impacts (including measures incorporated into the proposals for conservation reasons)

The inland alignment of the ECP was chosen to avoid areas used by roosting and feeding birds and also to avoid safety issues associated with ongoing works on the embankment. A large increase in access on the line of the ECP is expected, as there is little current access provision in this area. Signage and waymarking will encourage people to remain on the trail in this area which offers good views over the Solway Firth.

The project team would not expect to see any additional use of the saltmarsh and flats in this area due to the difficult terrain, the lack of any obvious features that might attract users and the exclusions proposed under s25A.

We do not expect to see an increase in access in the fields that fall within the coastal margin which are used by geese and swans. They are flat pastures that don't obviously lead anywhere, and which are often full of stock. In addition to fences, there are often mature hedges between the fields.

Access might increase along the flood embankment next to Mossband Hall Marsh as the ECP passes either end of this flood bank, making it more easily accessible to the public. If

access were to increase on the flood embankment there is a high risk of disturbance to birds using the marsh, through sky-lining and dogs off lead running onto the marsh.

In order to reduce the risk of disturbance to roosting and feeding birds on Mossband Hall Marsh, the following measures are proposed:

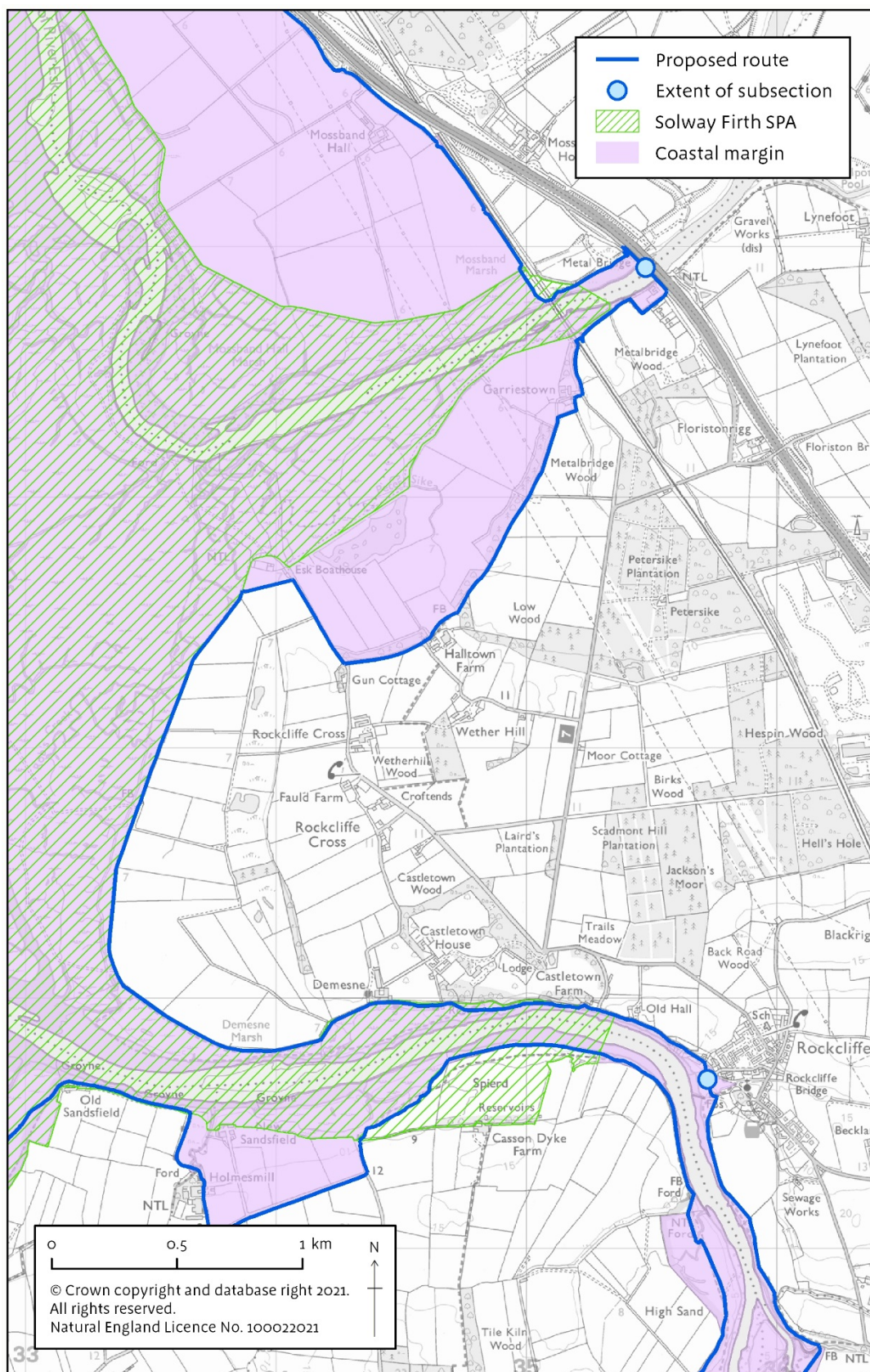
- a s26 direction to exclude access to the flood embankment.
- Signage at the northern end of the embankment informing people that there is no access to the embankment. At this point, there is an existing locked field gate with 'No entry' signs.

At the south-eastern end of the embankment, the proposed ECP route crosses it by means of an existing agricultural track towards the marsh. The section of embankment to the southwest of this point tends to be overgrown with vegetation, narrow and, we don't believe that further deterrents to access are needed.

In conclusion, the combination of inland route alignment, year round access exclusions on the embankment, saltmarsh and flats, and signage to inform people about the exclusions, means that there is a low risk of the proposals causing an increase in disturbance to non-breeding waterbirds.

D3.2.7b Impact of the access proposal on non-breeding birds between Metal Bridge and Rockcliffe village (including Garriestown, Rockcliffe & Demesne Marshes and coastal fields)

Map of the area showing proposed ECP, coastal margin & Solway Firth SPA.



Use of the area by non-breeding waterbirds

The area between Metal Bridge and the railway line has low use by birds.

Garriestown and Rockcliffe Marshes and the surrounding flats support roosting and feeding pink-footed goose, barnacle goose, whooper swan, pintail, golden plover, ringed plover, oystercatcher, curlew and redshank and waterbird assemblage species (cormorant, shelduck, dunlin) [17,19,20]. The area inland of Rockcliffe Marsh is regularly used by pink-footed goose, barnacle goose, whooper swan [18].

Pink-footed geese feed on coastal fields between Garriestown and Esk Boathouse and roost on the sands (including the Esk Channel) [17].

Rockcliffe Marsh has the largest concentrations of barnacle geese on the southern side of the Solway. It is the second most important roost site for pink-footed goose and cormorants, and the single most important site for breeding birds in the SPA.

Oystercatcher (39 pairs), redshank (62 pairs), ringed plover (4 pairs) and herring gull breed on Rockcliffe Marsh. Black-headed gull used to breed on the site. Recent reductions in breeding herring and black-headed gull populations are thought to be due to several factors including limited food supply, predation, heavy grazing, tidal inundation and disturbance by livestock and quad bike. [11]

Baseline disturbance from recreational activities

Baseline levels of disturbance on Garriestown and Rockcliffe Marshes is low.

Existing recreational use

There is a limited network of PRow that people can use to walk between Metal Bridge, Rockcliffe Cross and Rockcliffe village.

There are no existing public access rights over Rockcliffe Marsh itself or around the majority of its landward edge. All access is currently managed by Castletown Estate and granted by permission only. The staff at Castletown Estate and Cumbria Wildlife Trust maintain an effective wardening presence and as part of their role they deter unauthorised access to Rockcliffe Marsh.

Demesne Marsh and the banks of the river Eden to the north of Rockcliffe have a few existing PRow and other tracks with some access rights. These seem to be popular, particularly for residents of local villages, often as dog walking routes.

Access proposal

England Coast Path - Between Metal Bridge and Esk Boathouse, the proposed ECP is aligned on an existing PRow and minor road. Between Esk Boathouse and Demesne Marsh, the ECP is aligned on a new route on a flood embankment. From Demesne Marsh to Rockcliffe village the ECP is aligned on an existing walked route, a PRow and a minor road.

Coastal margin - Fields, large areas of saltmarsh (Rockcliffe Marsh and Demesne Marsh) and some flats will fall within the coastal margin. Rockcliffe Marsh is unsuitable for access and access would be excluded year-round under s25A. Access would be excluded from the floodbank and part of the agricultural land behind the flood bank from Garriestown to Esk

Boathouse for nature conservation reasons. There will be spreading room on Demesne Marsh.

See Coastal Access Report chapter 1, maps 1c – 1f and Overview maps E, F & J.

Consideration of possible impacts (including measures incorporated into the proposals for conservation reasons)

Metal Bridge to Esk Boathouse

Between Metal Bridge and Esk Boathouse the proposed ECP is aligned on an existing PRow and minor road. The existing PRow is not well used at present (somewhat overgrown in places); promoting this route as a National Trail and improving access infrastructure and signage is likely to lead to an increase in use.

The inland alignment of the ECP between Garriestown and Esk Boathouse was chosen to avoid areas used by roosting, feeding and breeding birds.

This inland alignment means that an area of fields used by geese in winter falls within the coastal margin. The proposed ECP is well screened from the fields by trees and hedges, other than in the vicinity of Halltown Farm.

A flood embankment would also fall within the coastal margin. Roosting, feeding non-breeding waterbirds are found close to both sides of this embankment, including on a tidal lagoon which also supports breeding birds. A locked gate currently prevents access to the embankment, but the embankment does provide an attractive opportunity to walk closer to the coast with better views across the estuary. As a result of being in the coastal margin, it is reasonable to assume that access along the embankment might well increase if it became spreading room.

An increase in access along this embankment could cause significant disturbance to wintering birds on the narrow marsh and birds breeding on a tidal lagoon, due to skylining and dogs off lead running into sensitive areas near the embankment.

In order to reduce the risk of disturbance to roosting, feeding and breeding waterbirds near the embankment and to geese using the fields the following measures are proposed:

- A s26 (nature conservation) direction to exclude access to part of the agricultural land behind the flood bank from Garriestown to Esk Boathouse. This exclusion would operate all year.
- A s26 (nature conservation) direction to exclude access to the flood embankment next to Rockcliffe Marsh from just west of Esk Boathouse to the railway viaduct near Garriestown. This exclusion would operate all year.
- Gates at either end of the Garriestown embankment will be locked.
- Signage with information about the about the access restrictions and sensitive features.

Esk Boathouse to Demesne Marsh (Rockcliffe Marsh)

The ECP is aligned on a new route on a flood embankment, along the edge of Rockcliffe Marsh (between Esk Boathouse and Demesne Marsh).

The proposed line of the ECP runs along the flood embankment next to Rockcliffe Marsh. There is ongoing work to improve the nature conservation status of the marsh and some of these measures, such as stock fencing and gapping up of hedge lines, will help to keep people on the line of the ECP and make it more difficult to access Rockcliffe Marsh.

Disturbance of birds using the marsh through skylining is not a concern in this location because much of this length is backed by tall hedges and trees that provide a backdrop to limit skylining.

Access to Rockcliffe Marsh itself would be excluded under s25A, and this, together with the existing wardening presence and the nature of the terrain, means it is unlikely that there would be a significant increase in people using the marsh as a result of our proposals. A tidal creek, which runs alongside the seaward base of the embankment for much of its length, serves as a further barrier to access from the embankment over the marsh.

In order to further reduce the risk of disturbance to roosting, feeding and breeding waterbirds near the embankment the following measure is proposed:

- A s26 (nature conservation) direction requiring people to keep their dogs on leads on the new section of the ECP along the embankment next to Rockcliffe Marsh. This restriction would operate all year.
- Signage with information about the access restrictions and sensitive features.

Demesne Marsh

This area is already popular with local people, who use existing PRow on the marsh. We do not expect an increase in people accessing the margin at Demesne Marsh as a result of our proposals.

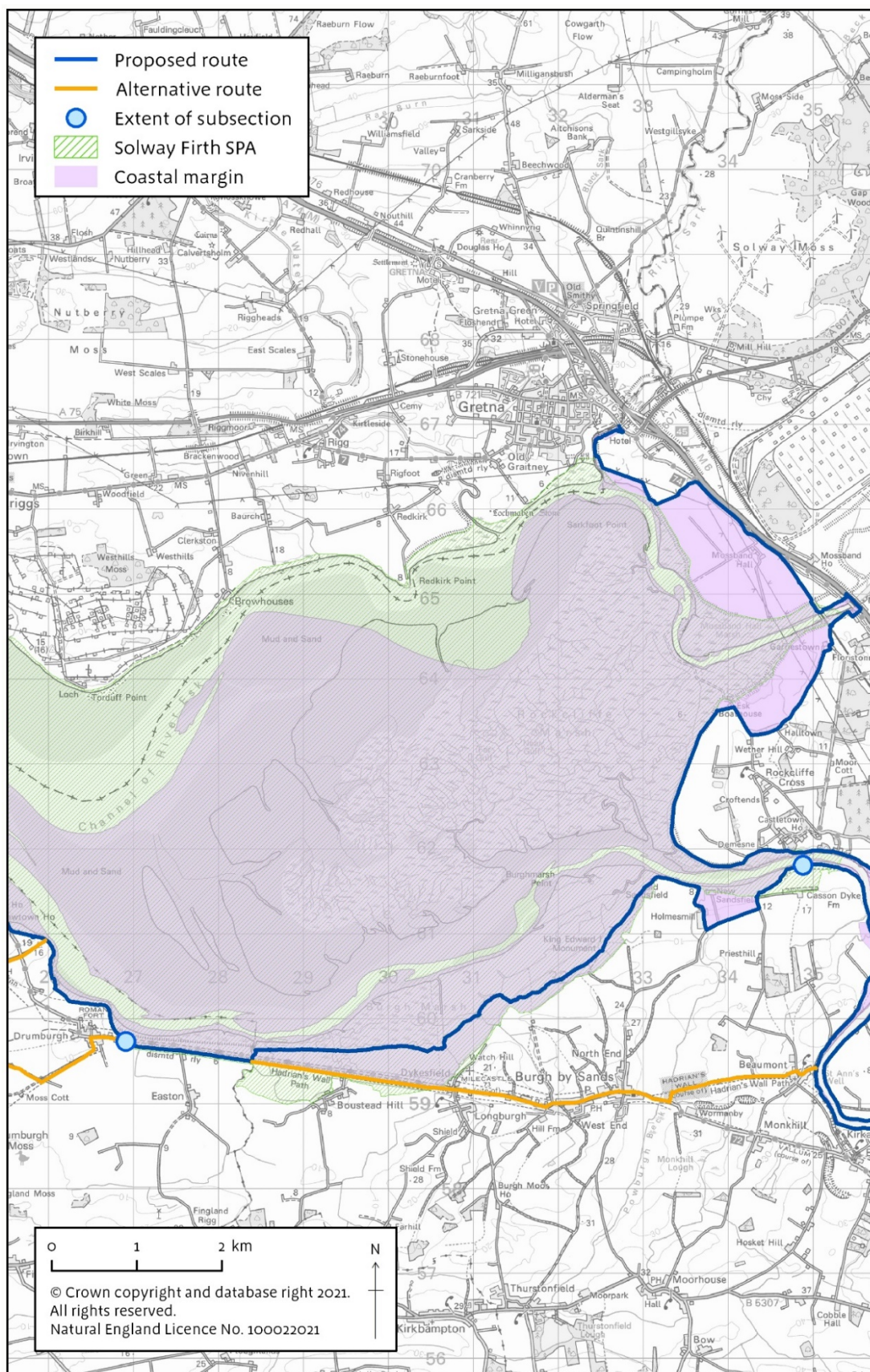
Creation of the ECP on an embankment landward of the marsh will probably lead to reduction in use of the path at the landward edge of the marsh, as it will be on a higher and drier line with better views. The new ECP would provide a more desirable route for walkers than the existing routes and therefore there is the potential to reduce access and disturbance across the rest of the marsh.

As access to the marsh is not expected to increase as a result of our proposals, there is a low risk of increased disturbance of roosting and feeding birds as a result of the proposals.

In conclusion, between Metal Bridge and Rockcliffe village, the combination of inland route alignment, year round access exclusions on the embankment, saltmarsh and flats, a year round dogs on lead restriction on the embankment and signage to inform people about the exclusions and dogs on lead restriction, means that there is a low risk of the proposals causing an increased disturbance to roosting, breeding and feeding birds.

D3.2.7c Impact of the access proposal on non-breeding birds between Casson Dyke Farm and Drumburgh (including Burgh Marsh and Easton Marsh)

Map of the area showing proposed ECP, coastal margin & Solway Firth SPA.



Use of the area by non-breeding waterbirds

There are 3 roost sites on Burgh Marsh. Curlew, redshank and waterbird assemblage species (goosander, lapwing) roost on Burgh Marsh. This section has the third lowest total number of roosting birds but the highest numbers of lapwing, curlew and goosander according to field records. [20].

Curlew, oystercatcher, redshank and waterbird assemblage species (dunlin) roost on Easton marsh near Milecastle 76. Overall, the section from Dykesfield to Glasson including Easton Marsh, ranks low for total number of individual birds present. [20]. Pink-footed goose, barnacle goose and whooper swans use the marshes and flats.

Baseline disturbance from recreational activities

Disturbance has been observed on Burgh Marsh and is most likely to occur where there are existing access points to the marsh. No disturbance was noted at the roost on Easton Marsh. [20].

Existing recreational use

Burgh Marsh is designated as CROW access land by virtue of being registered common land. Other than the general restrictions requiring dogs to be kept on leads in the breeding season and at all times in the vicinity of livestock, there are no existing CROW directions on Burgh Marsh. There are several public rights of way that allow people to gain access onto and across parts of the marsh, but there are no PRoW or clearly defined routes or lines that run laterally across the main body of the marsh itself.

The old marsh road (possibly also on the line of Hadrian's Wall) can be easily followed in parts but is not continuously evident on the ground and is interrupted by sizeable creeks in places. The King Edward 1st Monument is an important historical landmark and obvious location that people are attracted to visit.

Parts of the marsh are well used by walkers. It has been observed that some do take their dogs onto the outer parts of the marsh, not following any particular lines on the ground, to where the vegetation is lower-growing, and the terrain makes walking easier. However, it is unlikely that the majority of those using the marsh walk far, due to the nature of the terrain (wet ground, tussocks of grass, sward height) and difficulty in crossing the many creeks and drainage channels. Existing signage showing the rights of way and status as CROW access land is in place as well as information alerting people to the dangers arising from high tides, which can quickly cover both the marsh and road.

Easton Marsh is not designated as CROW access land but from observations made at the site, we expect that it sees similar or perhaps slightly less levels of use as Burgh Marsh. The informal car park on the western edge of Easton Marsh, just outside Drumburgh, is a popular place for people to start their walk over the marsh.

Access proposal

England Coast Path - The proposed ECP is aligned on a new route across Burgh Marsh. From Old Sandsfield, the proposed ECP is aligned on the higher part of Burgh Marsh past the King Edward 1st Monument, close to several PRoW that provide access onto the marsh from the east. The proposed ECP then leaves this area of higher ground and follows the approximate line of the old marsh road. In places this will follow existing cattle trods but it will largely follow a new line on the ground occasionally diverting from the line of the old road to

avoid vegetation or wetter ground. The installation of sleeper bridges will improve access across some of the larger creeks.

The ECP moves off the marsh and is then aligned along the top of the flood embankment on the landward side of the road adjacent to Easton Marsh.

Coastal margin - The coastal margin will contain large areas of saltmarsh and flats. Access will be excluded under s25A from the flats and some of outer parts of the saltmarshes as they are unsuitable for access.

See Coastal Access Report Chapter 2, maps 2f – 2j, Overview maps F, K.

Consideration of possible impacts (including measures incorporated into the proposals for conservation reasons)

Burgh Marsh

The proposals to align the ECP over Burgh Marsh will affect both the pattern and level of recreational use. Access on the line of the trail will increase as a result of creating a new route across the marsh and promoting it as a National Trail. Installing new sleeper bridges and waymarking along the route will provide a focus for visitors to the marsh with the effect that the proposed route is likely to become the main walked path over the marsh. Some of the existing routes over the marsh may continue to be used, for example where convenient circular routes are formed, but others may disappear from lack of use.

Due to the nature of the terrain, and the limited number of obvious and convenient access points, the project team does not envisage that there would be a significant increase in people accessing the coastal margin on Burgh Marsh as a result of our proposals.

The route of the ECP across Burgh Marsh will at times be affected by high tides and flooding. An optional alternative high tide route, similar to the line of the existing Hadrian's Wall Path National Trail, is proposed. This provides a more direct route from Beaumont to Dykesfield that is approximately 5km shorter than the proposed main route of the trail over Burgh Marsh. It is reasonable to assume that some long distance walkers will opt to follow the shorter route even when the marsh is not inundated. As a result, the increase in numbers of people using the route across Burgh Marsh might not be as much as would otherwise be expected.

The roost sites on Burgh Marsh are at the outer edge of the marsh (ie closest to the estuary), between 350 and 750m from the ECP, and separated from the line of the ECP by creeks. Therefore, walkers using the ECP are unlikely to cause disturbance to birds using these roost sites.

However, if walkers using the coastal margin or the ECP have their dogs off-lead, then there could be an increase in disturbance to birds using the coastal margin. As the marsh is currently designated as CROW access land, general CROW restrictions require that dogs must be on lead between 1st March and 31st July each year, in order to prevent disturbance to breeding birds. Once the marsh becomes coastal margin, with new coastal access rights replacing previous open access rights, this general restriction would no longer automatically apply.

In order to replicate the existing general CROW restrictions for dogs to be on lead in the breeding season, and to reduce the risk of disturbance to birds using the coastal margin in winter, the following measures are proposed:

- A direction requiring people to keep their dogs on leads on both the route and across the coastal margin, on Burgh Marsh. This restriction would operate all year.
- Signage providing information at key locations about the access restrictions and the sensitive features.

Easton Marsh

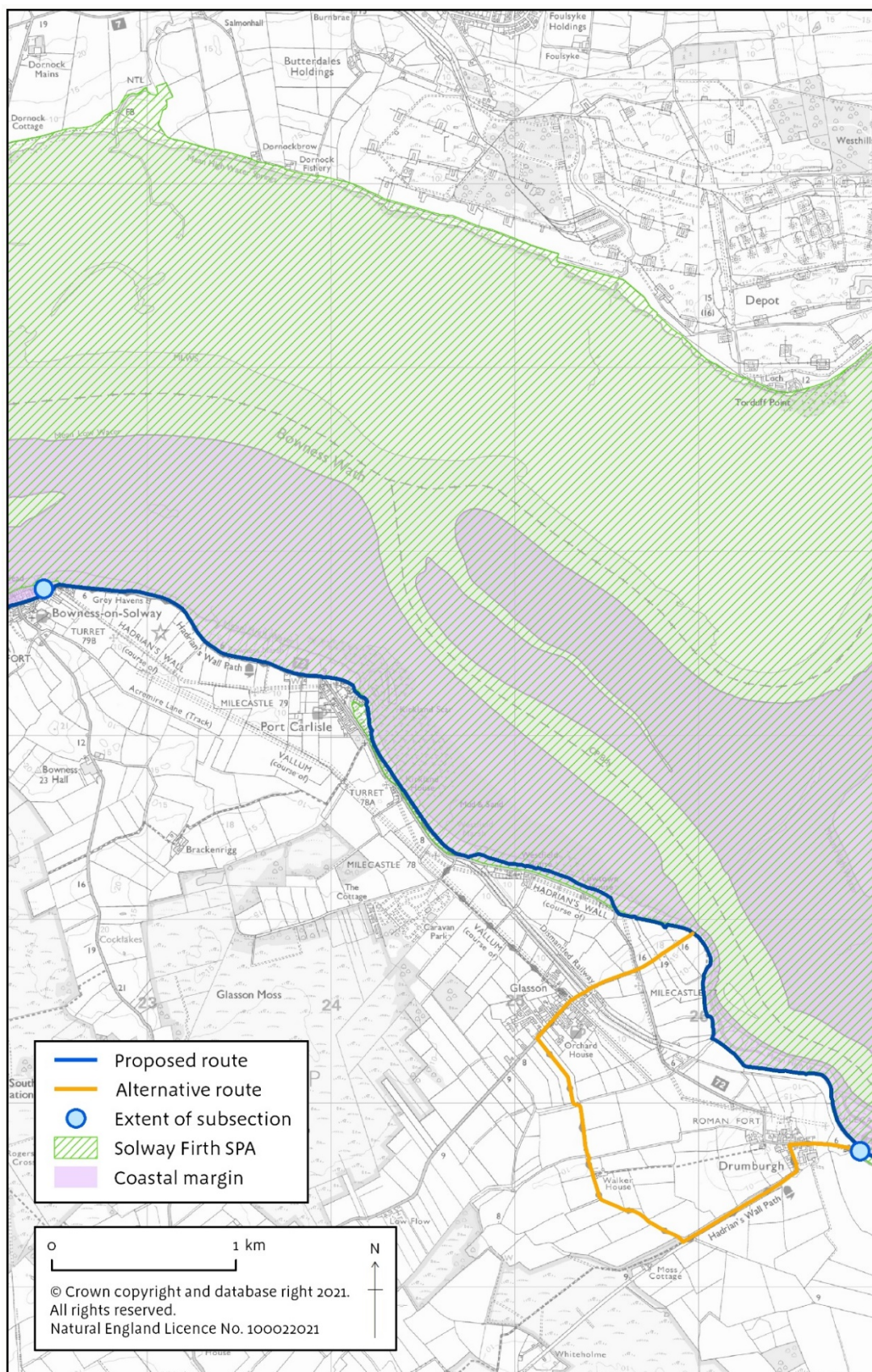
Easton Marsh will become spreading room. The marsh is already used by walkers. As the proposed ECP is aligned landward of the road here, the project team does not consider that the current levels or patterns of use of the marsh are likely to change significantly following the introduction of coastal access rights. Therefore, roost sites on Easton Marsh are unlikely to be affected by the proposal.

In conclusion, between Casson Dyke Farm and Drumburgh the combination of the unsuitability for access of much of the coastal margin plus the proposed access exclusions, dogs on lead restrictions and signage means that access to areas of the coastal margin where birds roost or feed is not expected to increase as a result of the proposals.

Therefore, there is a low risk of the proposals causing an increased disturbance to non-breeding waterbirds.

D3.2.7d Impact of the access proposal on non-breeding birds between Drumburgh and Bowness-on-Solway (including Drumburgh, Westfield and Bowness Marshes)

Map of the area showing proposed ECP, coastal margin & Solway Firth SPA.



Use of the area by non-breeding waterbirds

Although not mentioned in the roost report, we have survey data of birds roosting on Drumburgh Marsh and using the bay adjacent to Drumburgh Marsh from a high tide survey carried out by NE staff on 11th Feb 2016. On the rising tide, the bay was used by waterbird assemblage species (black headed and common gull) with c500 on the water and c315 on land. Roosting waders were mainly confined to the saltmarsh edge, with smaller numbers on the saltmarsh itself. 110 oystercatcher, 75+ redshank, 50 curlew and waterbird assemblage species (dunlin, lapwing, goldeneye, goosander, shelduck) were observed roosting at high tide.

Oystercatcher probably breed on Drumburgh Marsh [13].

There are 3 roost sites between Glasson and Bowness-on-Solway. Curlew, oystercatcher, redshank and waterbird assemblage species (dunlin, lapwing) roost at Kirkland Scar, off Port Carlisle. Curlew and oystercatcher roost on Bowness Marsh, and ringed plover and dunlin roost on flats to the east of Bowness-on-Solway. This section between Glasson and Bowness on Solway contains the largest number of roosting lapwing in the surveyed Solway area. [20]

Baseline disturbance from recreational activities

Current disturbance levels Drumburgh Marsh and the adjacent bay are not sufficient to prevent the area acting a locally important roost. The bay acts as a focus for roosting waders with a catchment that appears to stretch from Weston Marsh to Easton Marsh.

The eastern end of Westfield Marsh, close to Glasson, is a very popular venue with anglers, for shore fishing around high tide. This results in few birds roosting in this area. No disturbance was noted at the roost on Easton Marsh or at the roosts between Kirkland Scar and Bowness-on-Solway. [20].

Existing recreational use

There is evidence of some intermittent and informal access along the coast from Drumburgh to Glasson, both across Drumburgh Marsh and inland of the marsh itself. Once around the headland at Glasson, an existing walked line across Westfield Marsh is well used by walkers. The Hadrian's Wall Path National Trail then provides an existing popular walked route from Port Carlisle to Bowness-on-Solway.

Access proposal

England Coast Path - The proposed ECP is aligned on a combination of new routes, existing walked routes and public right of way between Drumburgh and Westfield Marsh. At a point just west of Westfield House, the ECP leaves the marsh and will be co-aligned with the existing Hadrian's Wall National Trail to Bowness-on-Solway.

Access will be excluded from the trail landward of Drumburgh Marsh between September and March each year for nature conservation reasons. An inland alternative route on roads and PRow (following the line of the existing Hadrian's Wall National Trail) between Drumburgh and Glasson is proposed during the times that access along the main trail is excluded.

Coastal margin - The coastal margin will contain areas of saltmarsh and flat. Access will be excluded under s25A from the flats and from Drumburgh Marsh as they are unsuitable for access.

See Coastal Access Report Chapter 2, map 2j – 2m, Overview report maps F, L.

Consideration of possible impacts (including measures incorporated into the proposals for conservation reasons)

Drumburgh Marsh

The ECP will be aligned on a new path between Drumburgh and Glasson, just to the landward of Drumburgh Marsh. Due to creating a new route, its promotion as a National Trail, and due to the location of the existing car park, east of Drumburgh, this may well lead to a large increase in use of the trail once coastal access rights commence.

Drumburgh Marsh will fall within the coastal margin but will not become spreading room as access rights will be excluded from the marsh as it is unsuitable for access. We do not expect that the coastal margin would see any significant increase in access on Drumburgh Marsh due to the uninviting terrain.

The main roost areas in the bay are within 50-100m of the proposed ECP alignment. The increase in use of the trail immediately landward of Drumburgh Marsh would lead to an increase in disturbance to the birds roosting on Drumburgh Marsh and the adjacent bay, via skylining and dogs off lead running onto the marsh.

This area has much lower levels of access than the nearby Burgh Marsh and Easton Marsh, and is therefore one of the more quiet, relatively undisturbed marshes on this stretch of coast. Given the relatively low levels of access and disturbance currently in this area, this large increase in use of a new path close to roosting birds could lead to significant displacement of roosting birds around high tide.

In order to reduce the risk of disturbance to birds roosting on Drumburgh Marsh, the following measures are proposed:

- A direction to exclude people from the trail landward of Drumburgh Marsh (from Enness House to the old lookout post on Drumburgh Head), between September and March each year. An inland, alternative route is proposed during the times that access along the main trail is excluded.
- Signage providing information at key locations about the access restrictions and the sensitive features:

See **section D3.2.7e** below for an assessment of the impact of the alternative route.

Westfield Marsh

The eastern end of Westfield Marsh is a very popular venue with anglers, for shore fishing around high tide. This results in few birds roosting in this area. The ECP will be aligned on a popular existing walked line across the marsh, and the marsh will become coastal margin.

Access on the line of the trail is likely to increase as a result of it being promoted as a National Trail. Access to the margin is not expected to increase significantly, as walkers are likely to follow the ECP as it is the easiest route across the marsh. As few birds use this

area, the proposals are unlikely to cause an increase in disturbance of non-breeding waterbirds.

Kirkland Scar / Bowness Marsh / foreshore east of Bowness-on-Solway

The proposed ECP is aligned next to the coast road and co-aligned with the Hadrian's Wall National Trail. The foreshore and marsh in this area, which contains 3 roost sites, would fall within the coastal margin.

We believe there will be negligible change in access where the ECP is co-aligned with the Hadrian's Wall Path National Trail. Walkers on the trail are unlikely to cause disturbance to birds roosting on the marsh.

Bowness Marsh appears to be already well used by local dog walkers, although some recently installed fencing on the marsh has restricted the movement of walkers.

The project team considers it is unlikely there would be any significant increase in levels of use of the coastal margin following introduction of coastal access rights. As access in the margin is not expected to increase as a result of the proposals, there is a low risk of an increase in disturbance of roosting and feeding non-breeding waterbirds.

In conclusion, between Drumburgh and Bowness-on-Solway, with the route alignment, seasonal route closure and other mitigation in place, the risk of disturbance of roosting, feeding and breeding birds from the coastal access proposals is low.

D3.2.7e Chapter 2 alternative routes

At times when access to the ordinary route is unavailable, there are powers under the 1949 Act to provide alternative or temporary routes for the trail.

- When the 'ordinary' route is at times unsuitable for use because of flooding, tidal action, coastal erosion or other geomorphological processes, an Optional Alternative Route (OAR) can be proposed. An OAR does not create any additional spreading room.
- Concerns about coastal access rights may apply infrequently or for part of a year to the trail or land which has coastal access rights. In these circumstances, when access to the trail is excluded by direction, or for any part of the period when it is excluded, an alternative route is proposed. An alternative route does not create any additional spreading room.

Beaumont to Easton Marsh

An optional alternative route (OAR) would be available when the route (primarily across Burgh Marsh but possibly other locations) between Beaumont and Easton Marsh is affected by high tides.

The OAR would follow the line of the existing Hadrian's Wall Path National Trail, utilising existing PRoW and public highway, and would be clearly waymarked. It would not have the effect of creating any additional coastal margin on either the seaward or the landward side.

The OAR is shown in the Coastal Access Report, Chapter 2, maps 2n to 2r.

Risk of impact of alternative route on non-breeding waterbirds

The route is inland of the SPA / Ramsar site and passes through farmland that may be used by feeding geese and swans.

Most of this route is aligned on a public highway, with a short section on a footpath. The whole length is already a National Trail. Given the popularity of the Hadrian's Wall Path National Trail, we do not expect that a small increase in the level of use of this route will have a significant effect on disturbance to geese or swans feeding in the surrounding area. An OAR does not create any additional spreading room, so new additional access rights will not be created in coastal fields used by geese and swans. Therefore, it is very unlikely that any increase in access on this route as a result of our proposals will lead to an increased disturbance of non-breeding waterbirds.

Enness House to the old lookout post on Drumburgh Head

A seasonal alternative route would be available when the route between Enness House and the old lookout post on Drumburgh Head is not available due to the seasonal exclusion described in section D3.2.7d above.

It would follow the line of the existing Hadrian's Wall National Trail, as far as Glasson. It would utilise a combination of existing PRow and minor roads, which would be clearly waymarked. It would not have the effect of creating any additional coastal margin on either the seaward or the landward side.

The alternative route is shown in the Coastal Access Report, Chapter 2, maps 2s to 2t.

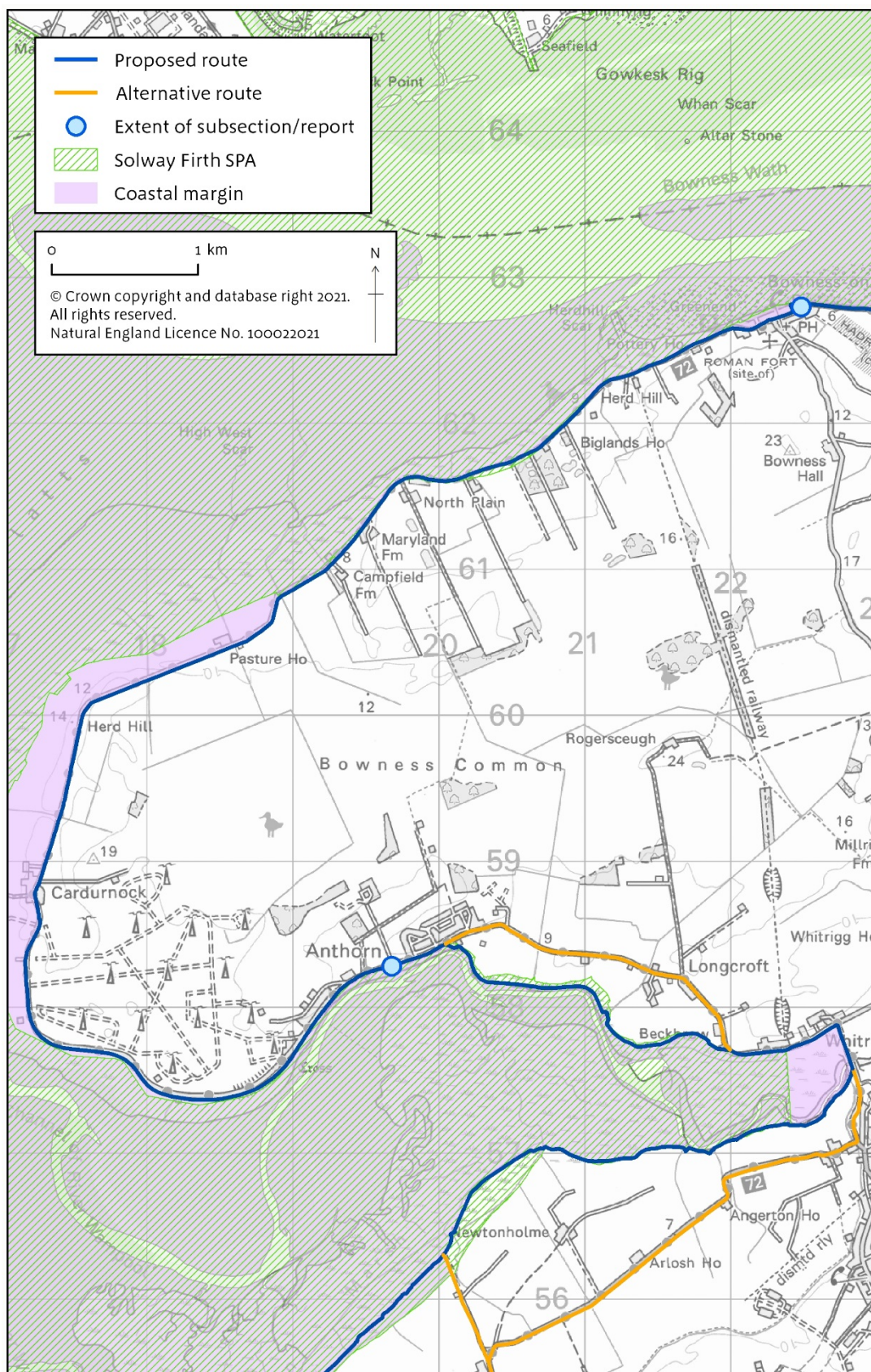
Risk of impact of alternative route on non-breeding waterbirds

The route is inland of the SPA / Ramsar site and passes through farmland that may be used by feeding geese and swans.

Most of this route is aligned on a PRow which is also the Hadrian's Wall National Trail. Given the popularity of Hadrian's Wall Path National Trail we do not expect that a small increase in the level of use of this route will have a significant effect on disturbance to geese or swans feeding in the surrounding area. An alternative route does not create any additional spreading room, so additional access rights will be created in coastal fields used by geese and swans. Therefore, it is very unlikely that any increase in access on this route as a result of our proposals will lead to an increased disturbance of non-breeding waterbirds.

D3.2.7f. Impact of the access proposal on non-breeding birds between Bowness-on-Solway and Anthorn (including Campfield Marsh, Anthorn & Cardunock Marsh and Coastal Fields)

Map of the area showing proposed ECP, coastal margin & Solway Firth SPA.



Use of the area by non-breeding waterbirds

Five roost sites were recorded on Campfield and Cardurnock marshes, containing oystercatcher, curlew, barnacle geese and waterbird assemblage species (dunlin, lapwing, grey plover). The area ranks 2nd for the total number of individual roosting birds in the English half of the Solway Firth. The 2nd largest number of oystercatcher and greatest number of roosting dunlin are located in this sector. [20].

Oystercatcher probably breed on Cardurnock marsh [13].

Oystercatcher, redshank and black headed gull breed on Campfield Marsh (1 pair of each) [13].

Pink-footed geese frequently feed in fields on the peninsular, both seaward and landward of the road. They roost out on the sands. [17]

Baseline disturbance from recreational activities

According to the roost report, overall disturbance of roosts in this area is very low [20].

Existing recreational use

Other than the coastal road, there are very limited existing opportunities to walk east of Bowness-on-Solway along the coast around the entire Cardurnock peninsula. The Sustrans National Cycle Network (NCN) Route 72 follows the coastal road (as did the former Cumbria Coastal Way).

Campfield Marsh is a part of the RSPB reserve. The RSPB manages access to the marsh to reduce the risk of disturbance to birds using the area.

East of Campfield Farm, the coastal road moves further inland from the coast and is separated from the outer marsh by agricultural land. There are no existing PRoW that allow people to cross the agricultural land or marsh. There may be some limited informal access to the strip of marsh but level of use is low. A single PRoW provides a link from the coastal road at Cardurnock out onto Anthorn and Cardurnock Marsh but, upon reaching the marsh, it stops and does not continue across the marsh in any direction. From observations on site, it doesn't appear as if this path is particularly well used.

Access proposal

England Coast Path - Between Bowness on Solway and Anthorn, the proposed ECP is aligned either on the coastal road or on the verge seaward of the coastal road.

Coastal margin - Large areas of flats and saltmarsh, as well as some agricultural land, would fall within the coastal margin. Coastal access rights would be excluded under s25A from the flats and some of the saltmarshes as they are unsuitable for access, and from some areas of saltmarsh and fields for nature conservation reasons.

See Coastal Access Report Chapter 3, maps 3a-3f, Overview maps G, M.

Consideration of possible impacts (including measures incorporated into the proposals for conservation reasons)

The proposed route of the ECP is on or immediately adjacent to the coastal road. We would expect a small increase in use as a result of promoting the route as a National Trail.

Areas used by roosting and breeding waterbirds fall within the coastal margin but people following the ECP itself are unlikely to have an impact on birds using the coastal margin.

Campfield Marsh

Campfield Marsh is within the coastal margin and is an important site for roosting and breeding waterbirds.

Access to Campfield Marsh is managed by the RSPB to reduce the risk of disturbance to waterbirds. This management is expected to continue. To assist in reducing the number of people and dogs accessing the sensitive areas of the marsh they have provided viewing areas, car parks and laybys with interpretation, at key points along the road out of Bowness on Solway. These allow visitors to view the birds whilst minimising the risk of disturbance. As an additional measure, vegetation screening has been encouraged at key locations for birds which are sensitive to disturbance. The availability of an area close to Bowness-on-Solway for local dog walkers is also important in removing or reducing any demand for other off-lead dog exercise areas locally.

Whilst we have not proposed any direction to exclude or restrict access over Campfield Marsh, we do not expect levels of access (and therefore disturbance of birds) to increase in this area. This is because of the existing access management measures in place; the fact that the area is fairly remote and it seems unlikely that it would become any more of an access destination as a result of our plans; and because the area of marsh closest to the road is often waterlogged and not particularly attractive to walk on.

Anthorn and Cardunock Marsh

Anthorn and Cardunock Marsh is within the coastal margin and is an important site for roosting birds. The marsh also probably supports breeding waterbirds.

It is possible that there could be an increase in access in use of the coastal margin on Anthorn and Cardunock Marsh as a result of the proposals. The coastal margin can be accessed via an existing PRow at Cardunock and some may be attracted to the idea of walking closer to the coast away from the line of the ECP which is aligned along the coastal road. Access to the marsh is currently low so any increase would be likely to lead to an increase in disturbance to breeding, roosting and feeding waterbirds.

In order to reduce the risk of disturbance to birds roosting on Anthorn and Cardunock Marsh, the following measures are proposed:

- A direction to exclude access to part of Anthorn and Cardunock Marsh not covered by the s25A direction. This exclusion would operate all year.
- Signage on the ECP at either end of the coastal road (Campfield and Anthorn) and in Cardunock to inform people about the access exclusion and to encourage people to remain on the ECP.

Fields in the coastal margin around Cardunock

It is possible that people may access the fields in the coastal margin in order to gain access to the marsh and coastline that sits seaward of the trail. If this were to happen, it could lead to an increase in disturbance to feeding geese and swans using the fields.

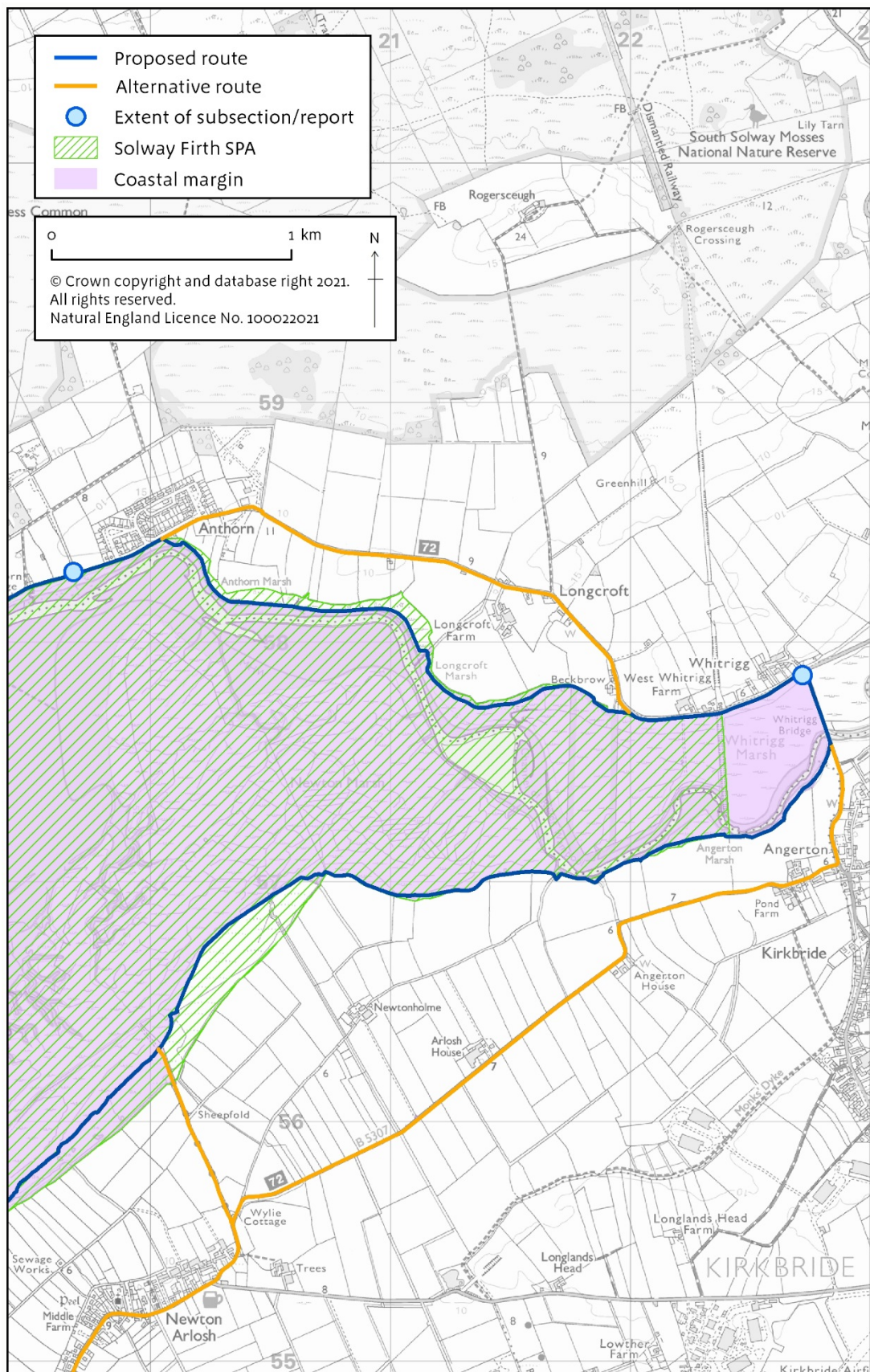
In order to reduce the risk of disturbance to geese using the coastal fields around Cardunock, the following measures are proposed:

- A direction to exclude access to the agricultural land located to the landward side of Anthorn and Cardunock Marsh, north of Cardunock. This exclusion would operate between September 1st and April 30th each year.
- Signage on the ECP at either end of the coastal road (Campfield and Anthorn) and in Cardunock to inform people about the access exclusions and encourage people to remain on the ECP.

In conclusion, between Bowness-on-Solway and Anthorn, the combination of aligning the ECP on or immediately adjacent to the coastal road, access exclusions on the marshes, flats and agricultural land within the coastal margin, and signage to inform people about the access restrictions, all ensure that there is a low risk of the proposals causing an increased disturbance to roosting, breeding and feeding waterbirds.

D3.2.7g Impact of the access proposal on non-breeding birds between Anthorn and Whitrigg (including Anthorn, Longcroft & Whitrigg Marshes)

Map of the area showing proposed ECP, coastal margin & Solway Firth SPA.



Use of the area by non-breeding waterbirds

Barnacle geese use Longcroft and Whitrigg Marsh [19].

Pink footed geese and curlew feed on Whitrigg Marsh [pers comm, Bart Donato].

According to the roost report, there are no wader roost sites on Anthorn, Longcroft or Whitrigg marshes. Curlew roost on the flats / marsh edge on the opposite side of the river channel on the outer edge of Newton Marsh, approximately 200m from the line of the proposed ECP on Anthorn and Longcroft marshes. [20].

We have no breeding bird data for these marshes; however, redshank and oystercatcher have been observed regularly using Whitrigg Marsh in the breeding season [pers comm, Bart Donato].

Baseline disturbance from recreational activities

Minimal disturbance to birds using the roost site was recorded [20].

Existing recreational use

East of the village of Anthorn, there are no formal rights of access on any of the marshes (Anthorn, Longcroft and Whitrigg Marshes) apart from a small parcel of 'landlocked' CROW access land (registered common land) located between Whitrigg and Longcroft Marsh.

There is evidence on the ground of an existing walked route across part of Anthorn Marsh along the northern bank of the River Wampool.

There are very low levels of existing access on Longcroft or Whitrigg Marshes.

Access proposal

England Coast Path - The proposed line of the ECP crosses Anthorn Marsh using the existing walked line, before following a new route at the back edge of Longcroft Marsh and joining the road near Beckbrow Cottage. The proposed ECP is then aligned on the road through to the Whitrigg Road Bridge.

Coastal margin - Anthorn Marsh, Longcroft Marsh, Whitrigg Marsh and an area of flats would fall within the coastal margin. Access would be excluded from the flats and part of Longcroft Marsh under s25A as they are unsuitable for access, and from Whitrigg Marsh for nature conservation reasons.

See Coastal Access Report Chapter 3, maps 3g – 3i and Overview maps G & O.

Consideration of possible impacts (including measures incorporated into the proposals for conservation reasons)

Anthorn and Longcroft Marshes

Existing access along the coast is quite limited and there is likely to be a large increase in use as a result of the alignment of the ECP. As the proposed section of the ECP across Longcroft Marsh to Beckbrow cottage would create a new off-road route, it is likely to be popular with both locals and long-distance walkers. It will also be promoted as a National Trail.

Walkers using the ECP are unlikely to cause disturbance of roosting birds, as there are no roosts recorded in these locations. There is a roost on the opposite side of the river channel, however people and dogs would not be able to access area as the river creates a barrier.

Access to the margin on Anthorn and Longcroft marshes is not expected to increase. Due to the nature of the terrain and new access infrastructure that will be installed to help improve access along the trail, most walkers are likely to follow the ECP as it would be the easiest route across the marshes. Access to the coastal margin will be excluded under s25A (unsuitable for access).

There may be an increase in dogs off-lead in the area surrounding the ECP. Dogs off lead may cause an increase in disturbance to birds using Anthorn and Longcroft marshes and the river channel, including barnacle geese on Longcroft Marsh. In order to reduce the risk of disturbance to birds using Anthorn and Longcroft marshes, the following measures are proposed:

- A direction requiring people to keep their dogs on leads on the route on Anthorn and Longcroft Marsh. This restriction would operate all year.
- Signage at key locations to explain the restrictions

Whitrigg Marsh

The ECP alignment was specifically designed to avoid Whitrigg Marsh, in order to help reduce the risk of disturbance to birds using the saltmarshes around the Wampool Estuary. The ECP is aligned along the river on saltmarshes on the southern side of the estuary, and if we had aligned along the marshes on both sides of the river there were concerns that the users of the ECP would cause unacceptable levels of disturbance to geese feeding on Whitrigg Marsh.

It is possible that access to Whitrigg Marsh could increase if it became spreading room, if walkers chose to continue along the marsh (following the edge of the river to re-join the road at Whitrigg Bridge) rather than following the line of the ECP along the road.

An increase in access in the coastal margin on Whitrigg Marsh, in combination with the proposed ECP alignment on the southern side of the river, could cause an increase in disturbance to waterbirds. In order to reduce the risk of disturbance to birds using Whitrigg Marsh, the following measures are proposed:

- A direction to exclude access to Whitrigg Marsh. This exclusion would operate all year.
- Clear signage to direct walkers onto the ECP and away from the marsh.
- Signage to explain the access exclusion on the marsh

In conclusion, with the proposed alignment of the ECP, plus access restrictions and exclusions and signage, there is a low risk of disturbance to non-breeding waterbirds.

D3.2.7h. Chapter 3 alternative routes

Anthorn to Whitrigg

An optional alternative route (OAR) is to be available at times when parts of the main route across saltmarsh between Anthorn and Whitrigg is affected by high tides. The OAR is

aligned landward of the marshes on the road and is shown in the Coastal Access Report, Chapter 3, maps 3g and 3h.

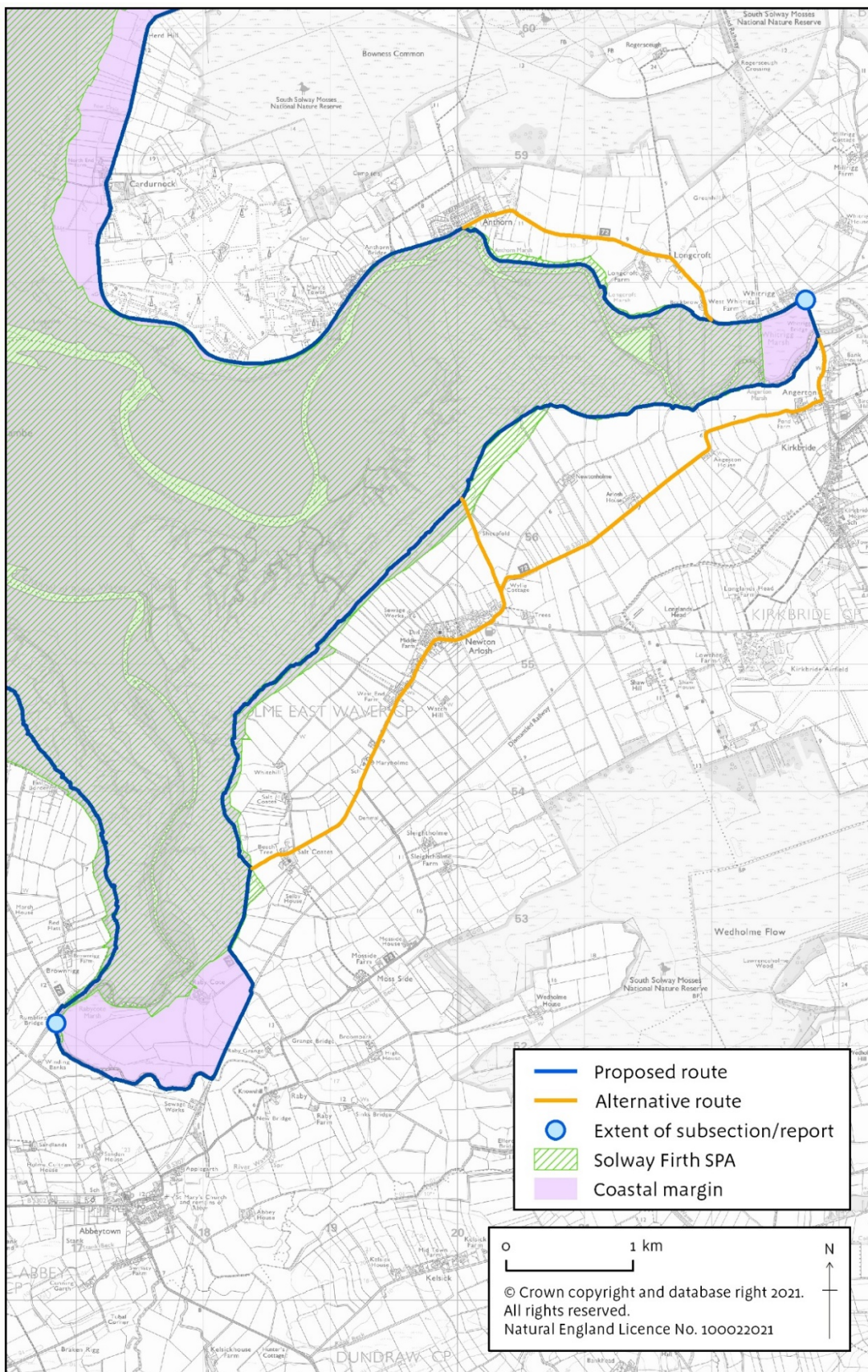
Risk of impact of alternative route on non-breeding waterbirds

The route is inland of the SPA / Ramsar site and passes through farmland that may be used by feeding geese and swans.

The proposed OAR is aligned on a public highway, which has fences or hedges on both sides. No additional access rights will be created in coastal fields. Therefore, it is very unlikely that any increase in access on this route as a result of our proposals will lead to an increased disturbance of non-breeding waterbirds.

D3.2.7i. Impact of the access proposal on non-breeding birds between Whitrigg Bridge and Rumbling Bridge (Angerton, Newton and Saltcoates & Rabycote marshes)

Map of the area showing proposed ECP, coastal margin & Solway Firth SPA.



Use of the area by non-breeding waterbirds

There are 2 roost sites containing barnacle geese, curlew and golden plover on the flats and outer edge of Newton and Saltcoates Marsh at the edge of the Wampool Channel. 75% of all golden plover recorded as roosting in the Cumbria side of the Solway roost here as well as the 2nd largest number of curlew. [20].

There are three roost sites on the west end of Newton and Saltcoates Marsh, containing pink-footed goose, knot, golden plover, barnacle goose and waterbird assemblage species (dunlin, grey plover, shelduck grey plover, lapwing) [20].

Whooper swans also use Newton and Saltcoates Marsh.

Redshank and oystercatcher probably breed on Newton and Saltcoates Marsh [21].

Pink footed geese feed on coastal fields in this area and roost on the sands [17].

The fields around Rabycote are used by large numbers of barnacle and pink footed geese.

Baseline disturbance from recreational activities

The roost report states that there is evidence of disturbance by dog walkers when the tide is low to a roost containing golden plover and barnacle geese near the Wampool Channel, otherwise, minimal disturbance was recorded [20]. Presumably these walkers are coming over from Anthorn on a PRow across the channel.

We have no information about disturbance at the other roost sites, however, due to the low levels of public access on Newton and Saltcoates marshes, current disturbance is likely to be low.

There are low levels of disturbance from recreational activities in the fields used by geese at Rabycote.

Existing recreational use

There are no formal access rights along the coast between Whitrigg Bridge and Rumbling Bridge, apart from a short section of PRow along the southern bank of the River Waver between Abbeytown and Rumbling Bridge. There is some evidence to suggest that locals may walk on Newton and Saltcoates marsh, but generally levels of access on the saltmarshes are low.

The B5307 (and Sustrans NCN 72), set some way back from the coast provides the closest access route to the coast between Angerton and Saltcoates, where a further minor road can then be followed to Raby Grange. An Unclassified Road (UCR) does provide a link from Newton Arlosh to Newton Marsh but no further access is provided onto the marsh.

Access proposal

England Coast Path - The proposed ECP is aligned on a new route for 6.5 miles along the landward edge of Angerton, Newton and Saltcoates marshes, then on a minor road and along a disused railway line. The proposed route would then cross the River Waver via a new footbridge, before using a combination of new routes and a PRow along the River Waver to Rumbling Bridge.

Coastal margin - Large areas of flats and saltmarsh, as well as some agricultural land, would fall within the coastal margin. Access would be excluded from the flats and most of the

saltmarsh under s25A as they are unsuitable for access, and from parts of Newton & Saltcoates Marsh and Angerton Marsh for nature conservation reasons.

See Coastal Access Report Chapter 4, maps 4a – 4h and Overview maps H, O - Q.

Consideration of possible impacts (including measures incorporated into the proposals for conservation reasons)

Angerton, Newton and Saltcoates marshes

We expect that, based on current levels of use, there would be a large increase in numbers of walkers on the proposed ECP across Angerton, Newton and Saltcoates Marshes. This is because a new path is proposed in an area with no existing PRoW or existing walked routes. However, it is likely that some walkers will choose to follow the road (also the proposed high tide optional alternative route), even when the main ECP route is not inundated.

The proposed ECP is aligned over saltmarshes for 6.5 miles between Whitrigg Bridge and Raby Cote. It follows the driest line across the marshes, usually right at the landward edge of the marsh. As a consequence of this route alignment, the ECP will be over 600m away from the wader roost sites on Newton and Saltcoates Marsh.

At very high tides, when roosting birds may move closer to the landward edge of the marsh, the ECP will be inaccessible to walkers due to flooding. Therefore, walkers using the line of the ECP are unlikely to cause disturbance to roosting birds.

Access would be excluded under s25A from most of the saltmarshes seaward of the ECP as they are unsuitable for access.

Appropriate signage, waymarking and the installation of sleeper bridges across creeks on the line of the trail will encourage most walkers to stay on the line of the trail. Ground conditions in the seaward coastal margin and the difficulties in crossing drainage channels without bridges would make it unlikely that many people would venture far off the line of the trail, which should obviously provide the most suitable walking route.

There are small areas of the seaward coastal margin, plus areas of saltmarsh in the landward coastal margin where access is not excluded under s25A. If access in these areas were to increase, there could be an increase in disturbance to birds using these areas. These areas may be used by breeding birds, as they tend to be higher, drier areas of the marsh.

As the ECP is creating new access points onto the saltmarshes, plus a new path across them, there is the potential for access to increase in the areas of saltmarsh which are not covered by s25A exclusions.

As levels of access on these marshes are currently low, and as 6.5 miles of new route is being created across the marshes, if people or dogs do leave the trail and walk across the saltmarsh in the coastal margin, there is potential for an increase in disturbance to roosting, feeding or breeding birds in the coastal margin.

In order to reduce the risk of disturbance to waterbirds using Angerton, Newton and Saltcoates marshes, the following measures are proposed:

- A direction requiring people to keep their dogs on leads along the route on Angerton Marsh, Newton & Saltcoates Marsh. This restriction would operate all year.
- Directions to exclude access to part of Newton & Saltcoates Marsh (not covered by the s25A direction) and Angerton Marsh. These exclusions would operate all year.
- Signage to explain the access restrictions

Rabycote Marsh and adjacent coastal fields

There is expected to be a large increase in use of the proposed ECP between Rabycote and Rumbling Bridge, as current use of this area is low, a new route will be created, and it will be promoted as a National Trail.

Rabycote Marsh and coastal fields which form part of a goose refuge site fall within the coastal margin.

There is unlikely to be an increase in access over the coastal margin between Rabycote and Rumbling Bridge, as the proposed ECP is aligned on the road, then along a disused railway line and riverside paths, with steep river banks, fences or hedges between the path and the coastal margin, making access into the margin difficult.

The ECP is aligned through the fields used by geese at Rabycote on the disused railway line. It is unlikely that walkers will leave the route and enter the fields in the margin used by geese, as the railway line is fenced on both sides. The fields themselves do not provide an easy access point to the coast, and as there are no particular attractors in the fields, we do not expect access in the fields to increase.

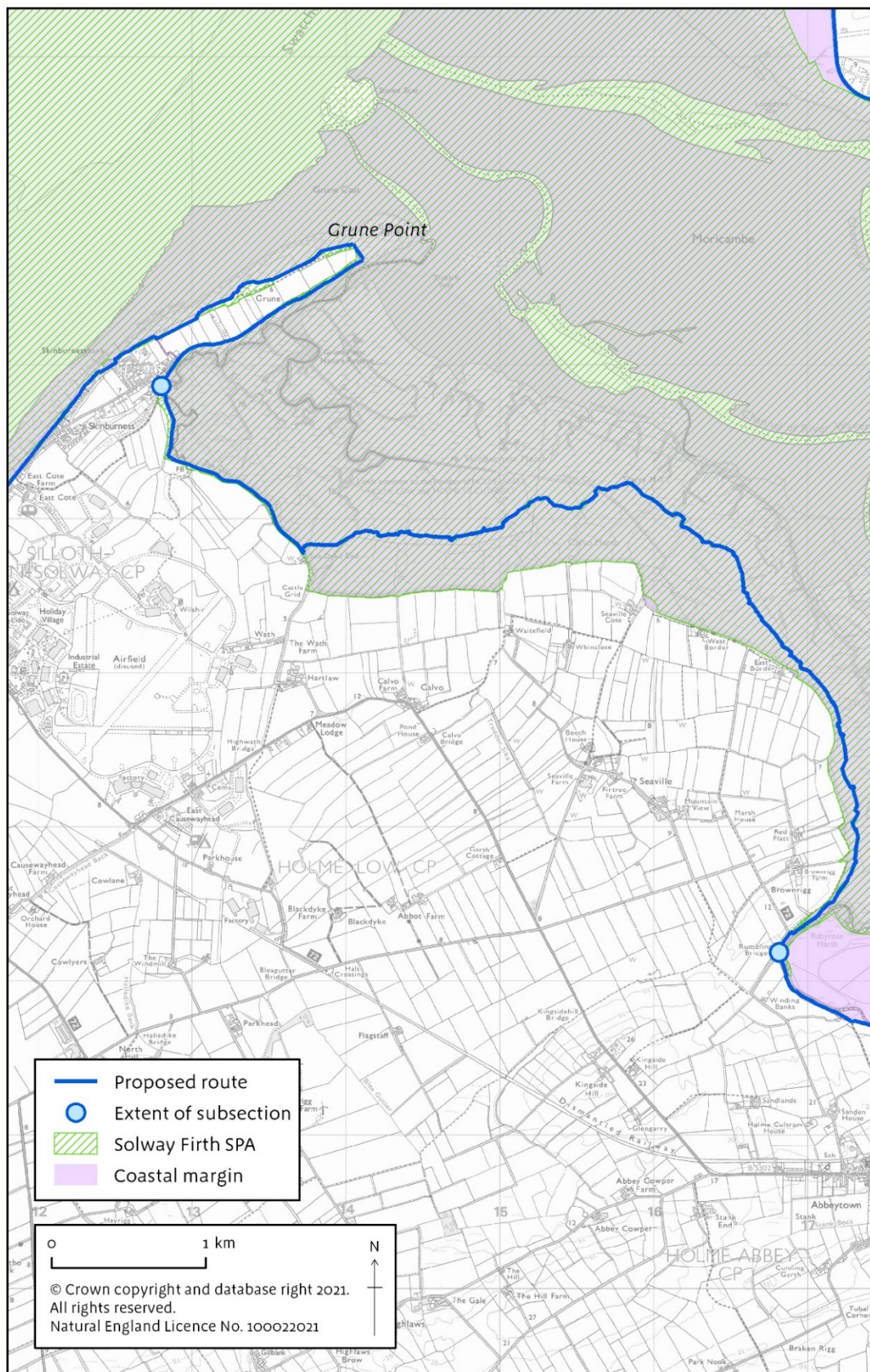
In conclusion, between Whitrigg Bridge and Rumbling Bridge, walkers are likely to stick to the line of the ECP as it will be clearly waymarked and will be the easiest way to cross the saltmarshes. Ground conditions in the coastal margin would make it unlikely that many people would venture very far from the line of the trail.

The ECP has been aligned to avoid sensitive areas, access to the saltmarshes and flats in the coastal margin would be excluded year round under s25A or s26 and dogs must be kept on leads where the path is aligned on saltmarsh.

As a consequence of these measures, we do not expect to see a significant increase in access to the areas which are used by roosting, breeding or feeding non-breeding waterbirds within the coastal margin following introduction of coastal access rights.

D3.2.7j. Impact of the access proposal on non-breeding birds between Rumbling Bridge and Skinburness (including Skinburness and Calvo Marsh)

Map of the area showing proposed ECP, coastal margin & Solway Firth SPA.



Use of the area by non-breeding waterbirds

The roost report records 7 roosts on the saltmarshes and flats in this section, containing pink footed goose, knot, golden plover, curlew, redshank, barnacle goose, oystercatcher and waterbird assemblage species (shelduck, cormorant, dunlin, grey plover, lapwing) [20].

Pink-footed geese feed on coastal fields in this area and roost on the sands [17].

Oystercatcher and redshank probably breed on Calvo and Skinburness marshes [13].

Baseline disturbance from recreational activities

Minimal recreational disturbance was recorded in the roost report.

Existing recreational use

There are few existing PRoW on the coast between Rumbling Bridge and Skinburness.

The whole of Skinburness and Calvo Marsh is currently designated as CROW access land. Other than the general restrictions requiring dogs to be kept on leads in the bird breeding season and at all times in the vicinity of livestock, there are no existing CROW directions on the marshes. There are few obvious established routes or desire lines across the marsh, although one route running approximately along the line of the former Cumbria Coastal Way is sometimes evident on the ground, following an old trackway over the marsh, via occasional stone bridges. There are some old waymark signs along this route and stiles in existing fences, but the route does not appear to be particularly well used. The marsh is also fairly remote from larger centres of population.

Access proposal

England Coast Path - The proposed ECP is aligned on a combination of existing walked routes and new routes across saltmarsh and along a road verge, approximately following the route of the former Cumbria Coastal Way.

Coastal margin - Large areas of saltmarsh and flats would fall within the coastal margin. The existing CROW access rights will be replaced with Coastal Access rights. Access would be excluded from the flats under s25A as they are unsuitable for access.

See Coastal Access Report Chapter 4, maps 4h – 4l and Overview maps H & R.

Consideration of possible impacts (including measures incorporated into the proposals for conservation reasons)

Access is likely to increase on the ECP, due to the proposed access improvements (sleeper bridges across creeks, signage), and the route being promoted as a National Trail.

This is a large marsh, the distance between the landward and seaward edge of the marsh varies from 400m up to 1.5 km. The increase in access along the line of the ECP is unlikely to lead to an increase in disturbance to roosting birds because of the distance between the ECP and the roost sites. The closest roost site is 400m from the ECP. At very high tides, when roosting birds may move closer to the landward edge of the marsh, the ECP will be inaccessible to walkers due to flooding. Walkers are likely to stick to the line of the ECP as it will be clearly waymarked as the easiest way to cross the saltmarsh. Ground conditions in the coastal margin and the difficulties in crossing drainage channels without bridges would make it unlikely that many people would venture far off the line of the trail.

If ECP users were to allow their dogs to roam off-lead away from the line of the path, there could be an increase in disturbance to roosting, breeding or feeding birds.

As the marsh is currently designated as CROW access land, general CROW restrictions require that dogs must be on lead between 1st March and 31st July each year, in order to prevent disturbance to breeding birds. Once the marsh becomes part of the coastal margin, with new coastal access rights replacing previous CROW open access rights, this general restriction would no longer automatically apply.

In order to replicate the existing general CROW restrictions for dogs to be on lead in the breeding season, and to reduce the risk of disturbance to birds using the coastal margin in winter, the following measures are proposed:

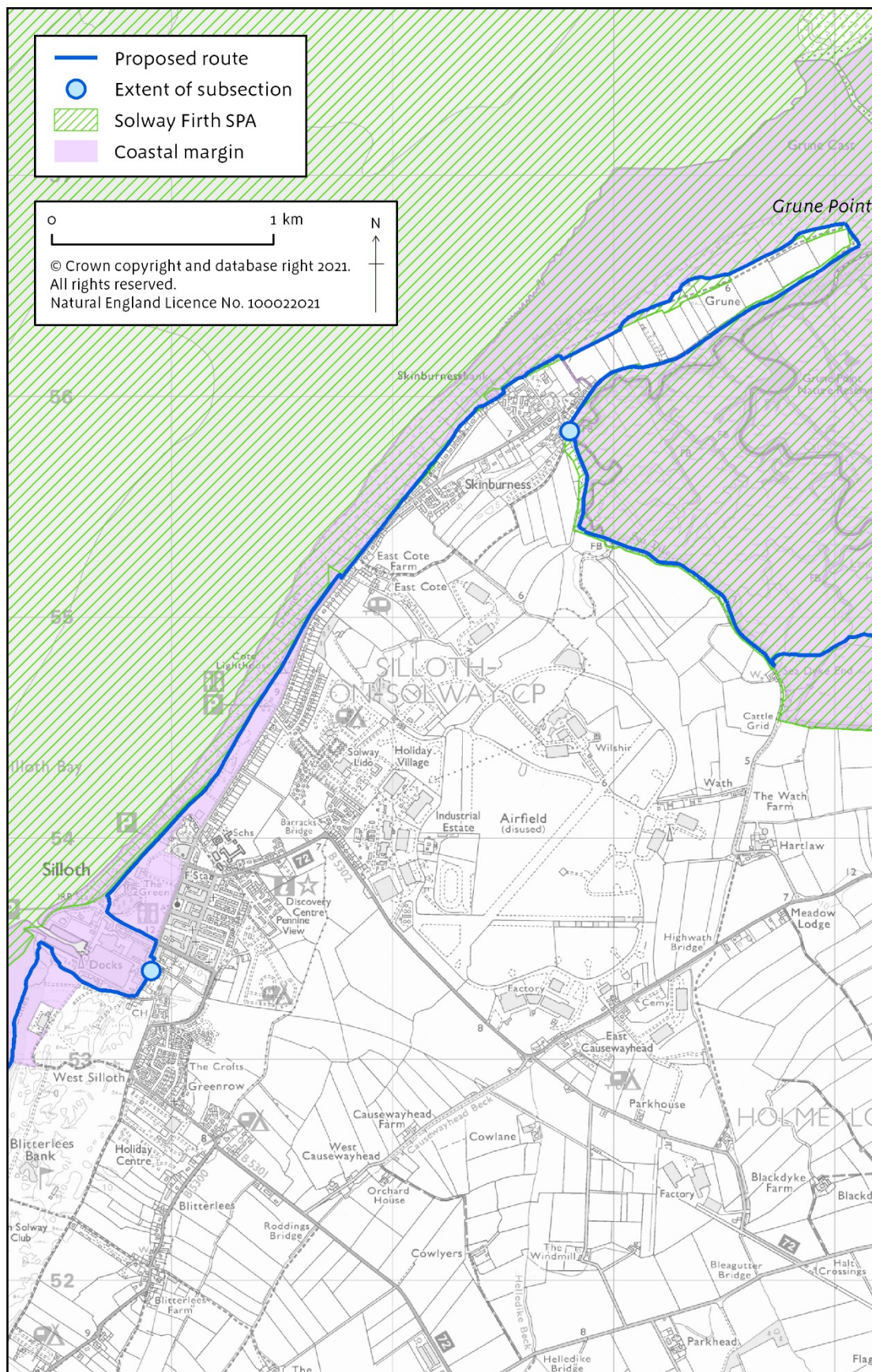
- A direction requiring people to keep their dogs on leads on Skinburness and Calvo Marsh. This restriction would operate all year.
- Signage to explain the access restrictions.

In conclusion, the ECP has been aligned to avoid sensitive areas, access to the flats in the coastal margin would be excluded all year round under s25A and dogs must be kept on leads in the coastal margin.

We do not expect to see a significant increase in levels of access of the areas which are used by roosting, breeding or feeding non-breeding waterbirds within the coastal margin following introduction of coastal access rights. Therefore, there is a low risk of increased disturbance to non-breeding waterbirds on Skinburness and Calvo marshes as a result of the proposals.

D3.2.7k. Impact of the access proposal on non-breeding birds between Skinburness and Silloth (Grune Point and open coast)

Map of the area showing proposed ECP, coastal margin & Solway Firth SPA.



Use of the area by non-breeding waterbirds

There is a roost site just south of Grune Point, on Skinburness Marsh, containing curlew, ringed plover, and waterbird assemblage species (dunlin), and a roost site containing dunlin and sanderling on the northern side of Grune Point near the tip of the point. No roost sites were recorded between Skinburness and Silloth. [20].

Ringed plover nest on shingle at Grune Point (approx. 6 pairs) and on the open coast between Grune Point and Silloth. Cormorant have a breeding colony of around 25 pairs off Grune Point on a WWII target bombing range in Moricambe Bay. [Pers comm. Bart Donato].

Baseline disturbance from recreational activities

The roost site to the south of Grune Point, on Skinburness Marsh, is separated from Grune Point by a channel. Due to its location, lack of existing levels of access perhaps due to the nature of the terrain (ground conditions, channels etc) there is little recreational disturbance at this roost. [20].

Some recreational disturbance was noted at the roost site on the north side of Grune Point. [20].

Existing recreational use

From Skinburness to Silloth, there is a good network of PRoW and existing access routes and public open spaces that appear to be well used, particularly around Grune Point and all the way through to the promenade and lifeboat station in Silloth.

Grune Point is a particularly popular area and attracts both locals and visitors alike. The area is included on several websites promoting access and wildlife in the AONB.

There is a PRoW around Grune Point. On the southern side of Grune Point, the PRoW follows an existing track and then turns north before it reaches the tip of the point. On the northern side of Grune Point, the PRoW crosses through fields. It continues outside of the field boundaries and returns to Skinburness along the top of the foreshore / dune habitat. Part of the PRoW on the northern side of Grune Point has been lost to coastal erosion. There appears to be some access occurring off the PRoW on the northern side of Grune Point, with people walking on the foreshore / shingle beach. A few other desire lines are evident on the ground on the northern side and far north eastern edge of Grune Point that suggest people also follow routes that are some way off the definitive line of the existing PRoW.

Access proposal

England Coast Path - The proposed ECP is aligned on the PRoW around Grune Point. Part of the PRoW on the northern side of Grune Point has been lost to coastal erosion and, in order to avoid aligning the ECP on the eroding shingle beach, a new section of path is proposed within the adjacent fields.

Between Grune Point and Silloth, the proposed ECP follows popular PRoW, promenade and sea defences.

At Grune Point, part of the proposed ECP might be flooded by high tides, therefore in order to give people an opportunity to continue their journey and avoid this area, an optional alternative route is being proposed that can be used when the main route is flooded. The route would follow an existing PRow near Marsh Farm, across the neck of the peninsula.

Coastal margin - Dunes, shingle, flats and foreshore would all fall within the coastal margin. Access will be excluded from the flats to the south and east of Grune Point under s25A as they are unsuitable for access.

See Coastal Access Report Chapter 4, maps 4m – 4p and Overview map H.

Consideration of possible impacts (including measures incorporated into the proposals for conservation reasons)

Grune Point

The proposed ECP follows an existing popular PRow around Grune Point. Promoting this as a National Trail could lead to a small increase in use.

Part of the PRow on the western side of Grune Point has been lost to coastal erosion and people are currently walking on the foreshore / shingle beach. A new section of path is proposed within the adjacent fields, which is likely to reduce numbers of people walking on the beach. New signage, waymarking and improved route management would all help to ensure that people are likely to remain on the line of the ECP, and consequently we do not expect to see an increase in use of the coastal margin, which is used by roosting and breeding birds, as a result of the proposals.

The proposals will not lead to an increase in access to the area used by roosting birds to the south of Grune Point, on Skinburness Marsh. This roost is separated from Grune Point by a channel, and access is excluded from the flats around the channel under s25A.

Cormorant have a breeding colony of around 25 pairs off Grune Point on a WWII target bombing range in Moricambe Bay. Although it might be possible to access this at low tide by walking across the flats, access will be excluded from the flats as they are considered to be unsuitable for access. Therefore, no new access rights will be created in this area, and there is a low risk of disturbance of breeding cormorants increasing as a result of our proposals.

A fence was previously installed across an area of the shingle near the tip of the point. This fence is now largely buried and in need of repair. As part of our coastal access proposals, NE proposes to install a replacement fence to discourage people exploring the shingle which is used by breeding ringed plover. A new information board will also be installed.

Therefore, the access proposals will benefit waterbirds at Grune Point by:

- Re-instating fencing around an area of shingle at the Point
- Installing a new information board at the Point

Skinburness to Silloth

The proposed ECP follows existing popular public rights of way, promenades and sea defences. Promoting these existing routes as a National Trail could lead to a small increase in use.

New signage, waymarking and improved route management would all help to ensure that people are likely to stick to the route of the ECP.

Between Grune Point and Silloth Docks, we do not expect the patterns or levels of access to the foreshore to change in this area as a result of the proposals.

In conclusion, the combination of route alignment and access restrictions means there is a low risk of increased disturbance to non-breeding waterbirds between Skinburness and Silloth as a result of the proposals.

D3.2.7I. Chapter 4 alternative routes

Whitrigg Bridge to Saltcoates

An optional alternative route (OAR) is to be available at times when parts of the main route across Angerton Marsh, and Newton and Saltcoates Marsh from Whitrigg road bridge to Saltcoates are affected by high tides.

The OAR is shown in the Coastal Access Report, Chapter 4, maps 4a to 4e.

Risk of impact of alternative route on non-breeding waterbirds

The route is inland of the SPA / Ramsar site and passes through farmland that may be used by feeding geese and swans.

The route is aligned on a public highway, which has fences or hedges on both sides. No additional access rights will be created in coastal fields. Therefore, it is very unlikely that any increase in access on this route as a result of our proposals will lead to increased disturbance of non-breeding waterbirds.

Grune Point

An OAR is to be available at times when parts of the main route around Grune Point are affected by high tides.

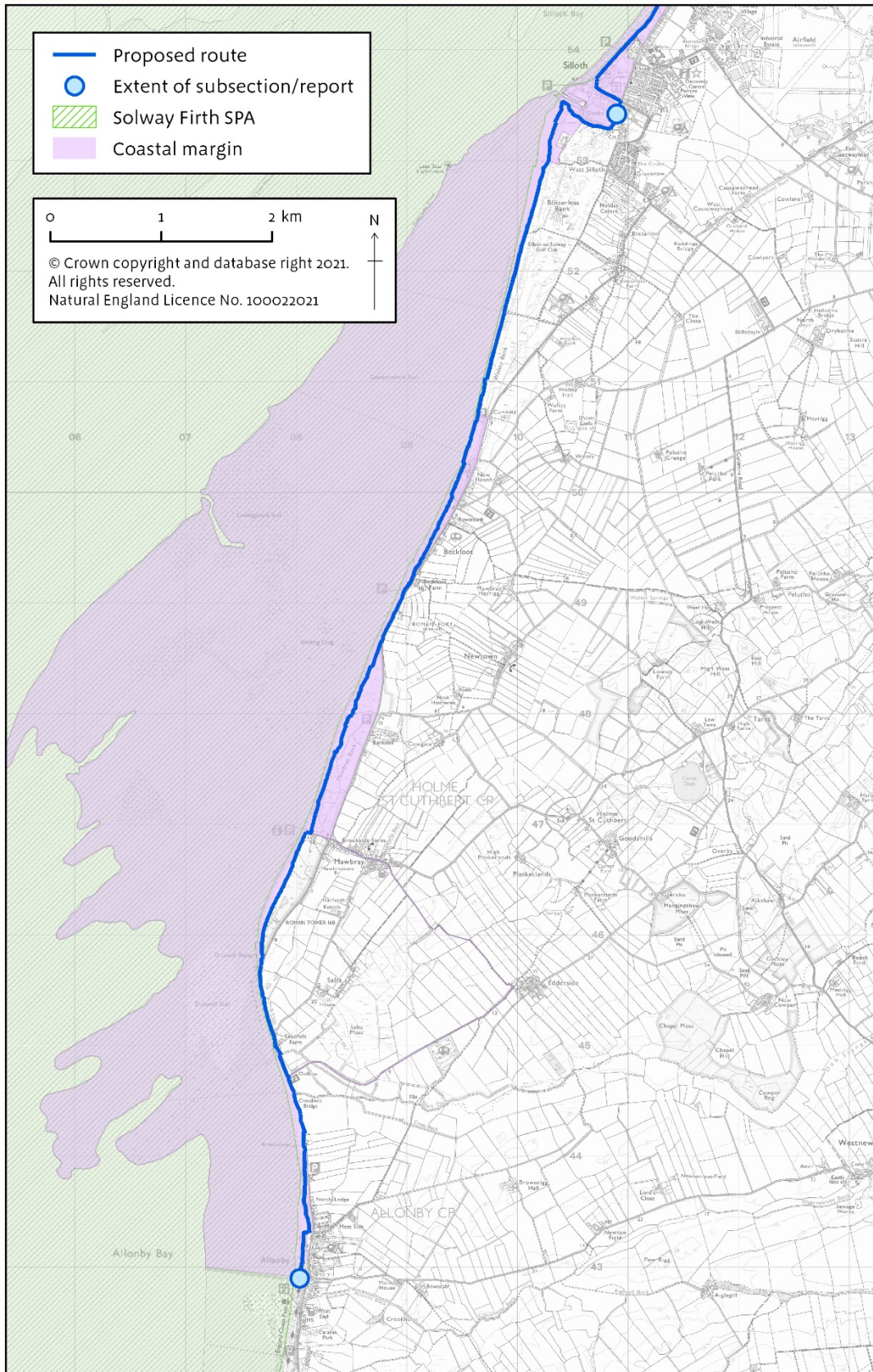
The OAR is shown in the Coastal Access Report, Chapter 4, map 4m.

Risk of impact of alternative route on non-breeding waterbirds

The route is inland of the SPA / Ramsar site. The route is aligned on a PRow which has fences or hedges on both sides. No additional access rights will be created in adjacent coastal fields. Therefore, it is very unlikely that any increase in access on this route as a result of our proposals will lead to increased disturbance of non-breeding waterbirds.

D3.2.7m. Impact of the access proposal on non-breeding birds between Silloth and Allonby

Map of the area showing proposed ECP, coastal margin & Solway Firth SPA.



Use of the area by non-breeding waterbirds

Silloth to Beckfoot – 1 roost site with cormorant. 1 with large numbers of sandwich terns and oystercatchers. Also curlew, sanderling. [20].

Beckfoot to Mawbray – There is a roost adjacent to Mawbray Bank, containing oystercatcher, sanderling, dunlin. [20].

Meolo to Mawbray – There are 4 gull roosts, plus the largest roost of oystercatcher and curlew in the south Solway just north of Allonby. [20].

Ringed plover also breed on the beach between Silloth and Allonby - approximately one pair per 200-300m of beach.

Baseline disturbance from recreational activities

We are not aware of any concerns related to the impacts of existing levels of public access in this area.

Existing recreational use

Aside from people using the beaches at Silloth and Allonby (both very popular locations in summer months), the main way in which people access the coast between Silloth and Allonby is by walks along the coast and through the dunes. These walks tend to radiate out from key locations such as Silloth town centre, Mawbray, Allonby and from the numerous informal lay-bys and car parks that are located along the coast road. There is de-facto access on and across the beach and dunes along this entire length of coast.

The line of the former Cumbria Coastal Way runs south from Silloth, along the seaward edge of Silloth Golf Course and then all the way through to Allonby on the seaward side of the B5300, at the top of or just above the foreshore. Historically this has been a very popular and well used route and, even though it is no longer formally recognised by Cumbria County Council, it is still used by locals and by those wishing to walk longer distances. When the tide is out many people simply opt to walk along the beach rather than follow the waymarked line through the dunes.

There is an area of existing CROW access land that stretches from Beckfoot through to Mawbray and onward to Dubmill Point. Within this area there are several existing walked lines that have developed close to the seaward edge of the dunes. A separate section of CROW access land between Mawbray Yard and Dubmill Point is currently fenced off and receives few, if any, visitors.

Access proposal

England Coast Path - Between Silloth and Dubmill Point, the proposed ECP is aligned on an existing walked line through dunes. From Dubmill Point to Allonby, the ECP is aligned on a new route on the landward side of the coast road and on existing walked routes and a public footpath.

Between Mawbray Yard and Old Kiln Farm, parts of the proposed ECP will, at certain times, be flooded due to high tides. In order to give people an opportunity to continue their journey

whilst avoiding this area, an optional alternative route via Edderside is proposed. This route would follow existing roads and PRow.

Coastal margin - Sand dunes and foreshore would fall within the coastal margin.

See Coastal Access Report Chapter 5, maps 5a – 5h.

Consideration of possible impacts (including measures incorporated into the proposals for conservation reasons)

Promoting use of the existing paths as a National Trail is likely to lead to a small increase in use.

There will be a larger increase in use on the new section of path near Dubmill Point.

The current levels of access to the beaches at Silloth and Allonby are reasonably high and the project team are not expecting this situation to change significantly after the introduction of coastal access rights.

Current levels of de facto access to the foreshore along the rest of this part of the coast are moderate to high, with many choosing to park and walk to the beach (often with dogs present) from various roadside car parks, including the car park at Mawbray Yard – one of the main Solway Coast Area of Outstanding Natural Beauty (AONB) promoted car parks.

The project team does not expect levels of access to the beach to change significantly; it is possible that the provision of a new route above the foreshore may in fact decrease levels of use along the beach itself.

The proposed route of the ECP is aligned on the land away from sites used by roosting, feeding or breeding waterbirds. Access is not expected to increase as a result of the proposals, and therefore there is a low risk of increased disturbance to waterbirds as a result of the proposals.

D3.2.7n. Chapter 5 alternative routes

Mawbray and Old Kiln Farm

An optional alternative route (OAR) is to operate at times when parts of the main route between Mawbray and Old Kiln Farm are affected by high tides.

The OAR is shown in the Coastal Access Report, Chapter 5, maps 5i to 5k.

Risk of impact of alternative route on non-breeding waterbirds

The route is inland of the SPA / Ramsar site. The route is aligned on a public highway and a PRow. No additional access rights will be created in coastal fields. Therefore, it is very unlikely that any increase in access on this route as a result of our proposals will lead to increased disturbance of non-breeding waterbirds.

D3.2.7o. Impact of footpath establishment works

There is a risk that non-breeding waterbirds could be disturbed during establishment works. This risk will be minimised by the use of mitigation measures during establishment works.

Table 15 summarises mitigation measures to reduce disturbance to waterbirds during path construction works.

Table 15: Establishment works - mitigation measures for non-breeding waterbirds

Item	Mitigation measures
Site design	<p>Operator to design access routes, storage areas and site facilities to minimise disturbance impacts.</p> <p>Operator to conduct operations out of sight of roosting, feeding and breeding areas where possible.</p>
Timing of works	<p>Local authority to plan schedule with Natural England to limit disturbance risk.</p> <p>Natural England to specify a period of low sensitivity at each construction site, based on likely departure and arrival dates of waterbird species that use it.</p> <p>Operators working within 200 metres of, and visible to, a roost site will stop during the 2 hours before and after high tide.</p> <p>Operator to limit construction activities to daylight hours at all times of year.</p>
Method	<p>Operator to use hand tools where practicable.</p> <p>Operator to avoid use of percussive machinery outside period of low sensitivity or avoid use of machinery during the 2 hours before and after high tide.</p>

Non- breeding waterbirds - conclusion

See Section D.3.3 *Assessment of adverse effect on site integrity alone*, table 22 for our conclusions concerning adverse effect on site integrity.

D3.3 Assessment of potentially adverse effects (taking account of any additional mitigation measures incorporated into the design of the access proposal) alone

Solway Firth SAC

Table 16: Assessment of adverse effect on site integrity alone (saltmarshes)

Risk to conservation objectives	Relevant design features of the access proposal	Can 'no adverse effect' on site integrity be ascertained? (Yes/No) Give reasons.	Residual effects?
<p>More frequent trampling following changes in recreational activities as a result of the access proposal and constructing sections of new path through these habitats leads to: Reduction in extent of the feature within the site; changes in range and distribution of characteristic communities, sub-communities and transitional communities within the site; changes in vegetation structure; changes in species composition of characteristic saltmarsh communities and changes in creek morphology.</p>	<p>Existing paths have been used where possible to avoid increasing trampling of saltmarsh. Some increase in the use of these paths is expected as a result of their becoming part of a designated and promoted national trail.</p> <p>Targeted improvements to existing paths are proposed, mainly new or replacement sleeper bridges in waterlogged areas. This new infrastructure will help reduce damage to surrounding habitat beyond the established path corridor.</p> <p>24.1km of the ECP would be a new route on saltmarsh and this will lead to an increase in access in areas which currently have no paths. The route has been aligned to minimise the damage caused by trampling by aligning over firm, dry ground where the saltmarsh is more resilient to trampling.</p> <p>We have proposed all year round access exclusions on many of the saltmarshes in the coastal margin (under s25A), where the saltmarsh is unsuitable for access.</p>	<p>Yes. Whilst there will be some small scale loss of saltmarsh underneath the proposed infrastructure and some degradation of vegetation along the path, the scale of this impact is small and widely distributed across the SAC. Therefore, the effect on the ecological functions and distribution of habitats and species will be minor.</p> <p>Regular way-markers and sleeper bridges across creeks will help reduce the spread of walkers and help reduce the area of trampling.</p> <p>Saltmarsh is generally unsuitable for public access and no new access rights will be created over the majority of salt marsh falling within the coastal margin. Spreading room will be created at Demesne Marsh and Easton Marsh, two small marshes which are currently used by walkers. Two large marshes, Skinburness and Calvo Marsh and Burgh Marsh already have open access rights under CROW. These access rights will be replaced with Coastal Access rights and will become spreading room. Access is not expected to increase on the marshes as a result of the proposals, and therefore there is a low risk of an increase in trampling damage on saltmarshes within the coastal margin.</p> <p>See appendix 1 for a detailed assessment of feature's integrity attributes.</p>	<p>Yes.</p> <p>A total of 3.7 ha may experience some degradation in saltmarsh vegetation structure due to the alignment of the ECP on saltmarsh. This equates to 0.11% of the saltmarsh vegetation on the English side of the SAC.</p> <p>There will be a direct total loss of SAC saltmarsh habitat of 232m², due to infrastructure proposed along the line of the ECP (this represents 0.00068% of saltmarsh area within the SAC).</p>

Table 17: Assessment of adverse effect on site integrity alone (H2130. Fixed dunes with herbaceous vegetation ("grey dunes"))

Risk to conservation objectives	Relevant design features of the access proposal	Can 'no adverse effect' on site integrity be ascertained? (Yes/No) Give reasons.	Residual effects?
<p>Constructing sections of path through this habitat leads to: Reduction in extent of the feature within the site; changes in range and distribution of characteristic communities, sub-communities and transitional communities within the site; changes in vegetation structure; and changes in species composition of characteristic communities.</p>	<p>n/a</p>	<p>Yes.</p> <p>The ECP is aligned through sand dune habitat for about 1.4km on the west side of Grune Point on an existing path. Whilst there will be some very small scale loss of sand dune habitat due to new infrastructure proposed (3 way-marker posts) the scale of this impact is negligible. If the sand dunes alter due to natural processes and the route is no longer suitable, we will not attempt to stabilize the dunes or the route, and the line of the ECP will roll back to the next suitable alignment.</p> <p>Therefore, the effect on the extent of the feature and future extent of the habitat within the site will be negligible.</p>	<p>No</p>
<p>Changes in conservation grazing patterns as a result of disturbance of grazing animals by dogs as a result of the access proposal, leads to:</p> <p>Changes in range and distribution of characteristic communities, sub-communities and transitional communities within the site;</p> <p>Changes in vegetation structure;</p> <p>Changes in species composition of characteristic communities.</p>	<p>n/a</p>	<p>Yes.</p> <p>A small increase in access on existing paths is unlikely to cause a significant displacement of grazing animals, so there is a low risk of the proposals disrupting the conservation grazing regime.</p>	<p>No</p>

Table 18: Assessment of adverse effect on site integrity alone (perennial vegetation of stony banks)

Risk to conservation objectives	Relevant design features of the access proposal	Can 'no adverse effect' on site integrity be ascertained? (Yes/No) Give reasons.	Residual effects?
<p>More frequent trampling following changes in recreational activities as a result of the access proposal: Reduction in extent of the feature within the site; changes in range and distribution of characteristic communities, sub-communities and transitional communities within the site; changes in vegetation structure; and changes in species composition of characteristic communities.</p>	<p>The proposed ECP follows routes that avoid areas of shingle / stony banks.</p>	<p>Yes.</p> <p>Access to the shingle / stony banks is not expected to increase as a result of the proposals at Grune Point. The proposed alignment of the ECP may reduce current levels of access on the shingle. The proposed ECP is aligned on a public right of way around Grune Point. Part of the PRoW on the western side of Grune Point has been lost to coastal erosion and people are currently walking on shingle at this point. In order to avoid aligning the ECP on the eroding shingle beach, a new section of path is proposed within the adjacent fields.</p>	<p>No</p>

Table 19: Assessment of adverse effect on site integrity alone (reefs and rocky scar communities)

Risk to conservation objectives	Relevant design features of the access proposal	Can 'no adverse effect' on site integrity be ascertained? (Yes/No) Give reasons.	Residual effects?
<p>More frequent trampling following changes in recreational activities as a result of the access proposal: Reduction in extent of the feature within the site; changes in age structure of common mussel <i>Mytilus edulis</i> and honeycomb worm <i>Sabellaria alveolate</i>; and Biotope composition of the biogenic reef.</p>	<p>Because this habitat is difficult to walk over and is sensitive to trampling damage, the ECP is not aligned through it. This habitat falls within the coastal margin.</p>	<p>Yes.</p> <p>Within the SAC, biogenic reefs and rocky scar communities are found in intertidal zone between Silloth and Dubmill Point.</p> <p>Trampling of this habitat is unlikely to increase as a result of the proposals. Although the reefs are located within the proposed coastal margin, they are sited some distance away from the ECP route. We expect that there will be negligible change in access to the coastal margin as a result of the proposals.</p>	<p>No</p>

Table 20: Assessment of adverse effect on site integrity alone (H1130. Estuaries)

Risk to conservation objectives	Relevant design features of the access proposal	Can 'no adverse effect' on site integrity be ascertained? (Yes/No) Give reasons.	Residual effects?
<p>More frequent trampling following changes in recreational activities as a result of the access proposal and constructing sections of new path through these habitats leads to: Reduction in extent of the feature within the site; changes in range and distribution of characteristic communities, sub-communities and transitional communities within the site (saltmarsh sub-feature only); changes in vegetation structure (saltmarsh sub-feature only); changes in species composition of characteristic communities (saltmarsh sub-feature only); changes in age structure of common mussel <i>Mytilus edulis</i> and honeycomb worm <i>Sabellaria alveolata</i> (reef and rocky scar communities sub-feature only); and Biotope composition of the biogenic reef (reef and rocky scar communities sub-feature only).</p>	<p>The sub-features Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) and <i>Salicornia</i> and other annuals colonising mud and sand are sensitive to changes in access. See assessment for saltmarshes (table 15) for relevant design features of the access proposal.</p> <p>The sub-features reef and rocky scar communities are sensitive to changes in access. See assessment for reefs (table 18) for relevant design features of the access proposal.</p>	<p>Yes.</p> <p>The sub-features Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) and <i>Salicornia</i> and other annuals colonising mud and sand are sensitive to changes in access. See assessment for saltmarshes within this table for conclusion of impact on site integrity.</p> <p>The sub-features reef and rocky scar communities are sensitive to changes in access. See assessment for reef within this table for conclusion of impact on site integrity.</p>	<p>Yes – saltmarsh sub-features only</p>

Upper Solway Flats & Marshes Ramsar site

Table 21: Assessment of adverse effect on site integrity alone (wetland animal assemblage: natterjack toad, great crested newt)

Risk to conservation objectives	Relevant design features of the access proposal	Can 'no adverse effect' on site integrity be ascertained? (Yes/No) Give reasons.	Residual effects?
<p>An increase in incidences of dogs accessing breeding ponds, following changes in recreational activities as a result of the access proposal, causes disturbance, injury or death of eggs, larvae or adults, leading to:</p> <p>A reduction in population abundance.</p>	<p>Where possible we avoid aligning the ECP close to breeding ponds.</p> <p>Where the ECP is aligned close to breeding ponds we will install signage at key locations along the route of the ECP and at the entrance to the coastal margin asking people to keep dogs out of breeding ponds.</p> <p>Dogs on leads restrictions on many of the saltmarshes (primarily to reduce the risk of disturbance to birds) will also reduce the risk of dogs entering breeding ponds.</p>	<p>Yes.</p> <p>For much of the coastal margin, where natterjacks and great crested newts may be breeding, it is not expected that there will be an increase in access. Where the trail is aligned in the vicinity of breeding ponds, signage will be used to reduce the risk of dogs entering breeding ponds.</p>	<p>No</p>
<p>Works to construct and/or maintain the England Coast Path lead to: A reduction in</p>	<p>To prevent injury, disturbance or death of natterjack toads and great crested newts during establishment or maintenance works, reasonable avoidance measures will be used. Cumbria County Council will submit</p>	<p>The risks during establishment and maintenance work will be minimized by using reasonable avoidance measures during works.</p> <p>Minimal footpath surfacing is required through the areas of natterjack habitat. As discussed in the assessment tables for salt marsh and sand dunes, the</p>	<p>No</p>

Risk to conservation objectives	Relevant design features of the access proposal	Can 'no adverse effect' on site integrity be ascertained? (Yes/No) Give reasons.	Residual effects?
population abundance; and Loss of supporting habitat.	method statements outlining how they will carry out the work, getting advice from a suitably qualified ecologist where appropriate.	infrastructure will not cause a significant loss of area of habitat/supporting habitat for natterjacks and great crested newts.	
Potential for chytrid fungus <i>Batrachochytrium dendrobatidis</i> and other diseases to be spread by people and dogs, leading to a reduction in population abundance.	None	Studies in the UK have found that spread of the chytrid fungus is most likely linked to where people have deliberately introduced non-native alpine newts into pools with native amphibians or transferred infected animals between pools. Bio security measures have been introduced for people that work with native amphibians e.g. capturing animals to collect biological data or involved in translocation schemes. Beyond these specific activities, the risks of spreading the chytrid fungus in UK appear to be low. Dogs entering pools are not thought any more likely to transfer the fungus than other possible agents, such as wild birds. Therefore, no special measures are currently considered necessary in connection with general recreational activities.	No

Solway Firth SPA and Upper Solway Flats & Marshes Ramsar site

Table 22: Assessment of adverse effect on site integrity alone (non-breeding waterbirds Barnacle goose, bar-tailed godwit, curlew, golden plover, knot, oystercatcher, pink-footed goose, pintail, redshank, ringed plover, whooper swan, waterbird assemblage (excluding common scoter)

Risk to conservation objectives	Relevant design features of the access proposal	Can 'no adverse effect' on site integrity be ascertained? (Yes/No) Give reasons.	Residual effects?
<p>Disturbance to feeding, roosting or breeding birds, following changes in recreational activities as a result of the access proposal, leads to reduced fitness and reduction in population and/or contraction in the distribution of qualifying features within the site.</p>	<p>The alignment of the coast path avoids sensitive areas for these species.</p> <p>Access restrictions exclude access from sensitive areas at times when the birds are present.</p> <p>Signage to highlight the access restrictions.</p> <p>Various other mitigation (e.g. fencing) as described in section D3.2.7, tables 17 – 30.</p>	<p>Yes.</p> <p>The proposed route alignment and directions to exclude and / or restrict coastal access rights have taken account of the sensitivity of these species to disturbance both with regards foraging, roosting and breeding areas and including areas both on the designated site and adjacent farmland, as described in tables 17-30.</p> <p>These measures include the alignment of the path inland around the estuary and adjacent fields of the Esk, access exclusions in the margin at Rockcliffe Marsh, aligning the path inland from the coast along the coast road for much of the route around the Cardurnock peninsula and aligning the route across Newton, Calvo and Skinburness Marshes on a line that avoids the adjacent inland fields (which are important for geese) and favoured low-lying marsh communities. This route, with associated directions to exclude and / or restrict coastal access rights for people and dogs (under either s25A or s26) to the marshes and foreshore, will serve to prevent disturbance to the species that use the marshes, flats and farmland to feed and roost by separating coastal access users from sensitive areas for these species.</p> <p>In addition to the route alignment, and accompanying directions to exclude and / or restrict coastal access rights to various areas of coastal margin, the proposed infrastructure where the ECP is aligned on saltmarshes will reinforce the restrictions by managing patterns of use. The line of the ECP will be the easiest route over areas of saltmarsh (due to sleeper bridges across creeks, regular waymarking and the fact that a higher, drier line has</p>	<p>Yes.</p> <p>The path and its associated directions to exclude or restrict access have been specifically designed to prevent damaging levels of disturbance occurring at important feeding, roosting and breeding sites throughout the SPA. These measures will prevent the proposals having an adverse impact on the integrity of the SPA.</p> <p>The promotion of the ECP will however create a general increase in the amount of access throughout the year which could increase the risk of disturbance to feeding, roosting and breeding birds across the SPA. This wider increase in walkers visiting the coast whilst unlikely to cause an adverse impact (due to the mitigation and avoidance measures mentioned in this document) there will be a residual effect and will need to be</p>

Risk to conservation objectives	Relevant design features of the access proposal	Can 'no adverse effect' on site integrity be ascertained? (Yes/No) Give reasons.	Residual effects?
		<p>been chosen), so walkers are likely to use the ECP instead of dispersing into more sensitive areas of coastal margin.</p> <p>The distance between the path and the sensitive roosting / feeding areas are such that, for the majority of the time, the measures also provide the required level of confidence that the birds will continue with their normal feeding and roosting routine on the marshes and will not be displaced to areas of sub-optimal habitat.</p>	<p>considered in-combination with other plans or projects and in future management.</p>
<p>Disturbance to feeding or roosting birds, during path establishment work, leads to reduced fitness and reduction in population and/or contraction in the distribution of qualifying features within the site.</p>	<p>Design access routes, storage areas and site facilities to minimise disturbance impacts. Conduct operations out of sight of roosting and feeding areas where possible.</p> <p>Local authority to plan schedule with Natural England to limit disturbance risk.</p> <p>Time operations during a period of low sensitivity at each construction site.</p> <p>Avoid use of percussive machinery outside this period wherever practicable. Use hand tools where practicable.</p> <p>At all other times, stop work around high tide to avoid disturbance to roost sites.</p> <p>Limit activities to daylight hours.</p>	<p>Yes.</p> <p>Works will be carried out by local authority staff or approved contractors using method statements prepared by the local access authority based on the principles described in table 10 and agreed with Natural England before works commence.</p> <p>Natural England will monitor and, where necessary, supervise works to ensure that mitigation is implemented correctly.</p>	<p>No</p>

Conclusion: Solway Firth SAC

The following risks to achieving the conservation objectives identified in D1 are effectively addressed by the proposals and no adverse effect on site integrity (taking into account any incorporated mitigation measures) can be concluded:

- **Sand dunes.** Constructing sections of new path through this habitat leads to: reduction in extent of the feature within the site, changes in range and distribution of characteristic communities, sub-communities and transitional communities within the site, changes in vegetation structure and changes in species composition of characteristic communities. Changes in conservation grazing patterns as a result of disturbance of grazing animals by dogs as a result of the access proposal, leads to: reduction in extent of the feature within the site, changes in range and distribution of characteristic communities, sub-communities and transitional communities within the site, changes in vegetation structure and changes in species composition of characteristic communities.
- **Perennial vegetation of stony banks.** More frequent trampling following changes in recreational activities as a result of the access proposal: reduction in extent of the feature within the site, changes in range and distribution of characteristic communities, sub-communities and transitional communities within the site, changes in vegetation structure and changes in species composition of characteristic communities.
- **Reefs and rocky scar communities.** More frequent trampling following changes in recreational activities as a result of the access proposal: reduction in extent of the feature within the site, changes in age structure of common mussel *Mytilus edulis* and honeycomb worm *Sabellaria alveolata* and biotope composition of the biogenic reef.

The following risks to achieving the conservation objectives identified in D1 are effectively addressed by the proposals and no adverse effect on site integrity (taking into account any incorporated mitigation measures) can be concluded, although there is some residual risk of insignificant impacts which will be considered further in combination with other plans and projects:

Saltmarshes, estuaries. More frequent trampling following changes in recreational activities as a result of the access proposal and constructing sections of new path through these habitats leads to reduction in extent of the feature within the site, changes in range and distribution of characteristic communities, sub-communities and transitional communities within the site, changes in vegetation structure and changes in species composition of characteristic saltmarsh communities.

Conclusion: Solway Firth SPA and Upper Solway Flats & Marshes Ramsar site

The following risks to achieving the conservation objectives identified in D1 are effectively addressed by the proposals and no adverse effect on site integrity (taking into account any incorporated mitigation measures) can be concluded:

- **Wetland animal assemblage (natterjack toad, great crested newt).** An increase in incidences of dogs accessing breeding ponds, following changes in recreational activities as a result of the access proposal, causes disturbance, injury or death of eggs, larvae or adults, leading to a reduction in population abundance. Works to construct and/or maintain the England Coast Path lead to a reduction in population abundance, loss of supporting habitat. Potential for chytrid fungus *Batrachochytrium dendrobatidis* and other diseases to be spread by people and dogs, leading to a reduction in population abundance.

- **Non-breeding waterbirds.** Disturbance to feeding or roosting birds, during path establishment work, leads to reduced fitness and reduction in population and/or contraction in the distribution of qualifying features within the site.

The following risks to achieving the conservation objectives identified in D1 are effectively addressed by the proposals and no adverse effect on site integrity (taking into account any incorporated mitigation measures) can be concluded, although there is some residual risk of insignificant impacts which will be considered further in combination with other plans and projects:

- **Non-breeding waterbirds.** Disturbance to feeding, roosting, or breeding birds, following changes in recreational activities as a result of the access proposal, leads to reduced fitness and reduction in population and/or contraction in the distribution of qualifying features within the site.

D4 Assessment of potentially adverse effects considering the project ‘in-combination’ with other plans and projects

The need for further assessment of the risk of in-combination effects is considered here.

Natural England considers that it is the appreciable effects (from a proposed plan or project) that are not themselves considered to be adverse alone which must be further assessed to determine whether they could have a combined effect significant enough to result in an adverse effect on site integrity.

Residual risk of insignificant impacts from the access proposals

Natural England considers that in this case the potential for adverse effects from the access proposals has not been wholly avoided by the incorporated or additional mitigation measures outlined in section D3. It is therefore considered that there are residual and appreciable effects likely to arise from this project which have the potential to act in-combination with those from other proposed plans or projects. These are listed in Table 23.

Table 23: Residual risk of insignificant impacts from the access proposals

Residual risk	Qualifying features affected
<p>More frequent trampling following changes in recreational activities as a result of the access proposal and constructing sections of new path through these habitats leads to:</p> <p>Reduction in extent of the feature within the site; changes in range and distribution of characteristic communities, sub-communities and transitional communities within the site; changes in vegetation structure; and changes in species composition of characteristic saltmarsh communities.</p>	<p>H1310. <i>Salicornia</i> and other annuals colonising mud and sand, H1330. Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>). H1130. Estuaries (subfeature – saltmarshes)</p>
<p>Disturbance to feeding, roosting or breeding birds, following changes in recreational activities as a result of the access proposal, leads to reduced fitness and reduction in population and/or contraction in the distribution of qualifying features within the site.</p>	<p>Barnacle goose, bar-tailed godwit, curlew, golden plover, knot, oystercatcher, pink-footed goose, pintail, redshank, ringed plover, whooper swan, waterbird assemblage.</p>

Combinable risks arising from other live plans or projects

In this section we consider other live plans or projects we are aware of, that might interact with the access proposals, to identify any insignificant and combinable effects that have been highlighted in corresponding Habitats Regulations Assessments.

Table 24: Review of other live plans and projects

Competent Authority	Plan or project	Have any insignificant and combinable effects been identified?
Allerdale Borough Council	Local Plan	<p>No.</p> <p>The HRA associated with the plan considers the potential impacts of increased disturbance and habitat loss on designated sites from new development.</p> <p>It was concluded that the screening of the Site Allocations demonstrated that although some sites had potential for likely significant effects on Natura 2000 sites to arise, the effects can be mitigated through avoidance, retention of biodiversity features, pollution control measures, and biodiversity enhancement. If mitigation is adopted the Site Allocations are considered to have no potential for significant effect on Natura 2000 sites, either alone or in combination with other plans, projects and policies.</p>
Carlisle District Council	Local Plan	<p>No.</p> <p>The HRA associated with the plan considers the potential impacts of increased disturbance and habitat loss on designated sites from new development.</p> <p>It was concluded that the Carlisle District Local Plan as a whole is unlikely to have any significant negative effects on any European sites, and as such does not need any further assessment under the Habitats Regulations. This conclusion does not remove the need for later Habitats Regulations assessments of any other plans, projects or planning applications arising as a result of the policies set out in this Local Plan. It was concluded that no policies within the Local Plan are likely to have a significant effect on the integrity of any European site, (either individually or in combination with other plans and projects) and no Appropriate Assessment is necessary.</p>
Cumbria County Council	Cumbria Minerals and Waste Local Plan 2015-2030	<p>No.</p> <p>The HRA associated with the plan considers the potential impacts of increased disturbance and habitat loss on Upper Solway SPA / Ramsar and Solway Firth SAC from mineral workings and waste management developments.</p> <p>It was concluded that the plan's policies will not adversely affect the integrity of Upper Solway SPA / Ramsar and Solway Firth SAC. At the stage when detailed development proposals are being considered, it is concluded that a large number of the proposed sites are likely to require 'appropriate assessment'. This would be to assess the mitigation measures that could be needed to ensure that they do not adversely affect the integrity the</p>

Competent Authority	Plan or project	Have any insignificant and combinable effects been identified?
		designated site. However, none of the mitigations that are considered likely to be needed, set out in planning permission conditions or in Environment Agency permits, would involve measures that are not common practice. No residual effects were identified.
Shoreline Management Plan 2	North West Shoreline Management Plan	<p>No.</p> <p>The Shoreline Management Plan is a high level study. Due to the fact that it is about Policy setting, rather than proposing specific options at a scheme or project level, where specific details about construction or engineering proposals will be detailed, it is very difficult to determine the exact effects any proposal would have on the integrity of Upper Solway SPA / Ramsar and Solway Firth SAC, especially in the long term. HRAs would need to be undertaken at strategy/project level when more detail was available.</p>
Cumbria County Council	Cumbria Coastal Strategy	<p>No.</p> <p>The Strategy will be a plan to evaluate and manage the risks related to coastal flooding and erosion along the Cumbrian coastline on a long-term scale. Following on from the North West Shoreline Management Plan which covered the coastline from the Great Orme in North Wales to the Scottish Border, the need for a more focused Strategy was identified. The strategy will assess the existing condition of land and flood defences along the coastline, identifying where potential future interventions are required.</p> <p>The strategy has been through HRA and it was identified that there would be loss of saltmarsh and intertidal mudflats, for which a compensatory habitat plan is being developed.</p> <p>The CCS has not yet been adopted. It will be for the competent authority to assess how any residual effects arising from the proposal could interact with the England Coastal Path proposals before adopting the strategy.</p>
Allerdale Borough Council	VAR/2019/0022 Variation to application 2/2012/0182 for temporary consent for rock armour protection to existing embankment to deter erosion for another 5 years Castle Corner, Beckfoot, Silloth, Cumbria	<p>No.</p> <p>The submitted HRA concludes no adverse effects on site integrity, no residual effects were identified.</p>

Competent Authority	Plan or project	Have any insignificant and combinable effects been identified?
Marine Management Organisation	MMO MLA/2015/00333/2 Consultation 1 - Habitats Regulations Assessment for Coastal defences at Dubmill Point NY 07704 45331 Dubmill, Allonby, Cumbria - Variation of licence request	<p>No.</p> <p>The MMO could not rule out that there would be significant effects to bird species as a result of above water noise, underwater noise or visual disturbance given the location and timings of the proposed activities. The MMO's assessment concurs with the advice the applicant received from Natural England during the use of the 'Discretionary Advice Service'. Variation was granted, and Natural England agreed with AEOI.</p> <p>The licence for this work ended on 30 November 2020. As the work has already taken place, and because any disturbance caused by this project would only occur while the works are being carried out, there will not be an overlap between any disturbance caused by this project and the residual impacts of the Coastal Access Proposals.</p>
Marine Management Organisation	MMO MLA/2017/00031 (Disposal of dredged material) Silloth Dredge Licence Renewal NY 08528 53179 Silloth Harbour	<p>No.</p> <p>The associated HRA concludes no likely significant effects, no residual effects were identified.</p>

In light of this review, we have not identified any insignificant and combinable effects that are likely to arise from other plans or projects and therefore no further in combination assessment is required.

D5. Conclusions on Site Integrity

Because the plan/project is not wholly directly connected with or necessary to the management of the European site and is likely to have a significant effect on that site (either alone or in combination with other plans or projects), Natural England carried out an Appropriate Assessment as required under Regulation 63 of the Habitats Regulations to ascertain whether or not it is possible to conclude that there would be no adverse effect on the integrity of a European Site(s).

Natural England has concluded that:

It can be ascertained, in view of site conservation objectives, that the access proposal (taking into account any incorporated avoidance and mitigation measures) will not have an adverse effect on the integrity of Solway Firth SAC, Upper Solway Flats and Marshes Ramsar or Solway Firth SPA either alone or in combination with other plans and projects.

PART E: Permission decision with respect to European Sites

Natural England has a statutory duty under section 296 of the Marine and Coastal Access Act 2009 to improve access to the English coast. To fulfil this duty, Natural England is required to make proposals to the Secretary of State under section 51 of the National Parks and Access to the Countryside Act 1949. In making proposals, Natural England, as the relevant competent authority, is required to carry out an HRA under Regulation 63 of the Habitats Regulations.

We, Natural England, are satisfied that our proposals to improve access to the English coast between Gretna and Allonby are fully compatible with the relevant European site conservation objectives.

It is open to the Secretary of State to consider these proposals and make a decision about whether to approve them, with or without modifications. If the Secretary of State is minded to modify our proposals, further assessment under the Habitats Regulations may be needed before approval is given.

Certification

HRA prepared by:

Name: Sarah Wiseman

Date:19/03/2021

HRA approved by:

Name: Laurence Browning

Date:20/05/2021

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Appendices

Appendix 1

Integrity Assessment – Saltmarsh Features

- Atlantic Saltmeadows
- *Salicornia* and other annuals colonising mud

Table 25: Integrity attributes taken from the Solway Firth EMS Interim Reviewed Regulation 33 Conservation Advice Package [2].

Integrity Attributes	Target	Impact	Conclusion
Range and distribution of characteristic communities, subcommunities and transitional communities.	Presence and abundance of characteristic communities, subcommunities and transitional communities should not deviate significantly from an established baseline, subject to natural change.	Saltmarsh is present in numerous areas of the SAC and in a variety of forms. These occur as large expanses of open marsh to small areas of fringing marsh to the small patches and clumps formed in low energy areas. To retain the integrity of the SAC the full mosaic and distribution of these marsh areas and types need to be retained. A total of 3.7 ha may experience some degradation in saltmarsh vegetation structure due to the alignment of the ECP on saltmarsh. This equates to 0.11% of the saltmarsh vegetation on the English side of the SAC. Whilst the ECP will result in some loss and degradation of saltmarsh, this will largely occur within the narrow corridor of the path as it traverses the saltmarshes. Though the width of the path will vary depending on terrain and use, we have calculated the width of expected impact as 2 meters. Therefore, the impact will be widely distributed across the SAC meaning localised impacts on marsh condition will be small. There will be no loss of any individual marsh or patch of marsh, meaning that at the scale of the SAC as a whole, there will be no loss in the existing mosaic and distribution of marsh habitats. The ecological functions and opportunities created by the individual areas of marsh will be maintained and distributed in the same way.	Minor reduction in localised saltmarsh habitat distribution, however the impact will not be significant on a SAC scale.
Extent of the feature within the site.	No decrease in extent from an established baseline, subject to natural change.	There will be a direct total loss of SAC saltmarsh habitat of 146 square metres, due to infrastructure proposed along the line of the ECP (this represents less than 0.0003% of saltmarsh area within the SAC). This percentage loss is very small and will be distributed across the whole SAC, likely reducing severity of the impact.	Minor reduction in extent of saltmarsh however the impact will not be significant in relation to the

Integrity Attributes	Target	Impact	Conclusion
			overall extent of the feature in the SAC.
Vegetation structure and species composition of characteristic saltmarsh communities:	<p>Range and distribution of varying heights of vegetation should not deviate significantly from an established baseline, subject to natural change.</p> <p>Frequency and abundance of characteristic species should not deviate significantly from an established baseline, subject to natural change</p>	<p>Along the ECP route areas which experience moderate to heavy footfall will see a change in vegetation structure when compared to a 'none walked' baseline. These areas will see a reduction in the density of those species with a lower resilience to physical disturbance and tramping. There will also be a reduction in vegetation/sward height and areas of bare ground may be created where the ground becomes poached or heavily disturbed.</p> <p>Saltmarsh in the coastal margin is unlikely to experience significant changes in saltmarsh vegetation composition or structure due to the irregularity of the footfall compared to the path.</p> <p>The total area of saltmarsh expected to experience impacts to vegetation composition and structure equates to the total length of path aligned on saltmarsh where there is no existing path. Included in this total are areas of saltmarsh where there is an existing walked route but current usage of the site is low. Though the width of the path will vary depending on terrain and use, we have calculated the width of expected impact as 2 meters.</p> <p>A total of 3.7 ha may experience some degradation in saltmarsh vegetation structure due to due to the alignment of the ECP on saltmarsh. This equates to 0.11% of the saltmarsh vegetation on the English side of the SAC.</p> <p>The path will not form a physical barrier preventing the movement of animals, the spreading of plants or movement of water or sediment. Thus, any future change in zonation or distribution of saltmarsh types will not be limited in any way by the path.</p>	There will be an increased impact on saltmarsh vegetation structure and community composition along the route of the path where usage is currently low. Due to the dispersed nature of the impact across the SAC the effect it will have the on the site will be minor.
Creek morphology	No significant alteration of creek patterns from an established baseline, subject to natural change.	Infrastructure will be installed along the line of the ECP to facilitate walkers over difficult terrain. On saltmarshes this infrastructure is mainly sleeper bridges over creeks and channels. There is a risk that some of this bridge infrastructure could constrain or alter the channel/creek morphology. To avoid this risk all the bridges will be constructed in such a way that abutments and structures are placed well back from the channel edge meaning the	Effects will not be significant.

Integrity Attributes	Target	Impact	Conclusion
		bridge structure will not interact with the active channel or any potential future channel positions.	
Sediment character	Sediment character should not deviate significantly from an established baseline (Cutts and Hemingway 1996), subject to natural change.	The path will not have a significant interaction with sedimentary processes.	Effects will not be significant.
Extent of algal mats	No increase in extent of algal mats from an established baseline, subject to natural change.	Algal mats are often associated with the pioneer saltmarsh communities. The ECP is not aligned through these communities. They can be affected by changes to water quality, eutrophication may lead to expansion and smothering of vegetation, or pollution can cause a decline which can lead to destabilisation of sediment surfaces and initiate erosion. There will be no changes in water quality as a result of the coastal access proposals.	Effects will not be significant.