voltalia

Technical Appendix 8.6: Shadow Habitat Regulations Appraisal

Department: ERM
Project: Bowshiel Solar Farm and BESS
Document Code: 0733784

May 2025

INDEX

1 INTRODUCTION

1.1.1.1 This Shadow Habitats Regulations Appraisal (HRA) has been prepared to provide information to aid the 'Competent Authority' to discharge their duty under the Habitats Regulations[1] and show that the project (the Development) will not adversely affect the integrity of a European site. The term 'European site' refers to what were previously known as 'Natura' sites when that were originally designated under European legislation and includes both Special Protection Areas (SPAs) and Special Areas of Conservation (SACs).

1.1.1.2 Whilst Ramsar Sites are not European Sites, where Ramsar interests coincide with European Site qualifying interests, those interests are thereby given the same level of legal protection as the European Site and thus are also subjected to the HRA process.

1.1.1.3 This report has been provided to formalise the initial screening present in the Scoping Report[2].

[1] The Conservation (Natural Habitats, &c.) Regulations 1994. Available online at: https://www.legislation.gov.uk/uksi/1994/2716/contents/made
[2] Prepared by ERM and dated 18th September 2024.

2 APPROACH TO HRA

2.1.1.1 The approach to the HRA takes account of guidance from NatureScot[3] and the HRA Handbook[4].

2.1.1.2 The HRA process comprises of three key steps completed in a sequential fashion with the outcome from one stage triggering the requirement for the next, these:

- Step 1 – Screening
- Step 2 – Appropriate Assessment: and
- Step 3 – Derogation

2.1.1.3 In accordance with NatureScot guidance[5], these three steps are progressed through nine stages, however stages 6-9 (Step 3) are only considered in exceptional circumstances where it cannot be ascertained that the project will not adversely affect the integrity of a European site. The HRA Stages are:

- **Step 1: Screening**
  - **Stage 1**: Defining the Plan of Project
  - **Stage 2:** Determining if the plan or project is directly connected with or necessary to site management for nature conservation?
  - **Stage 3**: Determining whether the plan or project (either alone or in combination with other plans or projects) is likely to have a significant effect on a European site (without mitigation).

    This Stage determines whether or not an appropriate assessment is required by assessing whether there is any connectivity between the Development and each of the qualifying interests. If there is no connection, or it is obvious that the proposal will not undermine the conservation objectives, likely significant effects can be scoped out. If there is clear connectivity or a lot of detailed information is required to determine connectivity then an appropriate assessment is required. If doubt exists about whether there is a likely significant effect, but the potential exists, likely significant effect cannot be scoped out.
- **Step 2: Appropriate Assessment:**
  - **Stage 4**: Undertake Appropriate Assessment through the scientific appraisal of the potential impacts of a plan or project on the qualifying interest(s), to ascertain the implications for the site in view of its conservation objectives. Mitigation to remove or reduce impacts of the proposal can be considered at this stage, however compensatory measures cannot be considered within an appropriate assessment

[3] Available online, at: https://www.nature.scot/professional-advice/planning-and-development/environmental-assessment/habitats-regulations-appraisal-hra
[4] Tyldesley, D., and Chapman, C. (2013) *The Habitats Regulations Assessment Handbook*. DTA Publications Limited
[5] NatureScot Professional Advice: Planning and Development. Environmental Assessment. Habitat Regulations Appraisal

- **Stage 5:** Determine whether the plan or project will not adversely affect the integrity of a European site, based on there being no reasonable scientific doubt as to the absence of adverse effects.

- **Step 3: Derogation:**

  - **Stage 6**: Determine whether there are alternative solutions. If it cannot be ascertained that the proposal will not adversely affect the integrity of a European site it can only proceed if there are no alternative solutions and the are 'imperative reasons of overriding public interest (IROPI)' (Stage 8-9).

  - **Stage 7**: Determine if 'priority habitat' (Annex 1 habitats) will be adversely affected? There are no priority species in Scotland's SACs or SPA.

  - **Steg 8**-9: Determine if there are IROPI. Where a priority habitat could be affected IROPI are limited to those related to human health, public safety, beneficial consequences of primary importance to the environment, or any other imperative reason of overriding public interest subject to the opinion of the Scottish Minister.

3 STEP 1: SCREENING

3.1 Stage 1: Defining the Project

3.1.1.1 The Development comprises a solar powered energy generating station, including a co-located Battery Energy Storage System (BESS), together known as Bowshiel Solar Farm and BESS.

3.1.1.2 The Development is located on land approximately 2.4 kilometres (km) south of the village of Cockburnspath in the Scottish Borders (the Site; **Figure 8.6.1**).

3.1.1.3 The Development will have a generating capacity of 165 MW from the solar PV modules (solar panels), while the BESS will have a generating capacity of up to 80MW. It will involve the construction and operation of solar panels, BESS units, and associated infrastructure. This will include:

- Solar panels will be included within the Proposed Development to provide a generating capacity of up to 165 MW. These be mounted on steel frames and angles at approximately 25 degrees from horizontal., resulting in a height of 0.8m above ground level at its lowest and 3.2m at its highest.
- 40 BESS units will be included in the proposed Development, with dimensions up to 2.4m x 6m x 3m (W x L x H). Each unit will sit on 6 concreate foundations up to 0.2m above ground level, and up to 3m below ground level. **Figure 3.4** provides the indicative planning drawing of a BESS unit.
- An Electrical Substation will be located at approximately NGR 781 682. This location will be the site of the BESS compound.
- Access tracks to serve the construction and operation of the proposed Development, with a width of 5m, with a likely verge of 1 – 1.5m either side of the track itself.

3.1.1.4 Further technical details of the Development can be found in the Environmental Impact Assessment Report (EIAR), **Chapter 3 (Development Description)** and associated figures.

3.1.1.5 The baseline habitat at the Site is primarily grassland with seasonal grazing by cattle and sheep. There are areas of bracken, mixed broadleaved woodland, and scrub, with many fields separated by native hedgerow. There are several fields of cropland located north and southeast of the main farm buildings, which comprised cereal, winter stubble, and non-cereal crops at the time of the survey.

3.1.1.6 Further details of the baseline ecological conditions at the Site can be found in the EIAR, **Chapter 8 (Ecology and Nature Conservation)** and associated Technical Appendices and figures.

3.2 Stage 2: Screening Assessment

3.2.1.1 Under the Habitat Regulations the Development fits the criteria for a 'Project'. It is not directly connected with or necessary to site management for nature conservation.

3.2.1.2 To determine if the Project is likely to have a likely significant effect(s) on a European site, the following issues are considered:

- Potential pathways that could lead to effects on the qualifying interest(s) of the European site, taking account of the Project's characteristics (e.g. location relative to the European site, the magnitude, extent, duration, frequency timing of the effects).

- If so, what is the probability of an effect happening (e.g. how do the qualifying features respond to the effect, how sensitive the features are, the extent of exposure, conservation status and condition and its vulnerability) and what is the likely consequence for the site's conservation objectives if effects occur.

3.2.1.3 European sites that could be affected were identified using NatureScot's Sitelink[6] website, including their qualifying interest features, conservation objectives. Distances from the Site for inclusion in the screening are as follows:

- 20 km for SPAs with geese as a qualifying feature;

- 10 km for all other SPAs;

- 5 km for all SACs; and

- Ramsar sites with overlapping interest features with the above associated European Sites

3.2.1.4 Consideration was given also to Functionally Linked Land (FLL), a term used to describe habitats outside a designated site boundary considered critical to, or necessary for, the ecological or behavioural functions in a relevant season of a qualifying feature for which a SAC, SPA, and/or Ramsar site has been designated.

3.2.1.5 In accordance with the European Court judgement[7] mitigation measures intended to avoid or reduced harmful effects are not taken into consideration at the screening stage.

3.2.1.6 **Table 3.1** provides a summary of the screening exercise undertaken for Bowshiel Solar Farm and BESS. The locations of the sites considered are shown on **Figure 8.6.2**.

[6] Available online at: https://sitelink.nature.scot/home
[7] People Over Wind and Sweetman v Coillte Teoranta (Case C-323/17).

TABLE 3.1 SCREENING OF DESIGNATED SITES

DESIGNATED SITE	QUALIFYING FEATURES & CONSERVATION OBJECTIVES	SCREENING
SPA and Ramsar Sites with Geese as a Qualifying Feature within 20 km of the Site		
Firth of Forth SPA Approximately 14.7 km northwest of the Site	Qualifies under **Article 4.1** by regularly supporting populations of European importance of red-throated diver, Slavonian grebe, golden plover and bar-tailed godwit. Qualifies under **Article 4.1** by regularly supporting a population of European importance of the Annex I species: sandwich tern during the passage period. Qualifies under **Article 4.2** by regularly supporting populations of European importance of the migratory species pink-footed goose, shelduck, knot, redshank and turnstone. Qualifies under **Article 4.2** by regularly supporting more than 20,000 individual waterfowl, including nationally important populations of the following species: Scaup, Slavonian grebe, Golden plover, Bar-tailed godwit, Pink-footed goose, Shelduck, Knot, Redshank, Turnstone, Great crested grebe, Cormorant, Red-throated diver, Curlew, Eider, Long-tailed duck, Common scoter, Velvet scoter (*Melannita fusca*), Goldeneye (*Bucephala clangula*), Red-breasted merganser, Oystercatcher, Ringed plover, Grey plover, Dunlin.. **Conservation Objectives:** To ensure for the qualifying species that the following are maintained in the long term: 1. Population of the species as a viable component of the site. 2. Distribution of the species within the Site.	Pink-footed goose have an accepted core foraging distance of 15-20 km from the night roost[8]; therefore, this species is the only feature that has the potential for regular connectivity with the Site. However, the foraging distribution of pink-footed geese, as shown in Mitchell (2012), does not include the Site or immediate surrounds. In addition, the closest night roost is Abrlady Bay, approximately 34 km from the Site and substantially further then the recognised foraging typical range. **Likely Significant Effects can be ruled out[9].**

[8] NatureScot (2016) Assessing Connectivity with Special Protection Areas (SPAs). Available online at: https://www.nature.scot/doc/assessing-connectivity-special-protection-areas

[9] As confirmed by NatureScot in their response to the scoping report (dated 6th December 2024, Ref: CNS/REN/OTH/SOLAR/SB/BOWSHIEL).

DESIGNATED SITE	QUALIFYING FEATURES & CONSERVATION OBJECTIVES	SCREENING
	3. Distribution and extent of habitats supporting the species. 4. Structure, function and supporting processes of habitats supporting the species 5. No significant disturbance of the species	
Firth of Forth Ramsar Approximately 14.7 km northwest of the Site	**Ramsar Criterion 2** Supporting red throated diver (Gavia stellata) and Golden plover (*Pluvialis apricaria*) **Ramsar Criterion 4** Supports the following waterbird species at a critical stage in their life cycles: Scaup (*Ayhya marila*), Great crested grebe (*Podiceps cristatus*), Cormorant (*Phalacrocorax carbo*), Curlew (*Numenius arquata*), Eider (*Somateria mollissima*), Long-tailed duck (*Langula hyemalis*), Common scoter (*Melanitta fusca*), Red-breasted merganser (*Mergus serrator*), Osytercatcher (*Haematopus ostralegus*), Ringed plover (*Charadrius hiaticula*), Grey plover (*Pluvialis squatarola*), Dunlin (*Calidris alpina alpina*), The assemblage also includes nationally important populations greater than 2,000 individuals of mallard (*Anas platyrhynchos*), lapwing (*Vanellus vanellus*) and Wigeon (*Anas penelope*) **Ramsar Criterion 5** Regularly supports waterbirds in numbers of 20,000 individuals or more. **Ramsar Criterion 6** Regularly supports 1 % or more of the individuals in a population of waterbirds: Slavonian grebe (*Podiceps auritus*), Pink-footed goose (*Anser brachyrhynchus*), Shelduck (*Tadora tadorna*), Knot (*Calidris canutus*), Redshank (*Tringa totanus*), Turnstone (*Arenaria interpres*), Goldeneye (*Bucephala clangula*), Bar-tailed godwit (*Limosa lapponica*), Sandwich tern (*Sterna sandivensis*).	Pink-footed goose have an accepted core foraging distance of 15-20 km from the night roost[8]; therefore, this species is the only feature that has the potential for regular connectivity with the Site. However, the foraging distribution of pink-footed geese, as shown in Mitchell (2012), does not include the Site or immediate surrounds. In addition, the closest night roost is Abrlady Bay, approximately 34 km from the Site and substantially further then the recognised foraging typical range. **As per the Firth of Forth SPA, potential effects can be ruled out[9].**
Greenlaw Moor SPA	Qualifies under **Article 4.2** by regularly supporting, in winter, an internationally important population of pink-footed goose.	Pink-footed goose have an accepted core foraging distance of 15-20 km

DESIGNATED SITE	QUALIFYING FEATURES & CONSERVATION OBJECTIVES	SCREENING
Approximately 14.7 km southwest of the Site	**Conservation Objectives:** To ensure for the qualifying species that the following are maintained in the long term: 1. Population of the species as a viable component of the site. 2. Distribution of the species within the Site. 3. Distribution and extent of habitats supporting the species. 4. Structure, function and supporting processes of habitats supporting the species 5. No significant disturbance of the species	from the night roost[8]; therefore, this species is the only feature that has the potential for regular connectivity with the Site. However, the foraging distribution of pink-footed geese, as shown in Mitchell (2012), does not include the Site or immediate surrounds. **Likely Significant Effects can be ruled out**[9]
Greenlaw Moor Ramsar Approximately 18.7 km southwest of the Site	**Ramsar criterion 6** Regularly supports 1 % or more of the individuals of a population of pink-footed goose.	Pink-footed goose have an accepted core foraging distance of 15-20 km from the night roost[8]; therefore, this species is the only feature that has the potential for regular connectivity with the Site. However, the foraging distribution of pink-footed geese, as shown in Mitchell (2012), does not include the Site or immediate surrounds. **As per the Firth of Forth SPA, potential effects can be ruled out**[9]**.**
SPA and Ramsar within 10 km of the Site		
Outer Firth of Forth and St. Andrew's Bay Complex SPA	Qualifies under **Article 4.1** by regularly supporting a non-breeding population of European importance of the following Annex I species: red-throated diver, Slavonian grebe, little gull (*Larus minutus*), common tern (*Sterna Hirundo*) and Arctic tern (*Sterna paradisaea*).	As stated in the Scoping report, non-breeding herring gull and common gull populations linked with the Outer Firth of Forth and St. Andrews Bay Complex SPA could utilize fields within the Site

DESIGNATED SITE	QUALIFYING FEATURES & CONSERVATION OBJECTIVES	SCREENING
Approximately 4.5 km north of the Site	Qualifies under **Article 4.2** by regularly supporting populations of European importance of the following migratory waterfowl species: common eider, and by regularly supporting in excess of 20,000 individual waterfowl including nationally important populations of the following species: long-tailed duck, common scoter, velvet scoter, common goldeneye, red-breasted merganser. Qualifies under **Article 4.2** by regularly supporting populations of European importance of the following migratory species of seabird: European shag (*Phalacrocorax aristotelis*) and northern gannet (*Morus bassanus*). Qualifies under **Article 4.2** by regularly supporting in excess of 20,000 individual seabirds during the breeding season, including nationally important populations of the following species: Atlantic puffin (*Fratercula arctica),* Black-legged kittiwake (Rissa tridactyla), Manx shearwater (*Puffinus puffinus*), Common guillemot (*Uria aalge*), Herring gull (*Largus argentatus*). Qualifies under **Article 4.2** by regularly supporting in excess of 20,000 individual seabirds during the non-breeding season including nationally important populations of the following species: Black-headed gull (*Chroicocephalus ridibundus*), Common gull (*Larus canus*), Herring gull, Common guillemot, European shag, Black-legged kittiwake, Razorbill (*Alca torda*).	for foraging, gulls are opportunistic species and there is extensive comparable farmland available in the wider area beyond the Site. As such, any loss of foraging habitat because of the Proposed Development would not be significant in the context of the wider landscape and there would be no displacement of these species from the designated site. In addition, the Outer Firth of Forth and St. Andrews Bays Complex SPA is also designated for non-breeding aggregations of seabirds dependent on the marine environment. These species would not interact with the farmland habitats within the Site, and so these species would not be affected by the Proposed Development **Likely Significant Effects can be ruled out**[9]**.**
St Abb's Head to Fast Castle SPA Approximately 4.5 km north of the Site	Qualifies under **Article 4.2** by regularly supporting more than 20,000 seabirds, including nationally important populations of the following species: Razorbill, Common guillemot, Black-legged kittiwake, Herring gull, European shag. **Conservation Objectives:** To ensure for the qualifying species that the following are maintained in the long term: 1. Population of the species as a viable component of the site. 2. Distribution of the species within the Site. 3. Distribution and extent of habitats supporting the species. 4. Structure, function and supporting processes of habitats	St Abb's Head to Fast Castle SPA is designated for its seabird populations, most of which are ecologically dependent upon the marine environment and would not interact with farmland habitats within and surrounding the Site. Although herring gull could forage within the Site, any loss of habitat is unlikely to affect the species due to the amount of similar habitat within the local landscape.

DESIGNATED SITE	QUALIFYING FEATURES & CONSERVATION OBJECTIVES	SCREENING
	supporting the species 5. No significant disturbance of the species	**Likely Significant Effects can be ruled out[9].**
SACs within 5 km of the Site		
St Abb's Head to Fast Castle SAC Approximately 4.4 km northeast of the Site	Qualifies for the presence of Annex I Habitat; Vegetated sea cliffs of the Atlantic and Baltic coasts, for which this is considered to be one of the best areas in the United Kingdom. **Conservation Objectives:** 1. To ensure that the qualifying feature of St Abb's Head to Fast Castle SAC is in favourable condition and makes an appropriate contribution to achieving favourable conservation status. 2. To ensure that the integrity of St Abb's Head to Fast Castle SAC is maintained by meeting objectives 2a, 2b and 2c for the qualifying feature. 2a. Maintain the extent and distribution of the habitat within the site. 2b. Maintain the structure, function and supporting processes of the habitat 2c. Maintain the distribution and viability of typical species of the habitat	Due to the distance, there is no ecological connectivity between the Site habitats within the SAC. **Likely Significant Effects can be ruled out[9].**

3.3 In-combination Assessment

3.3.1.1 Where likely significant effects from the Project alone can be excluded, consideration is given to the effects in-combination with other projects and whether they were likely to be significant.

3.3.1.2 For the purpose of this assessment, the following types of projects were considered as part of the in-combination assessment:

- projects under construction;
- permitted application(s) not yet developed;
- submitted application(s) not yet decided;
- refused projects subject to appeal, but not yet decided;
- projects on the Planning Inspectorate's national infrastructure programme of projects; and
- projects identified in the development plans (and emerging development plans).

3.3.1.3 A list of plans and projects within 5 km of the Site considered for the in-combination assessment is provided in the EIAR, **Chapter 4**.

3.3.1.4 Species considered in the in-combination assessment are limited to those that are likely to occur away from the marine environments in agricultural landscapes, primarily gull species and pink-footed goose.

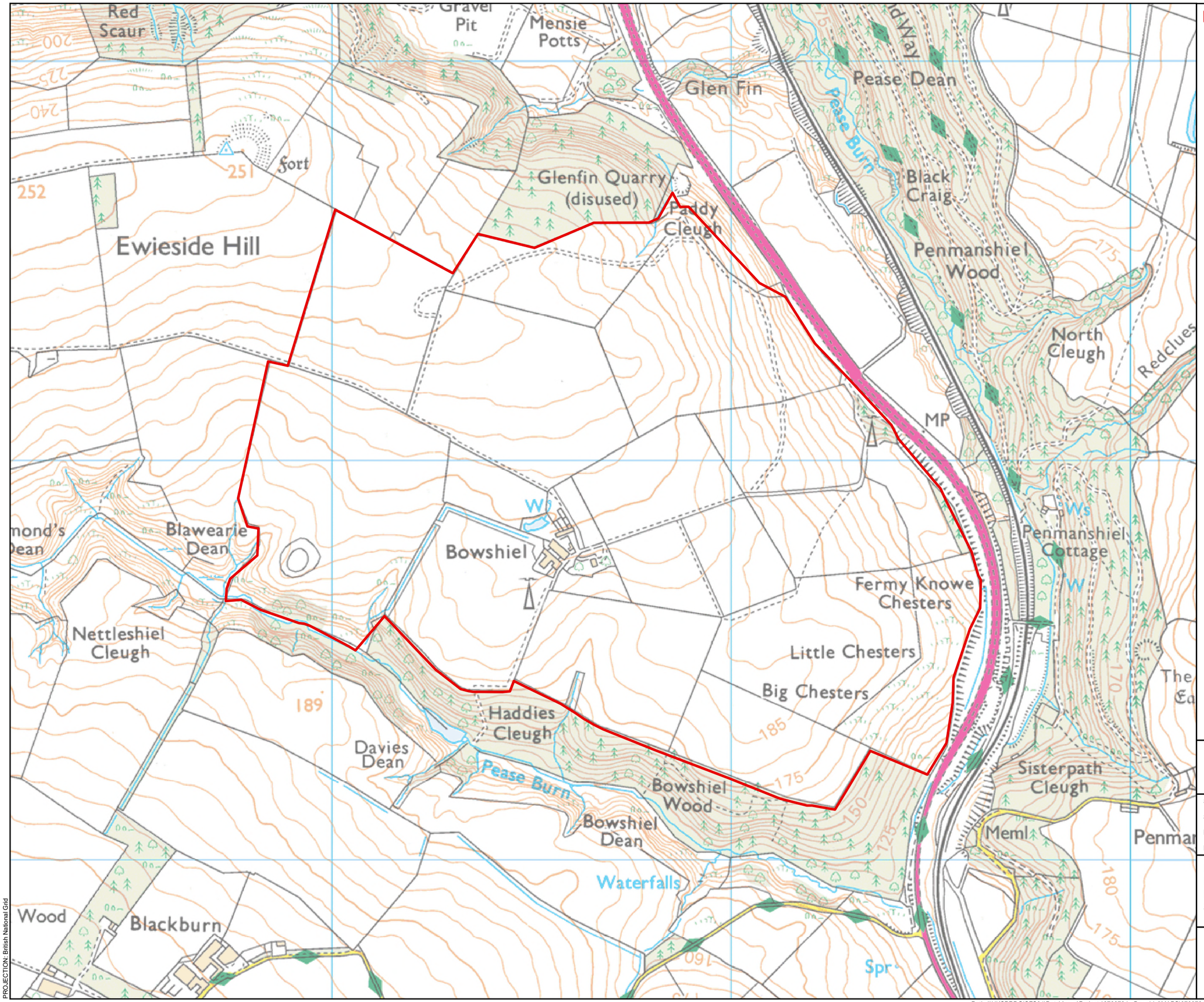
3.3.1.5 For projects where details of the baseline and/or assessment are available, all are relatively small scale, and none identified any notable presence of features from any of the designated sites considered herein. As such, likely significant effects arising from the project, in combination with nearby plans and projects, can be ruled out.

4 STAGE 1 CONCLUSION

4.1.1.1 A screening exercise has been carried out as part of a Shadow Habitats Regulations Appraisal for Bowshiel Solar Farm and BESS.

4.1.1.2 The Screening has determined that likely significant effects from the project in isolation, and in combination with other plans or projects, can be ruled out. As such, additional stages of the HRA process are not necessary.

APPENDIX A FIGURES



Site Boundary

0 50 100 150 200 250
Metres

N

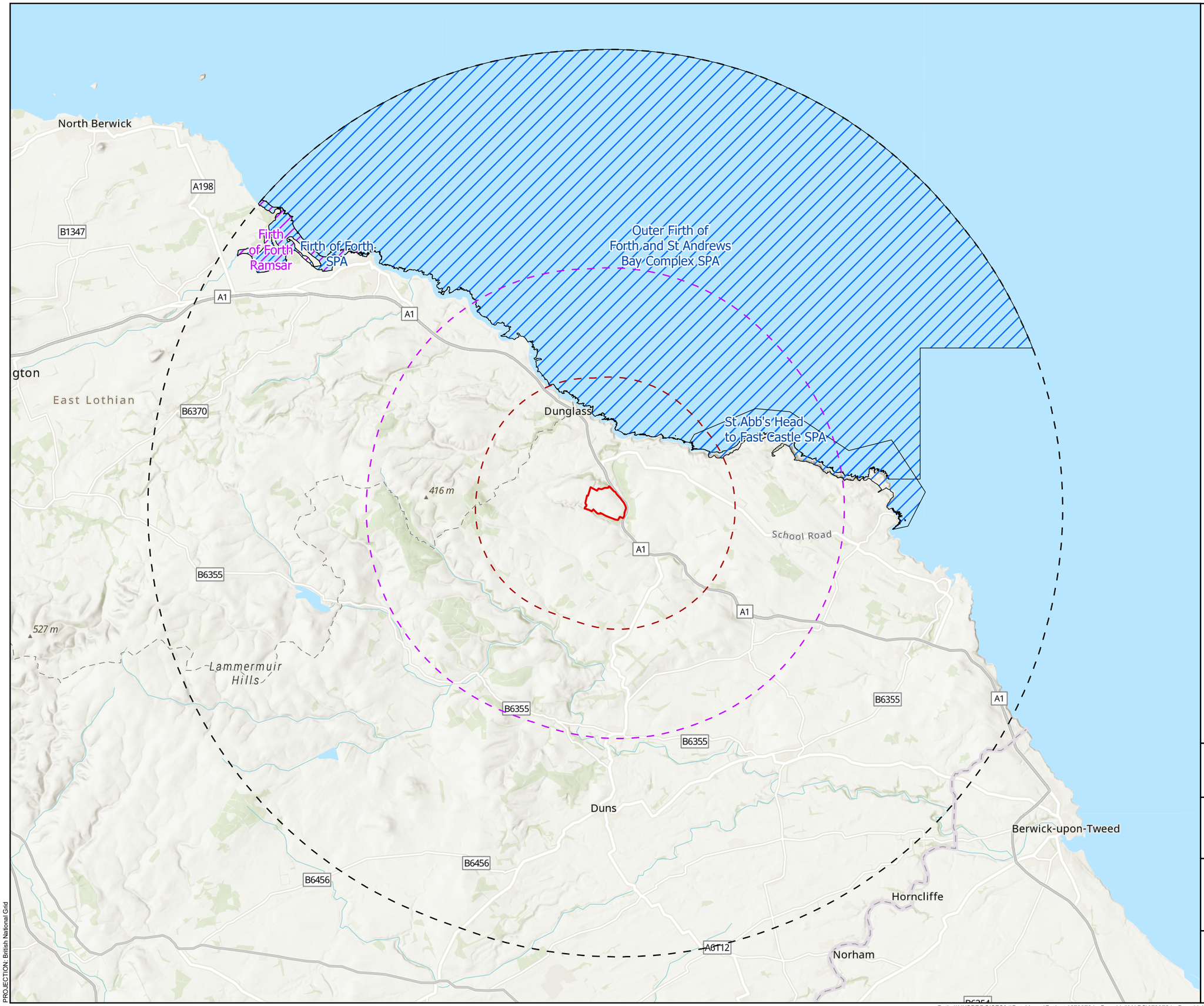
SCALE: See Scale Bar	VERSION: A01
SIZE: A3	DRAWN: RW
PROJECT: 0733745	CHECKED: MS
DATE: 27/05/2025	APPROVED: MW

Bowshiel Solar Farm and BESS
EIA Report
Figure 8.6.1
Site Boundary

ERM voltalia

PROJECTION: British National Grid

Path: \\UKSPRDGISFS01\Data\Arcus\Projects\0733784 - Bowshiel\MAPS\0733784 - Bowshiel - EIA Figures.aprx\0733784 - Bowshiel - Figure 8.6.1 - Site Boundary - A01



Site Boundary
5 km Buffer
10 km Buffer
20 km Buffer
Ramsar Site
Special Protection Area

0 1 2 3 4 5
Kilometres

N

SCALE: See Scale Bar	VERSION: A01
SIZE: A3	DRAWN: JS
PROJECT: 0733745	CHECKED: MS
DATE: 27/05/2025	APPROVED: MW

Bowshiel Solar Farm and BESS
EIA Report
Figure 8.6.2
Designated Sites Screened

ERM voltalia

PROJECTION: British National Grid

Path: \\UKSPRDGISFS01\Data\Arcus\Projects\0733784 - Bowshiel\MAPS\0733784 - Bowshiel - EIA Figures.aprx\0733784 - Bowshiel - Figure 8.6.2 - Designated Sites Screened - A01