TRANSPORT SCOTLAND
CÒMHDHAIL ALBA

South East Trunk Road Unit

A985 Kincardine Bridge – Maintenance Schemes (7 Year Marine Licence)

Habitats Regulations Appraisal

April 2025

Prepared for BEAR Scotland by Jacobs

experience that delivers

BEAR SCOTLAND

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Author	J.FOWBERT

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1 Introduction

1.1 Background

1.1.1 In August 2020, BEAR Scotland was appointed the Operating Company for the Network Management Contracts (NMC) Fifth Generation Term Maintenance (TMC) Contract for the South East Trunk Road Unit. This contract sees BEAR Scotland responsible for the management and maintenance of trunk road assets in the south east of Scotland until at least 2028.

1.1.2 The Kincardine Bridge crosses the Firth of Forth between Higgins Neuk in Falkirk Council area and the town of Kincardine in Fife Council area. The Kincardine Bridge is used to carry the A985 Kincardine – Rosyth Trunk Road over the Firth of Forth, via a two-lane single carriageway road. The Kincardine Bridge has segregated footways either side of the carriageway. The A985 connects to the A876 at the Higgins Neuk Roundabout which lies to the south-west of the Kincardine Bridge.

1.1.3 The Kincardine Bridge was opened in 1936 and is a Category A listed structure. The southern approach comprises a 24-span piled viaduct, 76.2m in length, followed by nine 15.2m (50ft) concrete spans[1] and seven 30.5m steel spans (Diagram 1). The north approach consists of three 19.0m steel spans and seven 30.5m steel spans (Diagram 1). The central swing span is formed of two open Warren girders symmetrically balanced upon a central pier. The swing span deck is formed of a reinforced concrete slab supported on steel baffle plates that span between longitudinal beams. The total length of the bridge is 822m. Works to replace the southern piled viaduct took place between 2023-2025.

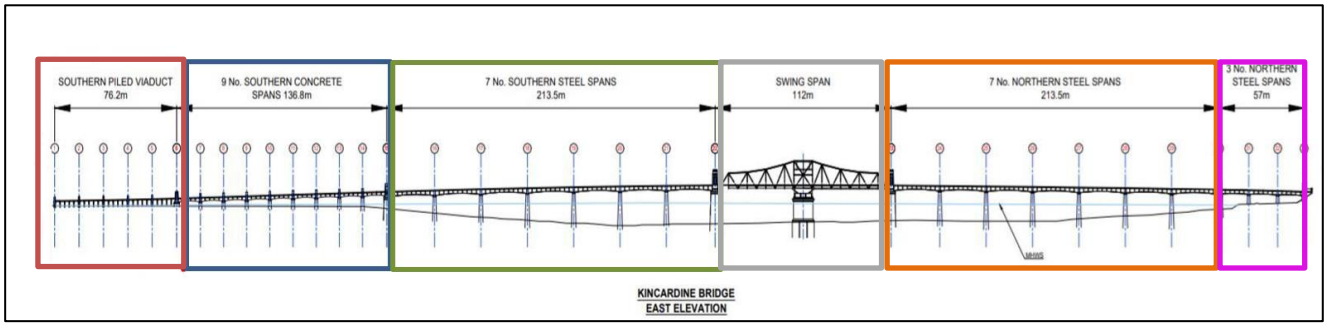

Diagram 1: East Elevation of Kincardine Bridge

1.1.4 Amey, on behalf of Transport Scotland, previously obtained a Marine Licence for maintenance and improvement works on the Kincardine Bridge. This licence (Licence Number 05709/16/0) was obtained on 29 February 2016 and was valid for a period of four years, expiring 28 February 2020. A marine licence for the Kincardine Bridge Piled Viaduct Replacement scheme was obtained by Transport Scotland. A further marine

[1] The 15.2m concrete spans are referred to as 50ft concrete spans throughout.

licence will be required for the maintenance works covered in the 7 year marine licence application (the programme of works that inform this HRA).

1.1.5 The proposed maintenance works are not directly connected with, or essential for, the management of any European or Ramsar site.

1.2 The Bern Convention, Habitats Directive, Habitats Regulations and European/Ramsar Sites

1.2.1 The Habitats Regulations (Conservation (Natural Habitats, &c.) Regulations 1994) translated the European Union Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive[2]) into UK legislation to protect sites that are internationally important for threatened habitats and species (European Sites), and to create a legal framework for species requiring strict protection.

1.2.2 The Habitats Regulations have been amended in Scotland, most recently in 2019 as a result of the UK leaving the EU (Conservation (Natural Habitats, &c.) (EU Exit) (Scotland) (Amendment) Regulations 2019). This latest amendment ensures that the requirements of the Habitats Directive and the Birds Directive (European Union Council Directive 2009/147/EC) continue to be relevant to the management of European sites, so that the sites are both protected and that they continue to operate as originally intended.

1.2.3 European Sites are Special Protection Areas (SPAs) (classified under the Birds Directive) and Special Areas of Conservation (SACs) (classified under the Habitats Directive) and form part of an international network of protected sites. Prior to leaving the EU, Scotland's sites contributed to the Natura network and now form part of the Emerald Network[3], spanning Europe and into Africa.

1.2.4 This HRA is presented under the aegis of Regulation 48 of the Habitats Regulations, which transposes the requirements of Article 6(3) of the Habitats Directive.

1.2.5 The Habitats Regulations continue to require that an Appropriate Assessment (AA) be undertaken by a Competent Authority where any plan or project not directly connected with or necessary to the management of the European/Ramsar site (i.e. a SAC or SPA, or proposed SAC/SPA, or a Ramsar site), is likely to have a significant effect either individually or in combination with other plans or projects. HRA refers to the process that provides the Competent Authority with the information to enable them to make an AA determination. The HRA provides data concerning site integrity, and the AA must be undertaken 'in view of the site's conservation objectives'. With respect to this HRA for these proposed maintenance works, the Competent Authority will be Transport Scotland,

[2] The Habitats Directive was adopted in 1992 by the European Community (as was) as the Community's response to the Convention on the Conservation of European Wildlife and Natural Habitats (the Bern Convention).

[3] The Emerald Network was launched by the Council of Europe as part of its work under the Bern Convention.

with their Statutory Nature Conservation Body (SNCB) for consultation being NatureScot [4].

1.2.6 Whilst not a European site designation, wetland sites designated under the Convention on Wetlands of International Importance, known as Ramsar sites, are also relevant as they are afforded the same level of protection as European sites under domestic policy and treated in the same way as the UK site network. Most Ramsar sites in Scotland are either designated SPAs or SACs although not always sharing the same qualifying interests (NatureScot, 2022a). Ramsar sites in Scotland are extended protection under the relevant statutory regimes (Scottish Government, 2023).

1.2.7 A programme of works has been provided by BEAR Scotland to inform this HRA, setting out the routine and non-routine works expected to be undertaken during the licence period (Appendix A). It details the expected activities, timing, duration/frequency, and equipment required. The AA undertaken within this HRA is based on this programme of works. As such, if the Operating Company or Contractor changes the programme of works (excluding changes to routine maintenance where the activities are generally covered within the routine maintenance section) the changes will have to undergo an HRA process to demonstrate there are no additional likely significant effects which could lead to adverse effect on site integrity of European/Ramsar sites from the changes, and that the conclusion of this HRA is still valid. Furthermore, the assessment will be required to be reviewed in the instance of any significant changes to the baseline conditions.

1.3 The HRA Process

1.3.1 The HRA process establishes whether the proposal:

- is directly connected with or necessary for site management for nature conservation;
- is likely to have a significant effect on the site; and
- will adversely affect the site's integrity.

1.3.2 If the assessment cannot ascertain that the proposal would not adversely affect site integrity and yet the Competent Authority still wish to consent the proposal, a consideration of alternative solutions is required. If no alternative solutions are available, a proposal may be carried out for Imperative Reasons of Overriding Public Interest as indicated by Article 49 of the Habitats Regulations. As stated in Article 53 of the Habitats Regulations, where this is the case "*the Secretary of State shall secure that any necessary compensatory measures are taken to ensure that the overall coherence of Natura 2000 is protected*" (The Conservation (Natural Habitats, &c.) Regulations 1994).

1.3.3 The four stages of the HRA process are as follows:

[4] Note that Scotland's nature agency, NatureScot, was known as Scottish Natural Heritage (SNH) prior to August 2020. Within this document, all references to the organisation in the text and documents cited are provided with the name appropriate to the time at which the document was published or communication received, however the organisations are one and the same.

- Stage One – Screening (should be undertaken in all cases).
- Stage Two – Appropriate Assessment.
- Stage Three – Alternative Solutions.
- Stage Four – Imperative Reasons of Overriding Public Importance (IROPI) and including, in certain circumstances, compensatory measures.

1.3.4 It should be noted that not all stages may be necessary in the HRA process. If the screening stage determines that a plan or project is unlikely to have significant effects on a European/Ramsar site, subsequent stages are not required.

Stage One: Screening

1.3.5 Screening identifies the potential effects on a European/Ramsar site from a project or plan, either alone or in combination with other projects or plans, and considers whether these effects are likely to be significant.

1.3.6 The screening assessment is a test of the 'likelihood' of effects occurring rather than a 'certainty' of effects occurring. Following the UK's departure from the European Union, rulings from the European Court of Justice remain in force as though made by the Supreme Court (NatureScot, 2022b). On that basis, in accordance with the Waddenzee Judgement (European Court of Justice case C-127/02), a likely significant effect is one that cannot be ruled out on the basis of objective information. This is underpinned by the precautionary principle which is enshrined in law in the Habitats Directive, and the test of something as being "*beyond reasonable scientific doubt*", as presented in the Waddenzee Judgement. Paragraph 49 of the same judgement adds *"…where a plan or project… is likely to undermine the site's conservation objectives, it must be considered likely to have a significant effect on that site. The assessment of that risk must be made in the light inter alia of the characteristics and specific environmental conditions of the site concerned by such a plan or project*". The Sweetman case (European Court of Justice C-258/11) reinforced and further refined the Waddenzee Judgement ruling that 'the question is simply whether the plan or project concerned is capable of having an effect. It is in that sense that the English 'likely to' should be understood.'

1.3.7 The People Over Wind Judgement (European Court of Justice C-323/17) (SNH, 2019) clarifies the stage in the HRA process when mitigation measures can be taken into account when assessing impacts on a European site. The ruling is that: "…*in order to determine whether it is necessary to carry out, subsequently, an appropriate assessment of the implications, for a site concerned, of a plan or project, it is not appropriate, at the screening stage, to take account of the measures intended to avoid or reduce the harmful effects of the plan or project on that site*."

Stage Two: Appropriate Assessment (AA)

1.3.8 If the Stage One Screening process determines that the project or plan (either solely or in combination) is associated with impacts which are likely to have a significant effect upon a European/Ramsar site, the HRA proceeds to Stage Two.

1.3.9 An AA considers the effect of the project or plan, either alone or in combination with other projects or plans, on the integrity of the European/Ramsar site, with respect to the site's structure and function, and its conservation objectives. Under the provisions of Article 48 of the Habitats Regulations the objective is to ascertain that the integrity of the site will not be adversely affected.

1.3.10 Site integrity is defined as "*the coherence of the site's ecological structure and function across its whole area, or the habitats, complex of habitats or populations of species for which the site is or will be classified*" (European Commission, 2000a). The decision as to whether a site is not adversely affected focuses on and is limited to the conservation objectives for the site (European Commission 2000a, 2018).

1.3.11 In carrying out an AA, mitigation measures, aimed at minimising or avoiding the negative effect of a plan or project during its operation or after its completion, may be considered as an integral part of the plan or project (European Commission 2000a, 2018). The Competent Authority has to be certain that the mitigation proposed would remove/avoid the negative effects of the plan or project. It must be clear, therefore, what the mitigation measures are, how they would reduce or avoid the effects, and the details of how and by whom they would be implemented/managed, and the timescale involved. In addition, the mitigation measures would require monitoring and enforcement, and procedures to rectify effects where measures have not been successful.

Stage Four: Imperative Reasons of Overriding Public Importance (IROPI)

1.3.12 Where no alternative solutions exist and where adverse effects remain, an assessment is undertaken of the IROPI to determine whether a project or plan should proceed. Where it is determined that there are IROPI it would be necessary to design, implement, manage and monitor compensation measures "*to offset the negative impact of a project and to provide compensation corresponding precisely to the negative effects*".

1.4 Guidance

1.4.1 In undertaking this HRA the following guidance was referred to:

- Assessing Connectivity with Special Protection Areas (SPAs) (SNH, 2016a);
- Habitats Regulations Appraisal (HRA) on the Firth of Forth: A Guide for developers and regulators (SNH, 2016b);
- Managing Natura 2000 Sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (European Commission, 2000a);
- Communication from the Commission on the Precautionary Principle (European Commission, 2000b);
- Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC (European Commission, 2001);

- Guidelines on the Implementation of the Birds and Habitats Directives in Estuaries and Coastal Zones with particular attention port development and dredging (European Commission, 2011);
- Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (European Commission, 2018);
- Habitats Regulations Appraisal of Plans: Guidance for Plan-making Bodies in Scotland, Version 3.0 January 2015 (David Tyldesley and Associates, 2015);
- NatureScot Website: Habitats Regulations Appraisal (HRA) (NatureScot, 2022c); and
- Policy Note on The Conservation (Natural Habitats, &c.) (EU Exit) (Scotland) (Amendment) Regulations 2019 (Scottish Government, 2019a).

1.5 Structure of this Report

1.5.1 This HRA fulfils the requirements of Article 48 of the Habitats Regulations and covers the first two stages of the HRA process: Stage One (Screening) and Stage Two (Appropriate Assessment). The other stages of the HRA process (Alternative Solutions or IROPI) are briefly described in Section 1.3 (The HRA Process). These stages are required under Article 49 of the Habitats Regulations where preliminary investigations reach negative conclusions and consent from the competent authority is still sought.

1.5.2 A screening assessment of the Proposed Works in combination with other plans and projects is provided in Section 5 (In-Combination Assessment).

1.5.3 Data used to inform the assessment is presented in Appendix B (Bird Data).

1.6 Desk Study and Consultation

1.6.1 This HRA is informed by Wetland Bird Survey (WeBS) data provided by the British Trust for Ornithology (BTO). In addition, existing relevant literature and data was reviewed to inform this assessment, including:

- Transport Scotland (2020a) A985 Kincardine Bridge Environmental Impact Assessment Report;
- Transport Scotland (2020b) A985 Kincardine Bridge Habitats Regulations Appraisal;
- Transport Scotland (2021a). A985 Kincardine Bridge -20/NSE/1203/020 Concrete & 20/NSE/1203/010 Steel Investigations. Habitats Regulations Appraisal; and
- Transport Scotland (2021b). A985 Kincardine Bridge Southern Piled Viaduct (SPV) Propping System Repairs. Habitats Regulations Appraisal.

1.6.2 During consultation on the SPV Propping System Repairs (Transport Scotland, 2021b), NatureScot confirmed that the advice provided to Transport Scotland on the Kincardine Bridge Piled Viaduct Replacement Scheme, and the mitigation proposed to be secured, could be ported directly across to inform the Marine Licence process, as appropriate. Consequently, the approach to assessment and mitigation follows that adopted for the A985 Kincardine Bridge Habitats Regulations Appraisal (Transport Scotland, 2020b).

1.6.3 A site visit was undertaken by NatureScot and BEAR Scotland staff on 1 February 2024. NatureScot advised the following in an email dated 6 March 2024, both in relation to the HRA and other general environmental issues:

- 'That as much of the works are undertaken from the overdeck and underdeck platform as possible as it minimises the disturbance to the saltmarsh surface and should help to simplify the HRA process.
- Should saltmarsh access be required, we recommend as much of the access track as possible is situated directly underneath the bridge, minimising the work area as much as safely possible.
- We are content with the current option of utilising concrete pipes to traverse the creeks within the saltmarsh as they are relatively easy to put in/take away and wouldn't contribute to any siltation/sedimentation, also allowing the water flow to be maintained.
- That if vehicles or plant are required, they are restricted to the access track and/or working platform – the dimensions of which would be useful to ascertain.
- The Saltmarsh Management Plan (SMP) is updated to accommodate the new maintenance works and continues to reflect the current intended restoration methods.
- That otter and possibly peregrine licenses are acquired if necessary, further to future surveying.
- It would be useful to have more information or data from CEH about their intended restoration methods and how this might look; we will also check our SMP involvement and contribute where necessary.'

1.6.4 NatureScot further provided a further response in an email dated 18 July 2024 (summarised below):

- In the absence of mitigation, Likely Significant Effect (LSE) could arise from:
  - Pollution in the form of run-off, siltation or arisings as a result of the proposed works, especially plant use and arisings as a result of the 50ft span concrete works;
  - Saltmarsh damage as a result of working methods during the 50ft span concrete works (Works Item 2);
  - Disturbance to the qualifying features in the form of noise, vibration or visual impact.
- With regard to works requiring saltmarsh access, a full, detailed methodology of the proposed works will be required within the formal HRA application in order for NatureScot to make a fully informed appraisal. Any further information relating to Works Item 2 will assist us in providing a clearer response. At this stage NatureScot recommend that the saltmarsh management plan (SMP) updates mentioned within section 5.3.5 are implemented and included as part of the formal HRA application.
- At present, the WeBS bird data within the draft HRA is sufficient to inform the HRA but would cease to be relevant in approximately winter 2025, close to the beginning of the draft HRA proposed works programme. We advise that all bird data procured should not exceed 5 years in age, or 3 years in age should any population show signs of rapid change, throughout the lifetime of the proposed works, in order to most accurately assess any potential changes in population.

1.6.5 A further response from NatureScot correspondence was received on 10 April 2025 summarised below:

- NatureScot advised that they were content with the inclusion of cofferdams as a working method connected to the piers to provide a safe/dry working area and did not believe that it raised any natural heritage issues which were not already addressed as part of the proposed mitigation.
- They also stated that as a result of the updated timescale for Works Item 2, they continued to expect that the works would continue to be carried out during the least sensitive period for the SPA qualifying interests (i.e. predominantly during summer) in line with what the HRA stated.
- NatureScot continue to advise that it will be necessary to consult them on updates to the Saltmarsh Management Plan before any changes in restoration methods are confirmed and before works commence. NatureScot strongly advised that this continues to be made clear within the final HRA.
- NatureScot also stated that the requirements and extent of Works Item 8 (Scour Maintenance) cannot currently be known at present until a bathymetric survey is undertaken. They advised that they were content with this level of detail provided that they will be consulted on the methodology of the works as they become known and/or clearer.
- They noted that Appendix B (Bird Data) had not been updated but they were content that this data would be updated as and when necessary.
- Finally NatureScot stated that they were "*generally content with the conclusions of the most recent draft of the HRA*."

2 The Proposed Works

2.1 Existing Conditions

2.1.1 The Kincardine Bridge crosses the Firth of Forth between Higgins Neuk in Falkirk Council area and the town of Kincardine in Fife Council area. It is located between approximate grid references NS 92012 86890 and NS 92858 87305. The bridge is currently used to carry the A985 trunk road over the Firth of Forth via a two-lane single carriageway road with a speed restriction of 30mph.

2.1.2 The Firth of Forth SPA, Ramsar site and Site of Special Scientific Interest (SSSI) cover the intertidal area and saltmarsh habitats within the footprint of, and adjacent to, the Proposed Works.

2.2 Programme of Works

2.2.1 The Programme of Works, including descriptions of the works is included in Appendix A. An overview of the Proposed Works is outlined in Table 1 below.

Table 1: Overview of Proposed Works

	Name of Works Item	Estimated Works Period	Estimated Duration/Timing and Working Arrangements
1	Miscellaneous Steelwork Repairs	2026 – 2028	• The expected duration is up to 2 years. • Traffic Management in the form of carriageway lane & footway closures will be required for this scheme (temporary overnight road closures might be required). • The commencement of these works will be programmed following the completion of the SPV Replacement Scheme. • These works will be carried out from an underdeck platform and it is anticipated that all works will be carried out during daytime (working hours to be confirmed). • No access to the saltmarsh is required; all works undertaken from bridge and underdeck platform.
2	50ft Span Concrete Repairs & Bearing Replacement	2025 – 2026	• The expected duration is up to 7 months. • Traffic Management in the form of carriageway lane & footway closures will be required for this scheme (temporary overnight road closures might be required). • It is proposed that the works will commence immediately after the SPV Replacement Scheme. Whilst this is BEAR's preferred intention it is dictated by budget availability from Transport Scotland in Financial Year 2025/26. • Access to the saltmarsh below structure will be required to repair concrete piers and crossbeams, in addition to use of an underdeck platform. Access to the saltmarsh below structure will also be required to localised areas for the bearing replacement works. A full deck refurbishment will commence prior to concrete repair and bearing replacement.
3	Replacement of Temporary Safety Barriers with Permanent Safety Barriers	2025 – 2028	• The expected duration is up to 2 months, over a 3-4 year period. • Traffic Management in the form of carriageway lane and footway closures will be required for this scheme. • Replacement works are likely to be carried out during summer/spring period as waterproofing and concreting works will be required. • The working hours are to be confirmed.

	Name of Works Item	Estimated Works Period	Estimated Duration/Timing and Working Arrangements
			• No access to the saltmarsh is required; all works to be undertaken from bridge. • Safety barrier work to coincide with refurbishment schemes along the length of the bridge.
4	Replacement of Bridge Drainage System	2025 – 2028	• The expected duration is up to 2 months, over a 3-4 year period. • This scheme will commence after the SPV Replacement Scheme and simultaneously with the refurbishment of the 50ft concrete spans and other sections of the bridge. • The working hours are to be confirmed. • No access to the saltmarsh is required.
5	Refurbishment of Timber Jetties	2027 – 2029	• The expected duration is up to 2 months. • This scheme is likely to be carried out anytime during the anticipated works period as it is not related to other work on the bridge. • Works will possibly be carried out from vessels with potential for underwater divers. • The working hours are to be confirmed. • No access to the saltmarsh is required; all works to be undertaken from the bridge and vessels (as required).
6	Re-Surfacing & Re-Waterproofing – Expansion Joint Replacement – Safety Barrier Replacement – Strengthening of Footway Cantilever Sections	2025 – 2028	• The expected duration is up to 5 months, over a 3-4 year period. • This scheme is be carried out after the SPV Replacement Scheme. • Temporary carriageway lane and footway closures will be required. Most of the activities linked to these works are likely to be carried out during summer months. • The working hours are to be confirmed. • No access to the saltmarsh is required; all works to be undertaken from the bridge.
7	Bridge Painting – All steel elements	2026 – 2028	• The expected duration is up to 2 years, over a 3-4 year period. • This scheme will be carried out after the SPV Replacement Scheme. • Temporary carriageway lane and footway closures will be required. • Most of the activities linked to these works are likely to be carried out during summer months.

	Name of Works Item	Estimated Works Period	Estimated Duration/Timing and Working Arrangements
			• Specialist underdeck access platform will be required. • The works would take place during the daytime (working hours to be confirmed). • No access to the saltmarsh is required; all works to be undertaken from the bridge and underdeck platform.
8	Scour Maintenance – Requirement and extent unknown until Bathymetric survey is carried out	2025 – 2028	• Scheme is subject to results of bathymetric survey. • It is anticipated the works will take up to 5 months to complete. • All work will be carried out during summer months from special vessels when water levels are low. • Working hours are to be confirmed. • No access to the saltmarsh is required; all works to be undertaken from vessels.
9	Installation of Navigation Lights	2026	• The expected duration for the proposed works is 2 weeks. • Temporary Northbound footway closures for material deliveries and installation of lighting units will be required. • All works will be carried during daytime working hours. • No access to the saltmarsh is required; all works to be undertaken from the bridge.
10	Asbestos Containing Material (ACM) Removal from the Swing Span	2025 -2028	• It is anticipated the removal of these material will be carried out across various phases. • The works are expected to commence summer 2025 and may take a few months to complete all removal of the works. • No access to the saltmarsh is required; all works to be undertaken from the bridge.
11	Decommissioning of unused elements	2025 – 2028	• It is anticipated the works will take up to 10 weeks, excluding installation/removal of temporary access arrangements. • No access to the saltmarsh is required; all works to be undertaken from the bridge.

Photograph 1: Steel Girders on the Underside of the Kincardine Bridge

Photograph 2: 50ft Concrete Spans on South Side of the Kincardine Bridge

Photograph 3: Existing Varioguard Barriers on the South Side of Kincardine Bridge

Photograph 4: SuDS Pond South East of Kincardine Bridge

Photograph 5: Timber Jetties on Kincardine Bridge

2.2.2 In addition to the maintenance schemes to be taken forward on the Kincardine Bridge, there are a number of smaller routine maintenance activities which are carried out on a regular basis. Marine Directorate has confirmed that routine (cyclic) maintenance activities are not marine licensable as they take place only on the bridge and there is no open connection between the work area and the marine environment.

3 Stage One (Screening)

3.1 Introduction

3.1.1 This section details the Stage One Screening of the HRA process, which comprises the following:

- determining whether the project or plan is directly connected with or necessary to the management of a European/Ramsar site;
- identifying the potential for effects on European/Ramsar sites; and
- assessing the significance of any potential effects on European/Ramsar sites.

3.1.2 Details of the Proposed Works are discussed in Section 2 (The Proposed Works) and other plans/projects that in combination have the potential for Likely Significant Effect (LSE) on European/Ramsar sites are discussed in Section 5 (In-Combination Assessment).

3.1.3 As stated in Section 1.1 (Background), the Proposed Works are not directly connected with or essential for the management of any European or Ramsar site.

3.2 European Sites with Potential Effects from the Proposed Works

3.2.1 Guidance dictates that all European/Ramsar sites which have the potential to be affected by a plan or project should be considered as part of the HRA process. For the assessment of the Proposed Works, relevant European and Ramsar sites were identified by looking for ecological connectivity and potential source-receptor pathways, and reference was made to the recent HRA undertaken for the Kincardine Bridge Piled Viaduct scheme (Transport Scotland, 2020a). Three sites were identified for consideration within the HRA screening assessment, namely:

- Firth of Forth SPA (NatureScot Site Code 8499, EU Site Code UK9004411);
- Firth of Forth Ramsar (NatureScot Site Code 8424, EU Site Code UK13017); and
- River Teith SAC (NatureScot Site Code 8367, EU Site Code UK0030263).

3.2.2 The location of these sites relative to the Kincardine Bridge is shown in Figure 1. For completeness, other designated sites not relevant to this assessment are shown greyed out on Figure 1 below.

3.2.3 Qualifying interests, conservation objectives and site vulnerabilities are presented in Table 2 below.

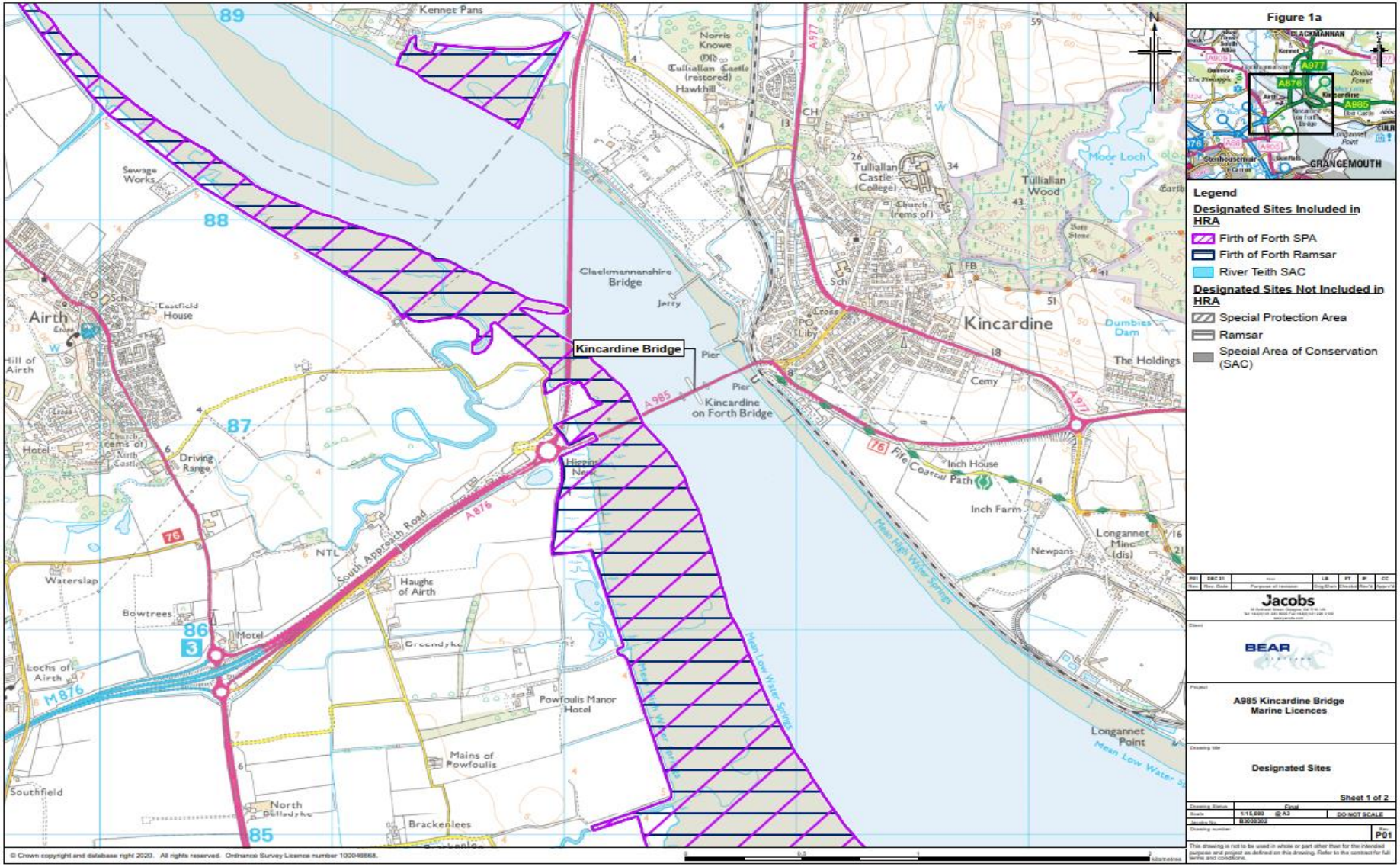

Figure 1 (Sheet 1 of 2)

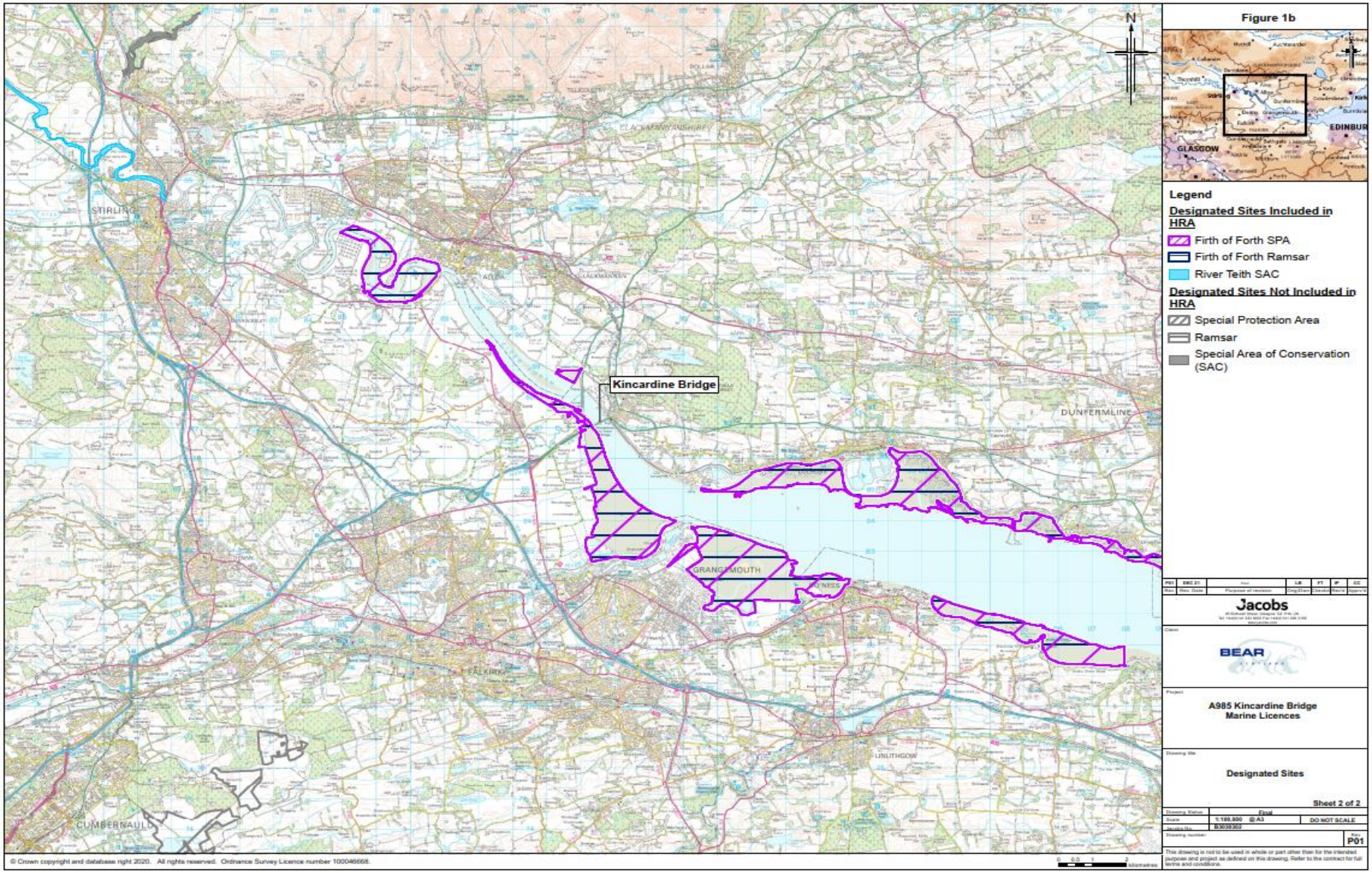

Figure 1 (Sheet 2 of 2)

Table 2: European and Ramsar Sites with Potential for LSEs from the Proposed Works

Area (ha)	Qualifying Interest	Conservation Objectives	Identified Feature Pressures (Scotland's Environment 2021)
UK9004411 / 8499 Firth of Forth SPA (NatureScot, 2022d)			
6317.93	The site qualifies under Article 4.1 of the Directive (79/409/EEC) by regularly supporting wintering populations of European importance of the following Annex 1 species: • Bar-tailed godwit (*Limosa lapponica*)*, non-breeding • Golden plover (*Pluvialis apricaria*)*, non-breeding • Slavonian grebe (*Podiceps auritus*)*, non-breeding • Red-throated diver (*Gavia stellata*)*, non-breeding • Sandwich tern (*Sterna sandvicensis*), passage The site qualifies under Article 4.2 of the Directive (79/409/EEC) by regularly supporting wintering populations of European importance of the following migratory species: • Knot (*Calidris canutus*)*, non-breeding • Pink-footed goose (*Anser brachyrhynchus*)*, non-breeding • Redshank (*Tringa totanus*)*, non-breeding • Shelduck (*Tadorna tadorna*)*, non-breeding • Turnstone (*Arenaria interpres*)*, non-breeding The site qualifies under Article 4.2 of the Directive (79/409/EEC) by regularly supporting a wintering waterfowl assemblage of national importance. Assemblage qualifying interests (all non-breeding): • Common scoter (*Melanitta nigra*) • Cormorant (*Phalacrocorax carbo*) • Curlew (*Numenius arquata*)	To avoid deterioration of the habitats of the qualifying interests or significant disturbance to the qualifying interests, thus ensuring that the integrity of the site is maintained; and To ensure for the qualifying interests that the following are maintained in the long term: • population of the species as a viable component of the site; • distribution of the species within site; • distribution and extent of habitats supporting the species; • structure, function and supporting processes of habitats supporting the species; and • no significant disturbance of the species.	• game/ fisheries management • recreation/ disturbance • water quality • climate change • natural event

Area (ha)	Qualifying Interest	Conservation Objectives	Identified Feature Pressures (Scotland's Environment 2021)
	• Dunlin (*Calidris alpina alpina*) • Eider (*Somateria mollissima*) • Goldeneye (*Bucephala clangula*) • Great crested grebe (*Podiceps cristatus*) • Grey plover (*Pluvialis squatarola*) • Lapwing (*Vanellus vanellus*) • Long-tailed duck (*Clangula hyemalis*) • Mallard (*Anas platyrhynchos*) • Oystercatcher (*Haematopus ostralegus*) • Red-breasted merganser (*Mergus serrator*) • Ringed plover (*Charadrius hiaticula*) • Scaup (*Aythya marila*) • Velvet scoter (*Melanitta fusca*) • Wigeon (*Mareca penelope*) (formerly *Anas penelope*)		
UK13017 / 8424 Firth of Forth Ramsar (NatureScot, 2022e; JNCC 2008)			
6317.93	The site qualifies under Ramsar criterion 2 for the following species: • Red-throated diver* • Golden plover* The site qualifies under Ramsar criterion 5 by regularly supporting waterbirds in numbers of 20000 or more. The site also qualifies under Ramsar Criterion 4 by supporting the following waterbird species at a critical stage in their life cycles: • Scaup	The Ramsar Convention's mission is '*the conservation and wise use of all wetlands through local and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world*'.	• game/ fisheries management • recreation/ disturbance • climate change • water quality

Area (ha)	Qualifying Interest	Conservation Objectives	Identified Feature Pressures (Scotland's Environment 2021)
	• Great crested grebe • Cormorant • Curlew • Eider • Long-tailed duck • Common scoter • Velvet scoter • Red-breaster merganser • Oystercatcher • Ringed plover • Grey plover • Dunlin And nationally important populations of the following species: • Mallard • Lapwing • Wigeon The site qualifies under Ramsar criterion 6 by regularly supporting 1% or more of the individuals in a population of waterbirds: • Pink-footed goose* • Shelduck* • Redshank* • Turnstone* • Slavonian grebe* • Goldeneye*		

Area (ha)	Qualifying Interest	Conservation Objectives	Identified Feature Pressures (Scotland's Environment 2021)
	• Knot* • Bar-tailed godwit* • Sandwich tern		
UK0030263 / 8367 River Teith SAC (NatureScot, 2022f)			
1289.33	The site is designated for the following qualifying interests: • Atlantic salmon (*Salmo salar*) • Brook lamprey (*Lampetra planeri*) • River lamprey (*Lampetra fluviatilis*) • Sea lamprey (*Petromyzon marinus*)	To avoid deterioration of the habitats of the qualifying interests or significant disturbance to the qualifying interests, thus ensuring that the integrity of the site is maintained; and To ensure for the qualifying interests that the following are maintained in the long term: • population of the species, including range of genetic types for salmon, as a viable component of the site; • distribution of the species within site; • distribution and extent of habitats supporting the species; • structure, function and supporting processes of habitats supporting the species; and • no significant disturbance of the species.	• forestry operation • invasive species • water quality • water management

*species also an assemblage qualifier.

3.3 Screening

3.3.1 The Proposed Works could result in LSEs which could directly or indirectly affect European/Ramsar sites.

3.3.2 The identification of LSEs on the European/Ramsar sites in terms of their conservation objectives from the Proposed Works considered:

- the potential for effects pathways to exist between the site and the Proposed Works;
- the ecological characteristics of the qualifying interests, taking into consideration the sites' conservation objectives; and
- potential for in-combination effects with other plans and projects (Section 5: In-combination Assessment).

3.3.3 Potential changes in water quality from pollution events (e.g. accidental spillage) during works have the potential to have an indirect effect on the Firth of Forth. Deterioration of intertidal habitat could degrade the feeding resource for bird species. For migratory fish species, increased siltation or a higher incidence of suspended solids could disrupt feeding behaviour, and increase of suspended solids or introduction of harmful chemicals could impact gill physiology and reduce oxygen uptake. However, best practice construction methods (CIRIA, 2015) will be implemented to protect the wider environment, including the use of appropriate pollution controls (i.e. Guidance for Pollution Prevention (GPPs)), such as a strict re-fuelling protocol and removal of all loose materials from the intertidal area. These measures are embedded in the construction methodology via the Site Environmental Management Plan (SEMP) and are a legal obligation to be employed irrespective of the European designation of the site; they are integrated into the Programme of Works presented in Appendix A. These embedded measures would avoid any water quality effects at source and are established and uncontroversial industry practice not specifically required to avoid LSE. Water quality effects are therefore not considered further in this HRA.

3.3.4 Table 3 provides the screening of European/Ramsar sites, recognising LSE from the Proposed Works where they have been identified.

3.3.5 A screening assessment of the Proposed Works in combination with other plans and projects is provided in Section 5 (In-Combination Assessment).

3.3.6 To inform the screening, survey and desk-study data (Appendix B: Bird Data) and the ecological characteristics of qualifying interests has been taken into account.

Table 3: Screening Assessment

Conservation Objectives	Connectivity to the Proposed Works	Qualifying Interests	Likely Significant Effects	Screening Conclusion
Firth of Forth SPA (NatureScot, 2022b)				
To avoid deterioration of the habitats of the qualifying interests or significant disturbance to the qualifying interests, thus ensuring that the integrity of the site is maintained; and To ensure for the qualifying interests that the following are maintained in the long term: • population of the species as a viable component of the site; • distribution of the species within site; • distribution and extent of habitats supporting the species; • structure, function and supporting processes of	The Kincardine Bridge is located directly above the Firth of Forth SPA. As such, the maintenance works described in Section 2.2 and Appendix A being undertaken from the bridge structure over the Marine Licence period have potential implications for the surrounding environment, including qualifying interests of the SPA.	• bar-tailed godwit*, non-breeding • golden plover*, non-breeding • knot*, non-breeding • pink-footed goose*, non-breeding • red-throated diver*, non-breeding • redshank*, non-breeding • Sandwich tern, passage • shelduck*, non-breeding • Slavonian grebe*, non-breeding • turnstone, non-breeding Waterfowl assemblage (non-breeding):	<u>Disturbance (Noise, Vibration and Visual)</u> The Proposed Works are scheduled to take place between 2025 and 2029. Works on and around the bridge in winter months (September-March) during this period have the potential to disturb qualifying interests of the SPA. Bar-tailed godwit, golden plover, knot, pink-footed goose, redshank and shelduck are all species associated with habitats within the inner Forth and have been recorded within the Kincardine Bridge area (Appendix B: Bird Data). These species in addition to assemblage qualifying interests found within the inner Forth, and Sandwich tern on passage, have the potential to be disturbed during the Proposed Works. Due to the nature of the Proposed Works, the impacts are likely to be very localised to the bridge and immediate adjacent area, and would only be experienced by a small number of individuals in close proximity to the bridge. Significant disturbances to qualifying interests as a result of the Proposed Works are considered to be unlikely; however, short-term disturbance of some qualifying interests could cause local displacement, which could result in additional energy expenditure and loss of condition. Night-time works, in particular, have the potential to cause significant disturbances to roosting qualifying interests near the bridge. Specifically, pink-footed geese have been recorded roosting in large numbers southeast of the bridge (Appendix B: Bird	LSEs identified. Requirement to progress to AA (HRA Stage Two).

Conservation Objectives	Connectivity to the Proposed Works	Qualifying Interests	Likely Significant Effects	Screening Conclusion
habitats supporting the species; and • no significant disturbance of the species.		• common scoter • cormorant • curlew • dunlin • eider • goldeneye • great crested grebe • grey plover • lapwing • long-tailed duck • mallard • oystercatcher • red-breasted merganser • ringed plover • scaup • velvet scoter • wigeon	Data). It is considered that LSE from the Proposed Works cannot be ruled out, in the absence of mitigation, for works during winter months.	
			<u>Habitat Loss/Damage</u> Most of the Proposed Works will be carried out from the bridge (via vessel or underdeck platform) and do not require access to the saltmarsh/intertidal area. For these activities, habitat loss and damage are not considered to be a likely effect. However, repairs to the 50ft Concrete Spans and Bearing Replacement (Work Item 2) will require access/working from the saltmarsh under and adjacent to the bridge. Working on the saltmarsh, particularly the use of vehicles and machinery could lead to compression of sediments which in turn could lead to natural geomorphic processes being compromised. As the 50ft Concrete Span repairs and Bearing Replacement will be undertaken after the SPV Replacement Scheme, the area of saltmarsh that will be utilised for access will already be damaged, however further access to this area could jeopardise recovery of the saltmarsh in-combination with the effects of the SPV Replacement Scheme. Furthermore, works within the intertidal habitats (saltmarsh) may result in localised fragmentation of habitat for qualifying interests of the SPA, especially those which rely on saltmarsh as their primary habitat type over winter.	LSEs identified. Requirement to progress to AA (HRA Stage Two).

Conservation Objectives	Connectivity to the Proposed Works	Qualifying Interests	Likely Significant Effects	Screening Conclusion
Firth of Forth Ramsar (NatureScot, 2022c)				
The Ramsar Convention's mission is 'the conservation and wise use of all wetlands through local and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world'. The site qualifies under Ramsar criterion 2 - A wetland should be considered internationally important if it supports vulnerable, endangered, or critically endangered species or threatened ecological communities. The site qualifies under Ramsar criterion 5 - A wetland should be	The Kincardine Bridge is located directly above the Firth of Forth Ramsar. As such, the maintenance works described in Section 2.2 and Appendix A being undertaken from the bridge structure over the one-year period have potential implications on the surrounding environment, including on qualifying interests of the Ramsar.	• red-throated diver* • golden plover* • scaup • great crested grebe • cormorant • curlew • eider • long-tailed duck • common scoter • velvet scoter • red-breaster merganser • oystercatcher • ringed plover • grey plover • dunlin • mallard • lapwing • wigeon • bar-tailed godwit*, nonbreeding • goldeneye*, non-breeding- • knot*, non-breeding • pink-footed	<u>Disturbance (Noise, Vibration and Visual)</u> The Proposed Works are scheduled to take place between 2025 and 2029. Works on and around the bridge in winter months (September-March) during this period have the potential to disturb qualifying interests of the Ramsar. Bar-tailed godwit, golden plover, knot, pink-footed goose, redshank and shelduck are all species associated with habitats within the inner Forth and have been recorded within the Kincardine Bridge area (Appendix B: Bird Data). These species in addition to assemblage qualifying interests found within the inner Forth, and Sandwich tern on passage, have the potential to be disturbed during the Proposed Works. Due to the nature of the Proposed Works, the impacts are likely to be very localised to the bridge and immediate adjacent area, and would only be experienced by a small number of individuals in close proximity to the bridge. Significant disturbances to qualifying interests as a result of the Proposed Works are considered to be unlikely; however, short-term disturbance of some qualifying interests could cause local displacement, which could result in additional energy expenditure and loss of condition. Night-time works, in particular have the potential to cause significant disturbances to roosting qualifying interests near the bridge. Specifically, pink-footed geese have been recorded roosting in large numbers southeast of the bridge (Appendix B: Bird	LSEs identified. Requirement to progress to AA (HRA Stage Two).

Conservation Objectives	Connectivity to the Proposed Works	Qualifying Interests	Likely Significant Effects	Screening Conclusion
considered internationally important if it regularly supports 20,000 or more waterbirds The site qualifies under Ramsar criterion 6 - A wetland should be considered internationally important if it regularly supports 1% of the individuals in a population of one species or subspecies of waterbird.		goose*, non-breeding • redshank*, non-breeding • Sandwich tern, passage • shelduck*, non-breeding • Slavonian grebe*, non-breeding • turnstone*, non-breeding • waterfowl assemblage, non-breeding	Data). It is considered that LSE from the Proposed Works cannot be ruled out, in the absence of mitigation, for works during winter months.	
			<u>Habitat Loss/Damage</u> Most of the Proposed Works will be carried out from the bridge (via vessel or underdeck platform) and do not require access to the saltmarsh/intertidal area. For these activities, habitat loss and damage are not considered to be a likely effect. However, repairs to the 50ft Concrete Spans and Bearing Replacement (Work Item 2) will require access/working from the saltmarsh under and adjacent to the bridge. Working on the saltmarsh, particularly the use of vehicles and machinery could lead to compression of sediments which in turn could lead to natural geomorphic processes being compromised. As the 50ft Concrete Span repairs and Bearing Replacement will be undertaken after the SPV Replacement Scheme, the area of saltmarsh that will be utilised for access will already be damaged, however further access to this area could jeopardise recovery of the saltmarsh in-combination with the effects of the SPV Replacement Scheme. Furthermore, works within the intertidal habitats (saltmarsh) may result in localised fragmentation of habitat for qualifying interests of the SPA, especially those which rely on saltmarsh as their primary habitat type over winter.	LSEs identified. Requirement to progress to AA (HRA Stage Two).

Conservation Objectives	Connectivity to the Proposed Works	Qualifying Interests	Likely Significant Effects	Screening Conclusion
River Teith SAC (NatureScot, 2022d)				
To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and To ensure for the qualifying species that the following are maintained in the long term: • population of the species, including range of genetic types for salmon, as a viable component of the site • distribution of the	Hydrologically connected to the Kincardine Bridge. The SAC is located approximately 20km upstream of the Proposed Works.	• Atlantic salmon • brook lamprey • river lamprey • sea lamprey	<u>Disturbance (Noise and Vibration)</u> The Proposed Works are located 20km downstream of the SAC, however sea and river lamprey and Atlantic salmon will migrate through the Firth of Forth. Brook lamprey are non-migratory and will not be affected by the works. Further information on the baseline conditions of the Forth and the migratory species present can be found in Chapter 8: Marine Ecology of the Kincardine Piled Viaduct EIA Report (Transport Scotland 2020a). The Proposed Works have the potential to cause disturbance. Anthropogenic noise and vibration is known to cause behavioural (avoidance) effects on fish. Furthermore, the refurbishment of the timber jetties and scour protection (Works Items 5 and 8) will require use of vessels and the scour protection works will involve heavy machinery and depositing rock armour within the River Forth. The use of lighting on the timber jetties or on vessels required for the works also has the potential to deter fish species from the immediate vicinity. These activities could disturb migratory fish resulting in additional energy expenditure, condition loss and delays in migration. <u>Mortality/Injury</u> Anthropogenic noise and vibration is known to cause physiological (barotrauma - tissue injury due to rapid changes in pressure) effects on fish, which could affect Atlantic salmon, river and sea lamprey as they migrate past the Proposed Works. However, neither Atlantic salmon or	LSEs identified. Requirement to progress to AA (HRA Stage Two).

Conservation Objectives	Connectivity to the Proposed Works	Qualifying Interests	Likely Significant Effects	Screening Conclusion
species within site • distribution and extent of habitats supporting the species • structure, function and supporting processes of habitats supporting the species • no significant disturbance of the species			lamprey species are considered to be particularly sensitive to these effects due to their physiology (Popper et al., 2014). In addition, effects of injury or mortality are primarily associated with extremely loud, impulsive activities such as piling or the use of explosives. None of the Proposed Works are anticipated to produce levels of noise or vibration that would result in injury or mortality of fish species. It is concluded that the Proposed Works will not result in LSE due to injury or mortality. <u>Habitat Fragmentation</u> No land-take from the SAC is required for the Proposed Works. Furthermore, there will be no direct loss or severance of supporting habitat for lamprey species or Atlantic salmon. The mudflats under and immediately adjacent to the bridge are narrow when compared to the extensive flats at Pow Burn, Kennet Pans and Skinflats and also the wider mudflats on the opposite northern bank. Although intertidal studies have shown that a number of fish species may use saltmarsh areas during particularly high spring tides (5.6m above chart datum or more), it is considered that the unfavourable conditions in the channel running under the Kincardine Bridge lead to the reduction in use of the saltmarsh by fish when compared to other saltmarsh habitat further up or downstream (Lyndon, Kingston and Moore 2000; Northern Ecological Services 2003). Indirect fragmentation of supporting habitat may occur as a result of disturbance (described above) deterring migratory fish from passing the works area.	

*species also an assemblage qualifier.

3.4 Screening Conclusion

3.4.1 The Proposed Works have the potential for LSEs, alone and in-combination, on Firth of Forth SPA, Firth of Forth Ramsar and River Teith SAC as identified from the screening in Table 3 and in Section 5 (In-combination Assessment) and therefore an Appropriate Assessment (HRA Stage Two) is required for all three of these sites.

4 Stage Two (Appropriate Assessment)

4.1 Introduction

4.1.1 This section forms the Stage Two (Appropriate Assessment (AA)) of the HRA process which was identified as required in Stage One (Screening). The AA considers the effect of the project or plan, either alone or in combination with other projects or plans, on the integrity of the European/Ramsar sites, with respect to the sites' structure and function, and their conservation objectives.

4.1.2 This HRA examines the implications from the Proposed Works for the conservation objectives of two sites based on the LSE identified in Stage One (Screening) and where applicable details the measures required to protect the conservation objectives and integrity of these sites.

4.1.3 Information on the distribution and abundance of bird species within the Firth of Forth was compiled through the sources identified in Section 1.6 above. Note that data collected by Jacobs as part of the SPV Replacement Scheme between 2017-2018 (Transport Scotland, 2020a, 2020b), and data collected during recent maintenance works on the bridge (October to December 2021), have been used to supplement the available BTO Wetland Bird Survey (WeBS) data where appropriate. The dataset is considered to remain relevant due to the fact that the habitats in the vicinity of the bridges are largely unchanged and the survey data date range overlaps with the WeBS five year count period which is 2015/2016 to 2019/2020. Whilst the dataset is valid for the purpose of informing the AA, any significant changes to the baseline should be reviewed. Monitoring of birds using the area around the Kincardine Bridge has been undertaken as part of the Kincardine SPV Replacement Scheme (Transport Scotland, 2020a, 2020b) and relevant data has been made available to BEAR Scotland.

4.1.4 It should be noted that within the WeBS methodology, counting of gulls and terns is optional. As such it is noted that the WeBS data may not be a true reflection of the abundance of these species. With the use of supplementary data from Kincardine Southern Piled Viaduct scheme however, it is considered that a robust assessment can be made.

4.1.5 In addition, new WeBs data will be obtained in early 2025 to compare to the previously obtained data and the 2023/2024 2024/2025 SPV Replacement Scheme survey data. This will ensure that the assumptions and conclusions regarding bird distribution and abundance in the Firth of Forth, in the vicinity of the Proposed Works, remain valid.

4.2 Firth of Forth SPA and Ramsar Site

4.2.1 Conservation objectives of the Firth of Forth SPA are detailed in Table 2 above.

4.2.2 Ramsar sites do not have specific conservation objectives however the aim of the Ramsar designation is to facilitate conservation of wetland habitat and populations of wildlife supported. Further, it is Scottish Government policy to apply the same level of protection

for Ramsar sites as is applied for Special Protection Areas classified under the EU Birds Directive and therefore the same objectives for SACs and SPAs are applicable (Scottish Government, 2019b). The Firth of Forth SPA and Ramsar site occupy the same area and share considerable overlap in the species listed as qualifying species, with all specified qualifying interests of the Ramsar also being qualifying interests of the SPA. The conservation objectives for the SPA include avoiding significant disturbance to the qualifying interests and are considered to be an appropriate proxy for the Ramsar. As such, the assessment of the effects will be against the Firth of Forth SPA's conservation objectives. It is considered, based on the above similarities between the two sites, that the assessment can be undertaken parallel and captured within the same commentary text in Table 4 to 6.

4.2.3 Two LSEs (from the Proposed Works along, and in combination with other plans and projects) were identified at Stage One (Screening) that might compromise the conservation objectives of the Firth of Forth SPA and Ramsar site and cause an adverse effect on site integrity (AESI), namely disturbance (noise, vibration, and visual) and habitat loss/damage (temporary).

Likely Significant Effect: Disturbance

4.2.4 Noise and visual disturbance (short-term) associated with the Proposed Works has the potential to disturb qualifying bird species of the SPA and Ramsar site that utilise habitats within and adjacent to the works area. This could lead to displacement of birds from areas used for foraging, loafing and roosting, and subsequently additional energy expenditure and loss of condition. Based on baseline data and ecological characteristics of the qualifying interests it is considered that the following species have the potential to experience disturbance from the Proposed Works: bar-tailed godwit, golden plover, sandwich tern, knot, pink-footed goose, redshank, shelduck, as well as assemblage qualifying species that rely on habitats adjacent to the bridge.

4.2.5 Noisy activities associated with the Proposed Works are expected to include concrete breaking, welding, hammers and site generators. Noisy activities are typically defined as any construction activity that would result in an increase of ≥3dB(A) in the ambient noise level (dBLAeq).

4.2.6 For wetland birds, generally auditory disturbance of more than 70dB(A) (as experienced by the bird) has the potential to elicit a high level disturbance effect (Cutts et al., 2013). However, variation in species' tolerance, the nature of the disturbance (for example sudden/gradual, intermittent/continuous) and the level of background noise can determine the behavioural response of birds to noise disturbance. Noise from some activities that are required as part of the Proposed Works are expected to be greater than 70dB at source, for example the power generator noise level is approximately 85-90dB at source, and percussive noise from hand-tools may generate similar or lesser sound levels. However, attenuation can be achieved over a relatively short distance (Diagram 2). It is therefore likely that any potential for significant disturbance from noise will be limited to birds within close proximity of the works area, with the distance at which this occurs varying by species (Cutts et al., 2013).

4.2.7 Visual stimuli can elicit a high-level disturbance response from wetland birds before noise starts, however as with noise disturbances, there is interspecies variation. Roost sites can be particularly susceptible to visual disturbance as a flight response from one individual can cause all birds to be flushed from the area despite some species having a higher tolerance threshold (Cutts et. al., 2013). It is considered that any activity within 300m, that is visible to birds, could cause disturbance. Visual disturbance caused by the Proposed Works is more likely to cause significant disturbance to the qualifying interests of the SPA and Ramsar than noise disturbance, however noise and visual stimuli are likely to be concurrent during the Proposed Works.

Metres from Source	dB(A)										
0.67	120	110	100	95	90	85	80	75	70	65	60
1.33	114	104	94	89	84	79	74	69	64	59	54
2.67	108	98	88	83	78	73	68	63	58	53	48
5.33	102	92	82	77	72	67	62	57	52	47	42
10.67	96	86	76	71	66	61	56	51	46	41	36
20.67	90	80	70	65	60	55	50	45	40	35	30
42.67	84	74	64	59	54	49	44	39	34	29	24
85.33	78	68	58	53	48	43	38	33	28	23	
170.67	72	62	52	47	42	37	32	27	22		
341.33	66	56	46	41	36	31	26	21			
682.66	60	50	40	35	30	25	20				
1365.32	54	44	34	49	24						

Diagram 2: Standard Distance Decay Rates for Noise from Source (Cutts et al., 2013)

Likely Significant Effect: Habitat Loss/Damage

4.2.8 The Proposed Works will require working from and access to the saltmarsh under and adjacent to the bridge, specifically for the 50ft Concrete Span repairs and Bearing Replacement (Work Item 2). These works have the potential to result in temporary loss of saltmarsh habitat. This habitat will not be available to the qualifying bird species of the Firth of Forth SPA and Ramsar site during the works. This may lead to localised habitat fragmentation and displacement of individuals. Due to compression of the sediments under the working areas, the ground level will be lowered, leading to the natural geomorphic processes being compromised. This may affect the long-term natural recovery of the saltmarsh in this location.

4.2.9 The area of saltmarsh that will be used to facilitate access for the 50ft Concrete Span repairs and Bearing Replacement (Work Item 2) is very small and will be limited to the area under the Kincardine Bridge and immediately adjacent area. Therefore, the temporary loss of this habitat during the works is likely to be negligible in relation to the available intertidal habitat within the Firth of Forth.

4.2.10 The SPV Replacement Scheme resulted in temporary loss of saltmarsh habitat for the duration of the construction of the scheme (24 months). Mitigation for the scheme, as detailed within the HRA and EIA Report (Transport Scotland, 2020ab) includes the development and implementation of a saltmarsh management plan which will detail measures to reduce damage and encourage the recovery of the saltmarsh, including a

period of post-construction monitoring. The habitat recovery at Kincardine will require the introduction of structures to aid the natural accretion of sediments. Once these structures are in situ access to the saltmarsh will be restricted to allow the natural re-colonisation of the area. Monitoring should continue until stable saltmarsh communities have developed. The repairs to the 50ft spans and Bearing Replacement will require access to this area of saltmarsh, therefore there is a potential significant in-combination effect between the Proposed Works and the scheme (see Section 5). Timing the Proposed Works to be undertaken immediately after the SPV Replacement Scheme is essential to ensure that the saltmarsh recovery is not jeopardised within the scope of the saltmarsh management plan for the SPV Replacement Scheme. Should that timing not be achievable, the saltmarsh management plan would require to be further developed in consultation with NatureScot.

Mitigation

4.2.11 Mitigation measures aimed at avoiding or reducing the effects of the Proposed Works in order to avoid adverse effects on site integrity are detailed below and summarised in Table 4 to Table 6. Mitigation detailed below is based on mitigation proposed for the following schemes:

- A985 Kincardine Bridge Refurbishment: Piled Viaduct Replacement Scheme (Transport Scotland 2020b);
- A985 Kincardine Bridge 20/NSE/1203/020 Concrete & 20/NSE/1203/010 Steel Investigations (Transport Scotland, 2021a);
- A985 Kincardine Bridge Southern Piled Viaduct (SPV) Propping System Repairs (Re-packing) (Transport Scotland 2021b); and
- A985 Kincardine Bridge – Maintenance Schemes (Initial Marine Licence) (Transport Scotland, 2023).

4.2.12 As part of the Contractor's legal obligations to be employed irrespective of any European site designations, they will adhere to a SEMP, which will detail the mitigation to be implemented and how this will be monitored. The SEMP will include best practice construction methods (CIRIA, 2015) will be used including the use of appropriate pollution controls (i.e. GPPs) and removal of all loose materials from the intertidal area.

4.2.13 A suitably qualified Ecological Clerk of Works (ECoW) will be appointed by the Contractor. The ECoW will:

- provide ecological support to the Contractor during the Proposed Works and ensure the ecological mitigation within the SEMP is adhered to;
- supervise and advise on the placement of noise and visual screens around the compound;
- be present on site during daytime maintenance works over winter to observe birds' reactions to the Proposed Works to identify if there is significant disturbance[5]. The ECoW will also be present on site at dusk between

[5] For the avoidance of doubt, "significant disturbance" is defined for the purposes of this assessment as a change in behaviour of >10% of any species of birds present resulting in their displacement by more than 300m in response to human activity. Specifically, for pink-footed

September and March to observe birds' reactions to the Proposed Works to identify if there is significant disturbance and to stop works if required, and to understand the impact on pink-footed geese roosting adjacent to the Kincardine Bridge. Full time ECoW presence is unlikely to be required (determined by the nature of the works and ecological data), however site presence will be required for noisy/more disturbing activities. Advice will be sought from an ecologist prior to the works on the requirement for ECoW presence. If significant disturbance is identified, works will cease and appropriate mitigation will be proposed and discussed with NatureScot. Further mitigation could include: extending the "soft-start" process (see 4.2.21 below); amendments to lighting plans (see 4.2.17 below); and use of additional screening (see 4.2.20 below); and

- record and report on their findings for audit purposes and inform the Contractor of any amendments required to working methods.

4.2.14 The footprint of the working areas will be minimised as far as possible and vehicles, plant and personnel will be constrained to this area through the use of temporary barriers to minimise the damage/disturbance to habitats located within and adjacent to this footprint. The working area for the Proposed Works will comprise the bridge structure itself, an area under the bridge required to facilitate the 50ft concrete span repairs and Bearing Replacement (Works Item 2) and within the Firth of Forth adjacent to the swing span for works to the jetties and central piers (Works Items 5 and 8). As much of the works should be undertaken from the overdeck and underdeck platform as possible to minimise disturbance to the saltmarsh surface.

4.2.15 Vessels required for the works should adhere strictly to the speed limits implemented by Forth Ports for the Firth of Forth. When vessels are moored or anchored the engines should be shut off to reduce noise disturbance.

4.2.16 Any works which require access to the saltmarsh under the bridge will be programmed to commence immediately after the SPV Replacement Scheme completion, prior to the implementation of the saltmarsh recovery measures, to ensure the long-term recovery of the saltmarsh is not impacted. As the SPV Replacement Scheme temporary working platform will be decommissioned prior to the Proposed Works, any further access track and working areas on the saltmarsh will be created through use of geotextile mats. This will prevent construction materials sinking into, and machinery/vehicles compacting the saltmarsh. Should saltmarsh access be required, as much of the access track as possible should be situated directly underneath the bridge, minimising the work area as much as safely possible. Any vehicles or plant required will be restricted to the access track and/or working platform.

4.2.17 The Proposed Works, specifically on the southern spans, will be timed, as far as practicable, to avoid peak times when qualifying interests are present, specifically undertaking as much of the work as practicable outwith the winter period (September to March).

4.2.18 The Contractor will provide a construction lighting plan and method statement detailing the specific mitigation requirements with regards to lighting during the Proposed Works.

geese, a significant disturbance activity is considered an activity that prevents any geese coming into roost or results in any geese taking flight from the roost.

Mitigation will include, but will not be limited to measures to avoid light spill/reflections and avoidance of white-blue spectrum and high UV emitting lighting, to protect qualifying interests roosting adjacent to the bridge. Published guidance on lighting (e.g. Institution of Lighting Professionals (2011), The Royal Commission on Environmental Pollution (2009) and Bat Conservation Trust and Institution of Lighting Professionals (2021)) will be adhered to. The lighting design will be developed specifically to prevent illuminating sensitive bird habitats adjacent to the bridge, particularly to the southeast of the piers where large numbers of pink-footed geese were recorded roosting during surveys (see Appendix B: Bird Data). Where this is not possible the Contractor will agree any exceptions with the ECoW.

4.2.19 To reduce disturbance to roosting pink-footed geese, working during the hours of darkness during September to March will be avoided as far as practicable. Standard construction hours will be 08:00-17:00 (Monday to Friday), with exceptions for certain activities. Some working during the hours of darkness will likely be unavoidable during winter. Lighting management will be detailed within a construction lighting plan, as discussed above.

4.2.20 If any works coincide with severe winter weather (i.e. Alert Level 3 as defined by the Met Office as mean daily temperature of less 2°C and/or widespread ice and heavy snow (Met Office, 2021)), works will cease in order to protect roosting birds (particularly pink-footed geese) from additional physiological stress during harsh winter conditions. Working methods should be agreed with the ECoW before the works recommence.

4.2.21 Screening of at least 2m in height (such as Heras Readyhoard or Steelhoard Screening fences (Heras, 2022)) will be provided between the works and the coastal area throughout winter. Where possible, and as agreed by the ECoW, screens will be positioned around working areas, including ancillary works/plant, to reduce the visual disturbance caused by operatives, plant and vehicles. Screens will be in place to mitigate against visual disturbance from the works primarily, but also provide some sound attenuation to limit noise disturbance. The screening should be checked by the ECoW prior to, and during, the works to ensure that the screening is appropriately placed.

4.2.22 “Soft-start” techniques to all noisy activities will be employed to avoid sudden and unexpected disturbances during construction. Each time the activity is started up after a period of inactivity, the noise levels will be gradually increased over a period of 30 minutes to allow birds (and other animals) to move away from the disturbance. Where a sudden, unexpected noise is generated by the Proposed Works, such as a tool being dropped from height, works will cease temporarily to allow birds to resettle and alternative working methods will be employed, if needed, to avoid the risk of sudden unexpected noises reoccurring (see 4.2.23).

4.2.23 On completion of the works all access tracks and working platforms will be removed in their entirety from the saltmarsh. There will be no materials stored on the saltmarsh or below Mean High Water Springs (MHWS) during the works.

4.2.24 In addition to visual screens during winter (as discussed in 4.5.20 above), wherever feasible and relevant to do so (due to potential pollution, dropping of tools, or other

disturbance), appropriate mitigation measures will be employed during the Proposed Works to: provide a degree of visual screening; to contain the works and prevent any materials or tools dropped from falling onto areas below the bridge; and to contain waste arisings such as dust and paint flakes. Where relevant, appropriate mitigation will be developed on a scheme-by-scheme basis, and consultation from specialist contractors and ecologists, and may include but not be limited to measures such as: full encapsulation of the works area, use of tool tethers, installation of boarding, netting, and sheeting, etc. As specified in paragraph 4.2.12, the ECoW will be responsible for ensuring any additional appropriate mitigation measures are implemented and will undertake monitoring of birds' responses to ensure the efficacy of such measures. Consultation with NatureScot will be undertaken in the development of these additional measures.

Table 4: HRA Stage Two (AA) Assessment Table for Firth of Forth SPA/Ramsar Non-breeding Species

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
Disturbance (noise, vibration and visual)	To avoid deterioration of the habitats of the qualifying interests or significant disturbance to the qualifying interests, thus ensuring that the integrity of the site is maintained; and To ensure for the qualifying interests that the following are maintained in the long term: • distribution of the species within site • no	Works during winter (September-March) have the potential to cause disturbance to all qualifying interests within the SPA/Ramsar which utilise habitats adjacent to the Kincardine Bridge. It is considered that noise, vibration and visual disturbance related to the Proposed Works could deter qualifying interests from feeding, loafing and roosting within the intertidal mudflats and saltmarsh adjacent to the bridge. <u>Bar-tailed godwit</u> Surveys by Jacobs in 2017-2018 for the SPV Replacement Scheme (Appendix B: Bird Data) indicate that bar-tailed godwits utilise the mudflats adjacent to the Kincardine Bridge, on the southern side of the estuary with a peak of 17 recorded in November 2017. This coincides with the peak in seasonality trends for bar-tailed godwit in the Firth of Forth (SNH 2016b), however, this peak count represents only 0.9% of the total SPA population. The peak count of bar-tailed godwit from five years of WeBS counts was 26 in October 2016 (Appendix B: Bird Data). Furthermore, recent observations during maintenance works on the bridge recorded small numbers (peak of 10) bar-tailed godwit in December 2021 (Appendix B: Bird Data). This data indicates that bar-tailed godwit utilise other areas within the SPA to a larger degree and that habitats in proximity of the Kincardine	The following avoidance/mitigation measures will be undertaken to ensure the conservation objectives are not compromised: • The Contractor will adhere to a SEMP which will detail the mitigation to be implemented and how this will be monitored. • A suitably qualified ECoW will be appointed by the Contractor and will be on site, undertake surveys and provide advice during the Proposed Works. • The footprint of the working area will be minimised as far as possible and vehicles, equipment/machinery and personnel will be constrained to this area through the use of temporary barriers. • Vessels required for the works will adhere strictly to the speed limits and when moored or anchored the engines will be shut off to reduce noise disturbance.	No adverse effect on site integrity

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
	significant disturbance of the species	Bridge are not key for this species over winter. Bar-tailed godwit are relatively sensitive to disturbance compared to other waders (SNH 2016b), although they habituate to works rapidly (Cutts et al., 2013). Disturbance leading to displacement due to noise and visual stimuli during the Proposed Works could occur, however based on the small numbers of bar-tailed godwit observations within proximity of the Kincardine Bridge and the wider WeBS sector, the number of individuals likely to be impacted is likely to be very low. If individual bar-tailed godwits are disturbed, this would be a short-term localised displacement, with birds redistributing to other areas within the Firth of Forth SPA; there is alternative suitable habitat within the estuary for bar-tailed godwit to feed and roost. Displacement out of the SPA is not predicted given the availability of alternative habitat. Therefore, any disturbance caused by the works is unlikely to result in significant disturbance to bar-tailed godwit or change their distribution within the SPA. Therefore, LSE on bar-tailed godwit resulting from disturbance will not compromise the conservation objectives. <u>Golden plover</u> Surveys undertaken by Jacobs (Appendix B: Bird Data) recorded golden plover on the saltmarsh adjacent to the	• Timing works on the southern spans, as far as practicable, to avoid peak times when qualifying interests are present (September to March). • Working during hours of darkness during September to March will be avoided to prevent disturbance to roosting geese as far as practicable. • A construction lighting plan and method statement will be provided by the Contractor. • Provision of visual screening between the works and the coastal area throughout winter. • Ceasing works in winter during severe weather. • Use of screening around the compound and works area, where possible to mitigate for visual disturbance. • Use “soft-start” techniques to avoid sudden and unexpected disturbance. Temporarily cease works after sudden unexpected noises, and employ alternative working methods to avoid risk of reoccurrence.	

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
		Kincardine Bridge, on the southern side of the estuary. However this species was only recorded on two occasions during the survey period, indicating infrequent use of the habitats within the area adjacent to the bridge. A peak count of 65 roosting golden plover was made in October 2017 which represents 2% of the total SPA population of golden plover. Furthermore, the peak count of golden plover from five years of WeBS counts was 61 in October 2016, however the mean peak is only 12 individuals which results from very low or nil counts over the other winters within the five year period (Appendix B: Bird Data). In addition, no golden plover were recorded during recent maintenance works on the bridge (Appendix B: Bird Data). These data indicate that golden plover generally utilise other areas within the SPA to a larger degree and that the habitats in proximity of the Kincardine Bridge are not key for this species over winter. Golden plover tends to exhibit more tolerance to disturbance than other waders (SNH, 2016b) and as there is already disturbance at the site there may be a level of habituation exhibited by individuals of the species. If golden plover are disturbed, this would be a short-term localised displacement, with birds redistributing to other areas within the Firth of Forth SPA; displacement out of the SPA is not predicted given the availability of alternative habitat, and evident preference for alternative		

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
		sites based on low counts within the area. Therefore, LSE on golden plover resulting from disturbance will not compromise the conservation objectives. <u>Knot</u> Surveys by Jacobs for the SPV Replacement Scheme (Appendix B: Bird Data) indicated that knot utilise the mudflats adjacent to the Kincardine Bridge, on the southern side of the estuary, however this species was only recorded infrequently with a peak count of seven birds in March 2018. This suggests that there are other areas within the SPA favoured by knot during the winter. The peak count of knot from five years of WeBS counts was 455 in October 2016, however the mean peak is only 92 individuals which results from very low or nil counts over the other winters within the five year period (Appendix B: Bird Data). Additionally, no knot were recorded during recent maintenance works on the bridge (Appendix B: Bird Data). These data indicate that knot generally utilise other areas within the SPA to a larger degree and that the habitats in proximity of the Kincardine Bridge and the wider WeBS sector are not key for this species over winter. Knot is sensitive to disturbance (SNH 2016b) which could mean that disturbance caused by the Proposed Works could deter knot from the Kincardine Bridge area.		

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
		However, notably knot is primarily sensitive to disturbance at roost sites, and considered to be relatively tolerant to visual disturbance, including people, and habituates to works rapidly (Cutts et al., 2013). Furthermore, knot carry out widespread movements within the Forth Estuary and exhibit little site fidelity during the winter months (Pienkowski and Clark, 1979). Therefore, whilst knot may occasionally utilise areas adjacent to the bridge, the transient nature of this species and fact that disturbed birds are likely to be able re-distribute to other areas within the Firth of Forth means adverse effects on the conservation objectives of the SPA are not predicted. Therefore, LSE on knot resulting from disturbance will not compromise the conservation objectives. <u>Redshank</u> Surveys by Jacobs for the SPV Replacement Scheme (Appendix B: Bird Data) indicated that redshank utilise the mudflats adjacent to the Kincardine Bridge, on both sides of the estuary. More redshank were recorded in the winter months with a peak count from surveys of 120 made in October 2017. This represents 3% of the SPA population (estimated to be 3,700 individuals). The peak count of redshank from five years of WeBS counts was 1,522 in December 2019, and the mean peak over the five years is 1,273 (Appendix B: Bird Data). These counts are		

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
		notably greater than those recorded during the surveys by Jacobs, however this is attributable to the difference in sizes of the study areas (the WeBS sector is approximately seven times the size of the Jacobs study area). The WeBS sector also encompasses the large mudflat expanse at Skinflats which offers key feeding habitat for redshank. In addition, during recent maintenance works, redshank were recorded daily loafing and feeding on the mudflat and saltmarsh on the south side of the Firth of Forth (Appendix B: Bird Data). Redshank rely on small prey and require a longer feeding time than other waders. This makes them susceptible to disturbance in harsh winters as this can affect the amount of time they have to build up resources (SNH 2016b). If redshank are disturbed, it is likely that this would be a short-term localised displacement, with birds redistributing to other areas within the Firth of Forth SPA; displacement out of the SPA is not predicted given the availability of alternative habitat. However, as data shows redshank do use areas around the bridge, and in the absence of mitigation, disturbance to redshank could compromise the conservation objectives. <u>Pink-footed goose</u> Surveys by Jacobs for the SPV Replacement Scheme (see Appendix B: Bird Data) recorded pink-footed geese		

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
		in large numbers over winter with peak counts during March and October, which corresponds with the seasonal trend for this species in the Firth of Forth (SNH 2016b). Pink-footed geese were observed roosting on the mudflats and saltmarsh on the downstream side of the bridge during the goose roost surveys, with many remaining to feed during the day whilst others left the roost site. This area is considered to represent an important roost site for pink-footed geese over winter, with the peak number identified through surveys as roosting (1,755 roosting geese in March 2018) representing 14% of the SPA population of pink-footed geese (estimated to be 12,400 individuals). The five year annual peak count for pink footed goose within the WeBS sector was 5,750 in November 2015, with the mean peak recorded as 3,440 individuals. Furthermore, a peak count of 1,834 geese was made on 13 October 2021 during recent surveys for maintenance works on the bridge (Appendix B: Bird Data). This data indicates that habitats within the Kincardine area are important for this species over winter. Noise and site presence, including lighting, during the Proposed Works has the potential to alter the species distribution within the SPA/Ramsar site as well as causing significant disturbance.		

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
		Shelduck Surveys by Jacobs for the SPV Replacement Scheme (Appendix B: Bird Data) indicated that shelduck utilise the mudflats and saltmarsh adjacent to the Kincardine Bridge more frequently in the spring and summer months, with the peak count of 680 individuals recorded in July 2017 in the mudflats to the east of the Kincardine Bridge. A winter peak count of 31 shelduck was recorded during the surveys, which indicates that this species may use other areas within the Firth of Forth during winter to a greater degree. The winter peak count only represents 0.7% of the SPA population. Notably, the late summer moulting flock around Grangemouth (approximately 3km downstream of the Kincardine Bridge) is one of the three largest in Britain (SNH 2016b). The WeBS data corroborates this with annual peak counts in September each year with a mean peak of 905 individuals. Furthermore, observations of only small numbers of shelduck were made during recent maintenance works on the bridge (Appendix B: Bird Data). It is considered that any noise, vibration and visual stimuli arising from the works is unlikely to result in significant disturbance to shelduck or change their distribution within the SPA based on the data for the area near Kincardine Bridge and the wider WeBS sector. Therefore, LSE on shelduck resulting from disturbance will not compromise		

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
		the conservation objectives. <u>Goldeneye</u> Goldeneye rely predominantly on open water habitats and are found most often in the outer Forth (SNH 2016b). Surveys undertaken by Jacobs (Appendix B: Bird Data) recorded very few goldeneye in the vicinity of the Kincardine Bridge, and WeBS data recorded a five-year mean peak of only 7 in the survey sector. Furthermore, only one observation of goldeneye (2 individuals) was made during recent maintenance works on the bridge (Appendix B: Bird Data). Any disturbance caused by the works is unlikely to result in significant disturbance to goldeneye or change their distribution within the SPA, therefore the conservation objectives will not be compromised. <u>Red-throated diver</u> Red-throated diver are predominantly a marine species, occurring on sheltered inshore waters, and in the largest numbers are in the outer Firth of Forth (SNH, 2016b). They are scarce within the inner Forth. No observations of red-throated diver were made during Jacobs surveys in 2017-2018 for the SPV Replacement Scheme (Appendix B: Bird Data), and only a small number of records were identified in the WeBS data where a five year peak count of 3 was recorded in October 2017, and only single		

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
		counts recorded in other years. Additionally, no red-throated diver were recorded during recent maintenance works on the bridge (Appendix B: Bird Data). Based on survey data from the Kincardine Bridge area and in the wider WeBS sector, disturbance caused by the works is unlikely to result in significant disturbance to red-throated diver or change their distribution within the SPA, therefore the conservation objectives will not be compromised. <u>Slavonian grebe</u> The presence of Slavonian grebe within the inner Forth is considered rare, and even within outer areas of the Forth is considered uncommon and found only locally (SNH, 2016b). Only one Slavonian grebe was recorded in the WeBS sector over the five year period in September 2019, and Jacobs survey data recorded no observations of this species. Additionally, no Slavonian grebe were recorded during recent maintenance works on the bridge (Appendix B: Bird Data). In winter they are predominantly a marine species, preferring sheltered open water sites. They are most regularly found between Musselburgh and Gullane on the south side of the Forth, and in Largo Bay in Fife. As such, disturbance to this species is unlikely and no impacts on Slavonian grebe in terms of distribution and extent of supporting habitat is expected.		

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
		Any disturbance caused by the Proposed Works is unlikely to result in significant disturbance to Slavonian grebe or change their distribution within the SPA, therefore the conservation objectives will not be compromised. <u>Turnstone</u> Turnstone are considered scarce within the inner Forth (SNH, 2016b). The species was recorded in low numbers in the WeBS sector, with a peak count of 4 in December 2016, and was not recorded adjacent to the Kincardine Bridge during the Jacobs surveys in 2017-2018 for the SPV Replacement Scheme. Additionally, no turnstone were recorded during recent maintenance works on the bridge (Appendix B: Bird Data). Turnstone are not particularly sensitive to disturbance compared to other wader species (SNH, 2016b), however they exhibit a high degree of fidelity to wintering and migration sites between and within estuaries during the winter (Cramp and Simmons, 1983). If feeding turnstone were displaced, it would likely be limited to a small number of birds within very close proximity of the works area only, and indeed turnstone have been found to forage within 10m of plant (Cutts et al., 2013). Furthermore, this species also has a very wide diet, including invertebrates and carrion, found in habitat types		

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
		present throughout the SPA such as rocky shores, mudflats, sandy shores and on tide wrack. As such, disturbance to this species is unlikely and no impacts on turnstone in terms of distribution and extent of supporting habitat is expected. Any disturbance caused by the works is unlikely to result in significant disturbance to turnstone or change their distribution within the SPA, therefore the conservation objectives will not be compromised.		
Habitat loss	To avoid deterioration of the habitats of the qualifying interests or significant disturbance to the qualifying interests, thus ensuring that the integrity of the site is maintained; and To ensure for the qualifying interests that the following	Screening identified that qualifying interests that rely of intertidal habitats could be impacted by the temporary loss of intertidal habitat as a result of the Proposed Works. <u>Bar-tailed godwit</u> It is considered that the area of habitat temporarily lost would be negligible given the amount of remaining habitat available for bar-tailed godwit. Furthermore, surveys by Jacobs (Appendix B: Bird Data) indicated that bar-tailed godwits, although shown to utilise the mudflats adjacent to the Kincardine Bridge, do not appear to favour the area for foraging during the winter with a peak of 17 recorded in November 2017 representing only 0.7% of the SPA population. Furthermore, recent observations during maintenance works on the bridge recorded small numbers (peak of 10) bar-tailed godwit in December 2021 (Appendix B: Bird Data).	To ensure the conservation objectives are not compromised as a result of saltmarsh loss during the Proposed Works, the following avoidance/mitigation measures will be undertaken to prevent a change in the distribution of qualifying interests and to protect the structure and function of the habitats that support them: • The Contractor will adhere to a SEMP which will detail the mitigation to be implemented and how this will be monitored. • A suitably qualified ECoW will be appointed by the Contractor and will be on site, undertake surveys and provide advice	No adverse effect on site integrity

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
	are maintained in the long term: • distribution of the species within site • distribution and extent of habitats supporting the species • structure, function and supporting processes of habitats supporting the species	The habitats within the study area are not considered to be functionally important for bar-tailed godwit therefore there are no likely long term changes to the extent of habitats within the SPA that support this species. Furthermore, the temporary loss of habitat is unlikely to result in changes to the distribution of bar-tailed godwit within the SPA. Therefore, LSE on bar-tailed godwit resulting from the temporary loss of habitat will not compromise the conservation objectives. <u>Golden plover</u> Surveys undertaken by Jacobs (Appendix B: Bird Data) indicated that golden plover utilise the saltmarsh adjacent to the Kincardine Bridge, on the southern side of the estuary, however this species was only recorded on two occasions during the survey period and only on the saltmarsh downstream of the Kincardine Bridge. A monthly peak count of 65 golden plover was made in October 2017, all of which were roosting on the saltmarsh. This represents the winter peak count for this species. Furthermore, the peak count of golden plover from five years of WeBS counts was 61 in October 2016, however the mean peak is only 12 individuals which results from very low or nil counts over the other winters within the five year period (Appendix B: Bird Data). These data indicate that golden plover generally utilise other areas within the SPA to a larger degree and that the	during the Proposed Works. • The footprint of the working area will be minimised as far as possible and vehicles, equipment/machinery and personnel will be constrained to this area through the use of temporary barriers. • Any works which require access to the saltmarsh under the bridge will be programmed to commence immediately after the SPV Replacement Scheme completion to ensure the long-term recovery of the saltmarsh is not impacted. • Any access tracks and working platforms on the saltmarsh will be created through use of geotextile matting. • On completion of the works all access tracks and materials will be removed in their entirety from the saltmarsh.	

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
		habitats in proximity of the Kincardine Bridge are not key for this species over winter. In addition, no golden plover were recorded during recent maintenance works on the bridge (Appendix B: Bird Data). This suggests that there are other areas within the SPA/Ramsar site favoured by golden plover during the winter and that the area around Kincardine Bridge is not an integral supporting habitat for this species. Therefore, LSE on golden plover resulting from the temporary loss of habitat will not compromise the conservation objectives. <u>Knot</u> Loss of saltmarsh habitat during the construction phase could deter knot from the area, however this is unlikely to have a significant effect on the distribution of knot within the SPA/Ramsar site given that other habitat within the sites are more favoured by knot, evidenced by low numbers of knot recorded during surveys with a peak count of 7 birds recorded in March 2017 (Appendix B: Bird Data). The peak count of knot from five years of WeBS counts was 455 in October 2016, however the mean peak is only 92 individuals which results from very low or nil counts over the other winters within the five year period (Appendix B: Bird Data). Additionally, no knot were recorded during recent maintenance works on the bridge (Appendix B: Bird Data). This data further indicates that knot generally utilise other areas within the SPA to a		

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
		larger degree and that the habitats in proximity of the Kincardine Bridge and the wider WeBS sector are not key for this species over winter. Therefore, LSE on knot resulting from the temporary loss of habitat will not compromise the conservation objectives. <u>Redshank</u> Surveys by Jacobs (Appendix B: Bird Data) indicated that redshank utilise the mudflats adjacent to the Kincardine Bridge, on the on both side of the estuary. In addition, during recent maintenance works, redshank were recorded daily loafing and feeding on the mudflat and saltmarsh on the south side of the Firth of Forth (Appendix B: Bird Data). Loss of saltmarsh habitat during the construction phase could deter redshank from feeding, loafing and roosting within the area. However, redshank is considered to be widespread and numerous within the inner and outer Forth (SNH, 2016b) which suggests there is available habitat for redshank outwith the works area, and the large mudflat expanse at Skinflats is considered to offer key feeding habitat for redshank. Therefore, there are no likely long term changes to the extent of habitats within the SPA that support this species. Furthermore, the temporary loss of habitat is unlikely to result in changes to the distribution of redshank within the SPA. Therefore, LSE on redshank resulting from the temporary loss of habitat will not		

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
		compromise the conservation objectives. <u>Pink-footed goose</u> The temporary loss of saltmarsh could deter pink-footed geese from feeding, loafing and roosting within the area, however, the majority of roosting records from the Jacobs surveys in 2017-2018 for the SPV Replacement Scheme, and those for the recent maintenance works, for pink-footed geese were from the area downstream side of the bridge (Appendix B: Bird Data), and this area will not be directly impacted by the Proposed Works. Therefore, there are no likely long term changes to the extent of habitats within the SPA that support this species. Furthermore, the temporary loss of habitat is unlikely to result in changes to the distribution of pink-footed goose within the SPA. Therefore, LSE on pink-footed goose resulting from the temporary loss of habitat will not compromise the conservation objectives. <u>Shelduck</u> Loss of saltmarsh habitat during the construction phase could deter shelduck from feeding, loafing and roosting within the area. However, shelduck are considered to be widespread and numerous within the inner Forth (SNH 2016b) which suggests there is available habitat for shelduck outwith the works area. The saltmarsh habitat at Kincardine Bridge is not considered to be important		

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
		supporting habitat for shelduck within the SPA/Ramsar. Furthermore, survey data (Appendix B:Bird Surveys) indicates a winter peak count of 31 shelduck at Kincardine which represents 0.7% of the SPA population, and observations of only small numbers of shelduck were made during recent maintenance works on the bridge (Appendix B: Bird Data). Therefore, there are no likely long term changes to the extent of habitats within the SPA that support this species. Furthermore, the temporary loss of habitat is unlikely to result in changes to the distribution of shelduck within the SPA. Therefore, LSE on shelduck resulting from the temporary loss of habitat will not compromise the conservation objectives. <u>Goldeneye</u> Goldeneye do not rely on saltmarsh as a key habitat (SNH 2016b), and appear to use other mudflats within the SPA, evidenced by limited records of this species within the area of the Kincardine Bridge (see Appendix B: Bird Data). Therefore, there are no likely long term changes to the extent of habitats within the SPA that support this species. Furthermore, the temporary loss of habitat is unlikely to result in changes to the distribution of goldeneye within the SPA. Therefore, LSE on goldeneye resulting from the temporary loss of habitat will not compromise the conservation objectives.		

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
		<u>Red-throated diver</u> Red-throated diver is a predominately marine species and does not rely on saltmarsh and mudflat habitats which represent the dominant habitats around the Proposed Works. No loss of habitat used by these qualifying interests will result from the Proposed Works. Therefore, LSE on red-throated diver resulting from the temporary loss of habitat will not compromise the conservation objectives. <u>Slavonian grebe</u> Slavonian grebe is predominately marine species and does not rely on saltmarsh and mudflat habitats which represent the dominant habitats around the Proposed Works. No loss of habitat used by these qualifying interests will result from the Proposed Works. Therefore, LSE on Slavonian grebe resulting from the temporary loss of habitat will not compromise the conservation objectives. <u>Turnstone</u> Turnstone are considered scarce within the inner Forth (SNH, 2016b) and was recorded in low numbers in the WeBS sector, with a peak count of 4 in December 2016, and was not recorded adjacent to the Kincardine Bridge during the Jacobs surveys in 2017-2018 for the SPV Replacement Scheme or the recent maintenance works		

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
		in 2021. Loss of saltmarsh habitat during the construction phase could deter turnstone from the area, however this is unlikely to have a significant effect on the distribution of this species within the SPA/Ramsar site given that other habitat within the sites are more favoured by turnstone. Therefore, LSE on turnstone resulting from the temporary loss of habitat will not compromise the conservation objectives for the species.		

Table 5: HRA Stage Two (AA) Assessment Table for Passage Species

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
Disturbance (Noise, Vibration and Visual)	To avoid deterioration of the habitats of the qualifying interests or significant disturbance to the qualifying interests, thus ensuring that the integrity of the site is maintained; and To ensure for the qualifying interests that the following are maintained in the long term: • distribution of the species within site • no significant disturbance of the	Screening identified the potential for disturbance to Sandwich tern from the Proposed Works based on the high-level review of the survey data and ecological requirements for Sandwich tern. Noise and visual disturbance related to Proposed Works could deter Sandwich tern from the area for feeding in the open water adjacent to the site. Surveys by Jacobs (Appendix B: Bird Data) recorded Sandwich tern in the summer months with a total of 15 records over the surveys period. A peak count of 45 terns was recorded in August 2017 which corresponds with the seasonality trend for the Firth of Forth (SNH 2016b). The five year annual peak for Sandwich tern from the WeBS sector is 15 in September 2017 and other peak counts over the five year period were all from September which similarly corresponds with this trend. Most records of Sandwich tern from Jacobs surveys in 2017-2018 for the SPV Replacement Scheme pertained to small groups of tern flying over the site and correspond with early passage activity and records were concentrated on the south side of the estuary. No records of Sandwich tern feeding within the area around Kincardine Bridge were made; however, it is considered likely that the area could be used for feeding as other diving birds including	Although there is a LSE identified for Sandwich tern it is precautionary and it is concluded that no specific mitigation is required for Sandwich tern with regard to disturbance impacts. It is considered that the mitigation measures in place to protect other qualifying interests will further reduce any effects on Sandwich tern. The following avoidance/mitigation measures will be implemented: • The Contractor will adhere to a SEMP which will detail the mitigation to be implemented and how this will be monitored. • A suitably qualified ECoW will be appointed by the Contractor and will be on site, undertake surveys and provide advice during the Proposed Works. • Timing works on the southern	No adverse effect on site integrity

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
	species	cormorants were observed feeding within the estuary. However, Sandwich tern are uncommon in the inner Forth (SNH 2016b) and as such are unlikely to rely on the estuary at Kincardine, favouring other areas within the Firth of Forth for feeding. Therefore, LSE on Sandwich tern resulting from disturbance will not compromise the conservation objectives.	spans, as far as practicable, to avoid peak times when qualifying interests are present (September to March). • Vessels required for the works will adhere strictly to the speed limits and when moored or anchored the engines will be shut off to reduce noise disturbance. • A construction lighting plan and method statement will be provided by the Contractor. • Use of screening around the compound and works area, where possible to mitigate for visual disturbance. • Use “soft-start” techniques to avoid sudden and unexpected disturbance.	
Habitat loss	To avoid deterioration of the habitats of the qualifying interests or significant	Sandwich tern rely on open water habitat predominately, are most regularly found within the marine environment and are uncommon in the inner Forth (SNH 2016b). Use of boat/vessels to facilitate the Proposed Works (specifically works on the timber jetties and scour protection (Works Items 5 and 8) will require work in open	No mitigation is required.	No adverse effect on site integrity

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
	disturbance to the qualifying interests, thus ensuring that the integrity of the site is maintained; and To ensure for the qualifying interests that the following are maintained in the long term: • distribution of the species within site • distribution and extent of habitats supporting the species • structure, function and supporting processes of habitats supporting	water habitats, however no open water habitat will be lost during the Proposed Works and no impacts to Sandwich tern in terms of distribution and extent of supporting habitat is expected. Therefore, LSE on Sandwich tern resulting from habitat loss will not compromise the conservation objectives.		

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
	the species			

Table 6: HRA Stage Two (AA) Assessment Table for Waterfowl and Wader Assemblages

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
Disturbance (Noise, Vibration and Visual)	To avoid deterioration of the habitats of the qualifying interests or significant disturbance to the qualifying interests, thus ensuring that the integrity of the site is maintained; and To ensure for the qualifying interests that the following are maintained in the long	As the Proposed Works are located within, and adjacent to, the Firth of Forth SPA and Ramsar, it is considered that there is potential for disturbance to all waders and waterfowl which rely on habitats within the Kincardine area. Noise, vibration and visual disturbance related to the Proposed Works could deter qualifying interests from feeding, loafing and roosting within the intertidal mudflats and saltmarsh adjacent to the bridge. Note that all species named are part of the waterfowl assemblage for the Firth of Forth SPA only, with the exception of goldeneye, which is an assemblage qualifier for both the SPA and Ramsar. The following assemblage qualifying interests were recorded during Jacobs surveys in 2017-2018 for the SPV Replacement Scheme and/or for the maintenance works in 2021 (Appendix B: Bird Data): • common scoter • cormorant • curlew • dunlin	It is considered that due to the ecological requirements and distribution of species within the Firth of Forth SPA that many of the assemblage qualifying interests are unlikely to be disturbed by the works; however, a small number of qualifying interests that comprise the assemblages may be disturbed. To ensure that the conservation objectives are not compromised, the following avoidance/mitigation measures will be undertaken. The measures will be undertaken to prevent significant disturbance to, or a change in the distribution of, waterbirds within the sites: • The Contractor will adhere to a SEMP which will detail the	No adverse effect on site integrity

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
	term: • distribution of the species within site • no significant disturbance of the species	• eider • great crested grebe • grey plover • lapwing • mallard • oystercatcher • red-breasted merganser • ringed plover • wigeon The following species were also recorded in small numbers within the WeBS sector (Appendix B: Bird Data): • cormorant • curlew • dunlin • eider • goldeneye • great crested grebe • grey plover • lapwing • long-tailed duck • mallard • oystercatcher • red-breasted merganser • ringed plover • scaup • wigeon	mitigation to be implemented and how this will be monitored. • A suitably qualified ECoW will be appointed by the Contractor and will be on site, undertake surveys and provide advice during the Proposed Works. • The footprint of the working area will be minimised as far as possible and vehicles, equipment/machinery and personnel will be constrained to this area through the use of temporary barriers. • Vessels required for the works will adhere strictly to the speed limits and when moored or anchored the engines will be shut off to reduce noise disturbance. • Timing works on the southern spans, as far as practicable, to avoid peak times when qualifying interests are present (September to	

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
		The following commentary relates to qualifying interests not already discussed as individually cited species in Table 4 and 6 above. All survey data referred to is presented in Appendix B: Bird Data. <u>Common Scoter</u> Common scoter was recorded once during the surveys in 2017-2018, loafing in the estuary on the southern side of the bridge. This single record indicates that common scoter rarely utilise the estuary near Kincardine. Therefore, LSE on common scoter resulting from disturbance will not compromise the conservation objectives. <u>Cormorant</u> During Jacobs surveys in 2017-2018 for the SPV Replacement Scheme, cormorant was recorded fishing within the estuary and were frequently recorded in groups loafing on the saltmarsh and mudflats drying their wings over winter. A peak of 31 birds in winter (recorded during 2017-2018 surveys) represents 4% of the SPA population. The five year peak count for cormorant in the WeBS sector is 80 in September 2019, with the mean peak over the five years being 46. Furthermore, cormorant was recorded during maintenance works on the bridge, frequently recorded loafing on the saltmarsh and mudflats. The Firth of Forth offers good foraging for this species, and there is suitable available habitat within the SPA for cormorant. It is	March). • A construction lighting plan and method statement will be provided by the Contractor. • Provision of visual screening between the works and the coastal area throughout winter. • Ceasing works in winter during severe weather. • Use of screening around the compound and works area, where possible to mitigate for visual disturbance. • Use “soft-start” techniques to avoid sudden and unexpected disturbance. Temporarily cease works after sudden unexpected noises, and employ alternative working methods to avoid risk of reoccurrence.	

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
		considered that any disturbance caused by the works is unlikely to result in significant disturbance to cormorant or change their distribution within the SPA based on the data for the area near Kincardine Bridge and the wider WeBS sector. Therefore, LSE on cormorant resulting from disturbance will not compromise the conservation objectives. <u>Curlew</u> Curlew was recorded in larger numbers over the winter during Jacobs surveys in 2017-2018 for the SPV Replacement Scheme, with a peak of 290 in February 2018, showing preference for the mudflats and estuarine habitats within the southern survey sectors. This peak represent 15% of the SPA population. The five year peak count for curlew in the WeBS sector is 586 in February 2016, with the mean peak over the five years being 481. Furthermore, during recent maintenance works a peak count of 29 birds was recorded in October 2021 and curlew was recorded on a daily basis by the ECoW. If curlew are disturbed, it is likely that this would be a short-term localised displacement, with birds redistributing to other areas within the Firth of Forth SPA; displacement out of the SPA is not predicted given the availability of alternative habitat. However, as data shows curlew do use areas around the bridge, and in the absence of mitigation, disturbance to curlew could compromise the conservation		

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
		objectives. <u>Dunlin</u> A small number or records of dunlin were made during the Jacobs surveys in 2017 for the SPV Replacement Scheme. A monthly peak count of 25 dunlin was recorded on 7 November 2017, loafing on mudflats south of the bridge. This peak count also represents the winter peak count for this species from these surveys. Similarly during recent maintenance works on the bridge, dunlin were also only recorded in low numbers on the mudflats on the southern side of the river. The five year peak count for dunlin in the WeBS sector is 1025 in October 2017, with the mean peak over the five years being 722. The data indicates that dunlin show preferences for areas within the SPA outwith the Kincardine Bridge area. However, as this species has been recorded in the area, and uses habitats adjacent to the works, there is the potential for disturbance to dunlin as a result of the Proposed Works. Therefore, as data shows dunlin do use areas around the bridge and the wider area, and in the absence of mitigation, disturbance to dunlin could compromise the conservation objectives. <u>Oystercatcher</u> Oystercatcher was recorded regularly over winter and summer during the Jacobs surveys in 2017-2018 for the SPV Replacement Scheme, and peak count of 113		

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
		oystercatcher was recorded on 1 February 2018. This peak represents 1% of the SPA population. The five year peak count for oystercatcher in the WeBS sector is 195 in February 2020, with the mean peak over the five years being 144. Furthermore, large flocks were observed feeding, calling, and in flight, on the mudflats and estuarine habitats within the southern survey sectors during recent maintenance works on the bridge in 2021. If oystercatcher are disturbed, it is likely that this would be a short-term localised displacement, with birds redistributing to other areas within the Firth of Forth SPA; displacement out of the SPA is not predicted given the availability of alternative habitat. However, as data shows oystercatcher do use areas around the bridge, and in the absence of mitigation, disturbance to oystercatcher could compromise the conservation objectives. <u>Eider</u> Records of eider were made in summer 2017 during Jacobs surveys for the SPV Replacement Scheme on both sides of the bridge. A monthly peak count of four eider was made in April 2017 and no winter observations of eider were made during the surveys. The five year peak count for eider in the WeBS sector is 6 in November 2019, with the mean peak over the five years being 4. No eider were recorded during recent maintenance works on the bridge in 2021. Based on survey data from the Kincardine Bridge		

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
		area and in the wider WeBS sector, disturbance caused by the works is unlikely to result in significant disturbance to eider or change their distribution within the SPA, therefore the conservation objectives will not be compromised. <u>Great crested grebe</u> The five year peak count for great crested grebe in the WeBS sector is 8 in December 2018, with the mean peak over the five years being 3. Great crested grebe were not recorded during Jacobs surveys in 2017-2018 for the SPV Replacement Scheme, however one observation of great crested grebe was made during recent maintenance works on the bridge in 2021. Based on survey data from the Kincardine Bridge area and in the wider WeBS sector, disturbance caused by the works is unlikely to result in significant disturbance to great crested grebe or change their distribution within the SPA, therefore the conservation objectives will not be compromised. <u>Grey plover</u> The five year peak count for grey plover in the WeBS sector is 16 in October 2016, with the mean peak over the five years being 5. Grey plover were not recorded during Jacobs surveys in 2017-2018 for the SPV Replacement Scheme, however one observation of grey plover was made during recent maintenance works on the bridge in 2021. Based on survey data from the Kincardine Bridge		

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
		area and in the wider WeBS sector, disturbance caused by the works is unlikely to result in significant disturbance to grey plover or change their distribution within the SPA, therefore the conservation objectives will not be compromised. <u>Lapwing</u> The five year peak count for lapwing in the WeBS sector is 523 in November 2018, with the mean peak over the five years being 468. A peak count of 27 flying lapwing was recorded on 12 October 2017 during Jacobs surveys for the SPV Replacement Scheme, however this flock was not observed on land within the survey area. During the maintenance works in 2021 large flocks were observed feeding, calling, and in flight, on the mudflats and estuarine habitats on the south side of the river. A peak count during this survey period of 100 birds was recorded in October 2021. Lapwing have been recorded to use the habitats adjacent in the area, however, based on survey data from the Kincardine Bridge area and in the wider WeBS sector, disturbance caused by the works is unlikely to result in significant disturbance to lapwing or change their distribution within the SPA, therefore the conservation objectives will not be compromised. <u>Mallard</u> Mallard was recorded across the survey area during		

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
		Jacobs surveys in 2017-2018 for the SPV Replacement Scheme and showed no obvious preference to the northern or southern survey sectors. A monthly peak count of 90 was recorded in September 2017 which represents 4% of the SPA population. Similarly mallard were recorded daily during maintenance works in 2021 on the water and on the south side of the bridge. The five year peak count for mallard in the WeBS sector is 148 in January 2017, with the mean peak over the five years being 102. Mallard have been recorded to use the habitats adjacent in the area, however, based on survey data from the Kincardine Bridge area and in the wider WeBS sector, disturbance caused by the works is unlikely to result in significant disturbance to mallard or change their distribution within the SPA, therefore the conservation objectives will not be compromised. <u>Long-tailed duck</u> The five year peak count for long-tailed duck in the WeBS sector is 1 in October 2016 and November 2018. Very low counts of this species result in a mean peak count of <1 over the five years. This species was not recorded during Jacobs surveys in 2017-2018 for the SPV Replacement Scheme, or more recently in 2021 during maintenance works on the bridge. Based on survey data from the Kincardine Bridge area and in the wider WeBS sector, disturbance caused by the works is unlikely to result in		

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
		significant disturbance to long-tailed duck or change their distribution within the SPA, the conservation objectives will not be compromised. <u>Red-breasted merganser</u> A peak count of red-breasted merganser was recorded in July 2017, February 2018 and April 2018 during Jacobs surveys for the SPV Replacement Scheme. This species was more frequently recorded during the spring/summer months. The five year peak count for red-breasted merganser in the WeBS sector is 35 in December 2018, with the mean peak over the five years being 23. Recent observations during maintenance works in 2021 show small numbers of this species on the water close to the bridge. Based on survey data from the Kincardine Bridge area and in the wider WeBS sector, disturbance caused by the works is unlikely to result in significant disturbance to red-breasted merganser or change their distribution within the SPA, the conservation objectives will not be compromised. <u>Ringed plover</u> The five year peak count for ringed plover in the WeBS sector is 2 in October 2015 and September 2017, with the mean peak over the five years being 1. Only one record of this species was made in May 2017 during the Jacobs surveys for the SPV Replacement Scheme, and no		

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
		observations were made in 2021 during maintenance works on the bridge. Based on survey data from the Kincardine Bridge area and in the wider WeBS sector, disturbance caused by the works is unlikely to result in significant disturbance to ringed plover or change their distribution within the SPA, the conservation objectives will not be compromised. <u>Scaup</u> The five year peak count for scaup in the WeBS sector is 2 in October 2017 and September 2017, with the mean peak over the five years being 1. This species was not recorded during Jacobs surveys in 2017-2108 for the SPV Replacement Scheme, and no observations were made in 2021 during maintenance works on the bridge. Based on survey data from the Kincardine Bridge area and in the wider WeBS sector, disturbance caused by the works is unlikely to result in significant disturbance to scaup or change their distribution within the SPA, the conservation objectives will not be compromised. <u>Wigeon</u> Wigeon was frequently recorded during the Jacobs surveys in 2017-2018 for the SPV Replacement Scheme, specifically in the southern sectors of the survey area. A monthly peak count of 136 wigeon recorded in February 2018 which represents 6% of the SPA population.		

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
		Similarly, observations made during recent maintenance works in 2021 show wigeon recorded in flocks up to 80 individuals on the water and edge of the mudflats during the works. The five year peak count for wigeon in the WeBS sector is 241 in December 2017, with the mean peak over the five years being 221. Wigeon flocks, if disturbed, may not return immediately which can affect their ability to forage if ongoing disturbance occurs (SNH 2016). It is considered that there is suitable available habitat within the Firth of Forth to forage away from disturbance, therefore if wigeon are disturbed it would be a short-term localised displacement, with birds redistributing to other areas within the Firth of Forth SPA. Therefore, LSE on wigeon resulting from disturbance will not compromise the conservation objectives. Qualifying interests, for which the LSE resulting from disturbance will not compromise the conservation objectives for the species are common scoter, eider, great crested grebe, grey plover, long-tailed duck, red-breasted merganser, red-throated diver, Slavonian grebe, turnstone and scaup as these species either rely predominately on open water habitats or are found in the outer Forth (SNH 2016b). This assessment is corroborated by the Jacobs survey data and WeBS data; common scoter, eider and red-breasted merganser were recorded in low numbers (or nil counts) during the surveys (Appendix B: Bird Data).		

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
Habitat loss	To avoid deterioration of the habitats of the qualifying interests or significant disturbance to the qualifying interests, thus ensuring that the integrity of the site is maintained; and To ensure for the qualifying interests that the following are maintained in the long term: • distribution of the species within site • distribution and extent	The Proposed Works will require temporary access/working within the saltmarsh which will result in temporary loss of this habitat available to qualifying interests of the SPA/Ramsar site. Results from Jacobs surveys and WeBS surveys indicate that several assemblage qualifying interests use the habitats around Kincardine Bridge over the winter, including features already discussed above. The following assemblage qualifying interests were recorded during the surveys using the saltmarsh at Kincardine (Appendix B: Bird Data): • cormorant • curlew • dunlin • lapwing • mallard • oystercatcher • ringed plover • wigeon Loss of habitat could have an impact on all species with the exception of those that rely predominately on open water habitats and those that are found in the outer Forth (noted previously), although there is available habitat for all species throughout the Firth of Forth.	To ensure that the conservation objectives are not compromised, the following avoidance/mitigation measures will be undertaken. The measures will prevent a change in the distribution of waterbirds and protect habitats which support the waterbird assemblages: • The Contractor will adhere to a SEMP which will detail the mitigation to be implemented and how this will be monitored. • A suitably qualified ECoW will be appointed by the Contractor and will be on site, undertake surveys and provide advice during the Proposed Works. • The footprint of the working area will be minimised as far as possible and vehicles, equipment/machinery and personnel will be constrained to this area through the use of temporary barriers.	No adverse effect on site integrity

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
	of habitats supporting the species • structure, function and supporting processes of habitats supporting the species		• Any works which require access to the saltmarsh under the bridge will be programmed to commence immediately after the SPV Replacement Scheme completion to ensure the long-term recovery of the saltmarsh is not impacted. • Any access tracks and working platforms on the saltmarsh will be created through use of geotextile matting. • On completion of the works all access tracks and materials will be removed in their entirety from the saltmarsh.	

4.3 River Teith SAC

4.3.1 Conservation objectives of the River Teith SAC are detailed in Table 2 above.

4.3.2 While the SAC is 20km upstream of the Proposed Works, three of the four qualifying fish species of the SAC are anadromous (Atlantic salmon, river lamprey and sea lamprey), meaning that they migrate from freshwater out to sea as juveniles and then make the reverse journey from coastal areas into freshwater as adults to spawn. The migratory periods for these species in the Forth Estuary are shown in Diagram 3. Brook lamprey are an entirely freshwater species and therefore will not be affected by the Proposed Works. As such this species is not considered further in the assessment.

4.3.3 The requirement for some of the QIs of the SAC to migrate through the Forth Estuary has resulted in identification of two LSEs that might compromise the conservation objectives of the SAC, namely disturbance and habitat fragmentation.

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Sea lamprey (adults)												
Sea lamprey (juv.)												
River lamprey (adults)												
River lamprey (juv.)												
Atlantic salmon (adults)												
Atlantic salmon (smolt)												

Diagram 3. Main Fish Migration Periods in the Forth Estuary (grey shading represents key period of migration).

Likely Significant Effect: Disturbance

4.3.4 Anthropogenic noise and vibration is known to cause behavioural (avoidance) effects on fish. The effects of underwater noise on fish are also related to a number of factors such as the source of noise and the distance between the source and the receptor. Transmission of sound waves through water varies with water depth and substrate type, and in general shallow estuarine environments, like the Forth Estuary, sound is more

readily absorbed due to greater interaction with the seabed compared to deeper areas (Mason and Collett 2011).

4.3.5 Works on the bridge or the saltmarsh are unlikely to result in significant noise or vibration within the Forth Estuary, however refurbishment of the timber jetties and scour maintenance activities have the potential to introduce noise and vibration due to the use of vessels and placement of rock armour. Sound exposure guidelines for fish (Popper et al., 2014) suggest that the risk of behavioural reaction to shipping noise is moderate in the near (10s of metres) and intermediate (100s of metres) distances and low in the far (1000s of metres) distance. At the location of the Kincardine Bridge, the estuary is approximately 600m wide and therefore it can be reasonably concluded that the use of vessels for the works, will have a moderate potential to cause a behavioural reaction in fish species. An assessment carried out by Subacoustech (Nedwell et al., 2012) indicated that placement of rock armour on the sea bed is generally less noisy than the vessel being used to compete the operation and, for Atlantic salmon, has an impact zone of less than 1m.

4.3.6 In addition to noise and vibration, construction lighting which causes illumination of the watercourse during hours of darkness may deter fish from the area. Fish migration is thought to occur primarily during hours of darkness, although tidal state can also influence migration in estuarine environments, especially for the downstream movement of juveniles with poorer swimming abilities.

4.3.7 During upstream migration adult Atlantic salmon, and lamprey species do not feed (Hendry & Cragg-Hine, 2003; Maitland, 2003), meaning that they have finite energy resources to complete migration and spawning. Disturbance during upstream migration, that results on additional energy expenditure could have a negative effect on the ability of individuals to complete their migration and spawning.

Likely Significant Effect: Habitat Fragmentation

4.3.8 Although the works will not result in a physical barrier, significant disturbance (as described above) that results in fish avoiding the area around the Kincardine Bridge could cause fragmentation of habitat and the inability of fish to migrate past the works to complete their lifecycle. Depending on the timing, severity and length of the disturbance, an entire cohort of a species could be lost from the River Teith SAC populations.

Mitigation

4.3.9 Mitigation measures aimed at avoiding or reducing the effects of the Proposed Works in order to avoid adverse effects on site integrity are detailed below and summarised in Table 7.

4.3.10 Vessels required for the works should adhere strictly to the speed limits implemented by Forth Ports for the Firth of Forth. When vessels are moored or anchored the engines should be shut off to reduce noise disturbance.

4.3.11 Night-time works should be avoided for the timber jetty refurbishment and scour protection works to allow a regular disturbance-free window for migratory fish species.

4.3.12 Scour protection works should focus on one area of the bridge at a time to avoid disturbance effects on fish over the entire width of the estuary.

4.3.13 The Contractor will provide a construction lighting plan and method statement detailing the specific mitigation requirements with regards to lighting during the Proposed Works. Mitigation will include, but will not be limited to measures to avoid light spill onto the watercourse. Where this is not possible the Contractor will agree any exceptions with the ECoW.

Table 7: HRA Stage Two (AA) Assessment Table for Atlantic Salmon, River Lamprey and Sea Lamprey

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
Disturbance (Noise and Vibration)	To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and To ensure for the	Works which result in underwater noise and vibration or light spill onto the watercourse have the potential to result in disturbance of Atlantic salmon, river lamprey and sea lamprey as they migrate past the Kincardine Bridge. These effects are primarily associated with the timber jetty refurbishment and scour protection works. The various migratory periods for these fish species (Diagram 3) indicate that there is likely to be year-round activity however late summer and autumn likely to be the most active period.	To avoid or minimise disturbance effects on fish the following mitigation measures will be applied to the Proposed Works. • Vessels required for the works will adhere strictly to the speed limits implemented by Forth Ports for the Firth of Forth. When vessels are moored or anchored the engines will be shut off to reduce noise disturbance. • Night-time works will be avoided for the timber jetty refurbishment and scour protection works to allow a regular disturbance-free window for migratory fish species. • The Contractor will provide a construction lighting plan detailing how light spill onto the watercourse will be avoided.	No adverse effect on site integrity

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
	qualifying species that the following are maintained in the long term: • population of the species, including range of genetic types for salmon, as a viable component of the site • structure, function and supporting processes of habitats supporting the species • no significant disturbance of the species			

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
Habitat fragmentation	To ensure for the qualifying species that the following are maintained in the long term: • population of the species, including range of genetic types for salmon, as a viable component of the site • structure, function and supporting processes of habitats supporting the species	The Forth Estuary, where it flows under the Kincardine Bridge is the migratory route for Atlantic salmon, sea lamprey and river lamprey between the sea and the River Teith SAC. None of the Proposed Works will result in a physical barrier to fish migration. However, if disturbance effects occur across the width of the estuary at this location, this could result in indirect habitat fragmentation, preventing these qualifying species from completing phases of their lifecycle. This effect is considered to be most important during the upstream migration of adult fish, which are actively swimming through the Proposed Works area, as opposed to the downstream migration of juvenile fish, which are more likely to be passively carried by the flow of water past the Proposed Works. The timing and duration of the scour protection and timber jetty replacement works is such that it is unlikely the entire upstream migratory period would be affected, however there is potential that a significant proportion of early running fish could be affected, therefore risking the genetic diversity of an entire cohort of Atlantic salmon.	In order to avoid the potential for habitat fragmentation affecting the qualifying species of the River Teith SAC the following mitigation measures will be implemented. • Night-time works will be avoided for the timber jetty refurbishment and scour protection works to allow a regular disturbance-free window for migratory fish species. • Scour protection works will focus on one area of the bridge at a time to avoid disturbance effects on fish over the entire width of the estuary.	No adverse effect on site integrity

4.4 Appropriate Assessment Conclusion

4.4.1 Detailed assessment (Table 4 to Table 7) of the implications from the Proposed Works on the Firth of Forth SPA, Firth of Forth Ramsar site and River Teith SAC concluded the conservation objectives of the sites would not be compromised and with the required mitigation in place, there would be no AESI.

5 In-Combination Assessment

5.1 Introduction

5.1.1 Following screening (Section 3: Stage One (Screening)), LSEs from the Proposed Works were identified for the Firth of Forth SPA, Firth of Forth Ramsar and River Teith SAC. This section of the report describes the in-combination assessment that has been undertaken to identify whether there are any other plans and projects which could affect the integrity of these European sites in combination with the Scheme.

5.1.2 Article 48 of the Habitats Regulations requires that Appropriate Assessments of projects should include a consideration of other plans or projects which could affect site integrity in combination with the proposal under assessment.

5.1.3 There is potential for adverse effects on the integrity of the Firth of Forth SPA, Firth of Forth Ramsar and River Teith SAC as a result of the Proposed Works in combination with other proposed developments or works on, adjacent to, or within the area. Relevant developments might impact on the estuarine system and the qualifying species by causing disturbance and/or loss of habitat and/or introducing barriers to migration or normal ranging behaviour of the qualifying species within the estuarine catchment.

5.1.4 In terms of the potential for in-combination effects with the maintenance works, the key issue, based on the assessment above, is considered to be the potential for other developments to result in an increase in disturbance (and therefore also displacement) within the Firth of Forth estuary, which may impact on the qualifying species of the three sites.

5.1.5 The in-combination assessment may identify developments which are themselves considered likely to have a significant effect on the Firth of Forth SPA, Firth of Forth Ramsar and River Teith SAC and which will also be required to undergo an Appropriate Assessment under Regulation 48 of the Conservation (Natural Habitats &c.) Regulations 1994 (as amended). There may also be plans or projects which, when considered individually, may not adversely affect a European site, but when combined with the Proposed Works could lead to an adverse effect.

5.2 Approach to Assessment

5.2.1 The approach adopted for the in-combination assessment of the Proposed Works in relation to the three sites was firstly to identify a search area for plans or projects with the potential to cause in-combination adverse effects on the integrity of the Firth of Forth SPA, Firth of Forth Ramsar and River Teith SAC with the Proposed Works. As the Firth of Forth SPA/Ramsar cover such large areas, it was considered appropriate that the search area captured all projects and plans within the Firth of Forth Catchment. Similarly, as the qualifying interests of the River Teith SAC migrate through the Firth of Forth, it was considered that this search area was valid to identify in-combination effects on this site as well.

5.2.2 A search was undertaken on 10 December 2024 for any Marine Licence Applications within the Forth Estuary on the Scottish Government's website. Marine Licence applications within five years of the search date were identified. The search was redone for the period up to the end of March 2025.

5.2.3 A search was undertaken on 10 December 2024 for projects and plans with the potential to have an in-combination adverse effect within East Lothian Council, City of Edinburgh Council, Clackmannanshire Council, Falkirk Council, West Lothian Council, Stirling Council and Fife Council. Each local authority's planning portal was searched for consented or pending applications within a three-year period of the search date. The search was redone for the period up to the end of March 2025. The following exclusions applied to the search to identify relevant proposals for inclusion within the assessment:

- householder applications for improvements/extensions;
- local commercial and business applications for minor improvement works and alterations;
- change of use (where external building work is not required);
- applications for advertisement consent;
- enforcement actions; and
- applications that have been withdrawn.

5.2.4 In addition, in October 2021 NatureScot published a press release regarding funding for a £1 million restoration project for rivers and peatlands in the River Forth catchment (NatureScot, 2021). This project is part of the £18 million EU MERLIN programme (which is aimed at demonstrating freshwater restoration best practice), and will run for the next four years, therefore will overlap with the Marine Licence period. The work in Scotland will include the restoration of several peat bogs, connections between the Allan Water and its floodplain, and the restoration of wetland habitats. The funding will also include long-term evaluation and monitoring of the restoration work. NatureScot, UKCEH, the University of Stirling and the Forth Rivers Trust will work in partnership to restore several peat bogs and their vital carbon stores in the River Forth catchment (CEH, 2024). The scheme will also restore connections between the Allan Water and its floodplain, to contribute to natural flood management and the restoration of valuable wetland habitats. Measures include peatland, floodplain and river restoration. This project has been omitted from the in-combination assessment due to its objectives of restoring natural river processes which, in the long-term, will improve the environment and biodiversity. In addition, NatureScot is one of the project partners.

5.2.5 A review of documentation and information available for each proposal, including published HRAs, environmental impact assessments, consultation responses, decision notices or other relevant documentation were consulted to identify projects with potential for in-combination effects.

5.2.6 The findings of the search are presented in Table 8 below, along with a summary of the identified potential for in-combination effects.

Table 8: Other Plans and Projects and Potential for In-Combination Effects

Project/Plan Application Name	Approximate Distance from Kincardine Bridge	Planning Application and/or Marine Licence Reference Number	Status/ Decision	Description of the Project/Plan and Assessment of In-Combination Effects	Potential for In-combination Effects	
					Firth of Forth SPA and Ramsar	River Teith SAC
A985 Kincardine Bridge Refurbishment: Piled Viaduct Replacement Scheme *Kincardine Bridge, Airth.*	0km	Listed Building Consent Reference P/20/0595/LBC; Falkirk Council. Marine Licence (MS-00009790)	Granted	The proposal relates to the A985 Kincardine Bridge Refurbishment: Piled Viaduct Replacement Scheme (hereafter the 'SPV Replacement Scheme'). An EIA Report and an HRA have been prepared for the SPV Replacement Scheme (Transport Scotland, 2020a, 2020b) and the HRA concludes no AESI on the Firth of Forth SPA/Ramsar, alone or in combination with other projects and plans. The assessments identified the potential for disturbance of qualifying interests of the Firth of Forth SPA/Ramsar/SSSI, and temporary loss of habitat within these designated sites. The assessments identified no LSE on the River Teith SAC. With the application of mitigation, the EIA Report concluded no significant residual effects with regard to ecology, and the HRA concluded no AESI. The Scottish Ministers' notice of decision to proceed with the Scheme under the Roads (Scotland) Act 1984 was published in July 2021. Construction of the SPV Replacement Scheme commenced in 2023 with completion in 2025. The SPV Replacement Scheme was assessed to result in long-term impacts to the saltmarsh due to the requirement for a large raised working platform. As a result, a comprehensive set of mitigation measures was developed. This includes the development and implementation of a saltmarsh management plan which will detail measures to reduce damage and encourage the recovery of the	Yes	No

Project/Plan Application Name	Approximate Distance from Kincardine Bridge	Planning Application and/or Marine Licence Reference Number	Status/ Decision	Description of the Project/Plan and Assessment of In-Combination Effects	Potential for In-combination Effects	
					Firth of Forth SPA and Ramsar	River Teith SAC
				saltmarsh, including a period of post-construction monitoring. The habitat recovery will require the introduction of structures to aid the natural accretion of sediments. Once these structures are in situ access to the saltmarsh will be restricted to allow the natural re-colonisation of the area and monitoring should continue until stable saltmarsh communities have developed (Transport Scotland, 2020a, 2020b). Taken together, these would fully mitigate the effects of the SPV Replacement Scheme on the saltmarsh habitat. The repairs to the 50ft spans and Bearing Replacement will require access to the saltmarsh, therefore there is a potential significant in-combination effect between the Proposed Works and the SPV Replacement scheme. Timing the repairs to the 50ft spans and Bearing Replacement to be undertaken immediately after the SPV Replacement Scheme is essential to ensure that the saltmarsh recovery is not jeopardised within the scope of the saltmarsh management plan for the SPV Replacement Scheme. Should that timing not be achievable, the saltmarsh management plan would require to be further developed in consultation with NatureScot. **Potential for in-combination effects on Firth of Forth SPA/Ramsar. No in-combination effects on the River Teith SAC.**		
Demolition of Existing Kiosk	0.13km	P/20/0398/FUL	Grant Planning	The proposal submitted in September 2020, and approved in October 2021, is for the demolition of an existing building and	No	No

Project/Plan Application Name	Approximate Distance from Kincardine Bridge	Planning Application and/or Marine Licence Reference Number	Status/ Decision	Description of the Project/Plan and Assessment of In-Combination Effects	Potential for In-combination Effects	
					Firth of Forth SPA and Ramsar	River Teith SAC
Building, Erection of Petrol Filling Station with Associated Kiosk (Class 1), Jet Washes, Restaurant (Including Drive-Thru) (Class 3), Formation of Site Access, Parking Provision, Landscaping and Ancillary Works *Viewforth Filling Station Airth Falkirk FK2 8PW*		Falkirk Council	Permission	erection of a petrol filling station and associated infrastructure, including a 'drivethru' McDonalds restaurant. Planning applications are valid for a period of 3 years and as such, there is the potential for the proposal to be concurrent with some of the work items and activities of the Proposed Works. The works are over 140m from the Firth of Forth SPA/Ramsar boundary and are not visible from the estuary. Therefore, it is considered that noise and visual disturbance to qualifying features within the SPA/Ramsar, or qualifying features of the SAC moving through the estuary, from the demolition and construction works at the filling station will not act in combination with the Proposed Works. Furthermore, once the works are completed there will be no residual disturbance effects which could act in-combination with the Proposed Works. **No potential for in-combination effects on Firth of Forth SPA/Ramsar or River Teith SAC.**		

Project/Plan Application Name	Approximate Distance from Kincardine Bridge	Planning Application and/or Marine Licence Reference Number	Status/ Decision	Description of the Project/Plan and Assessment of In-Combination Effects	Potential for In-combination Effects	
					Firth of Forth SPA and Ramsar	River Teith SAC
Wetland Improvements Including Island Maintenance, Screening, Wetland Creation/Enhancement, Edge Re-Profiling, Water Control Feature and Disconnection of Field Drains. *Skinflats, Falkirk*	0.4km	P/21/0715/FUL Falkirk Council	Grant Planning Permission	Planning application for a project within the RSPB Skinflats reserve. The aim of this project is to improve the existing habitats at RSPB Skinflats as well as creating new habitats to increase the overall quality and diversity of the reserve. The project will involve: island maintenance to improve breeding habitat; installation of wooden screening (up to 50m) along the western side to prevent disturbance within the site; wetland creation/enhancement; edge re-profiling; installation of a water control feature; and disconnecting existing field drains. Planning permission was granted on 18/02/2022 and expires on 17/02/2025. The project aims to provide enhancement for biodiversity, and will offer additional wetland habitat for qualifying interests of the SPA/Ramsar. Whilst construction activities during the project (which may be disturbing) and may be undertaken at the same time as the Proposed Works (programme is not available), it is not considered that there would be considerable disturbance on qualifying interests of the SPA/Ramsar or the SAC by the projects in-combination. The project is 400m from the Proposed Works, therefore any noise disturbance is unlikely to act in combination with the Proposed Works, and the project will be contained within the Skinflats Reserve and slightly set back from the Firth of Forth, therefore in-combination visual disturbance is also unlikely.	No	No

Project/Plan Application Name	Approximate Distance from Kincardine Bridge	Planning Application and/or Marine Licence Reference Number	Status/ Decision	Description of the Project/Plan and Assessment of In-Combination Effects	Potential for In-combination Effects	
					Firth of Forth SPA and Ramsar	River Teith SAC
				No potential for in-combination effects on Firth of Forth SPA/Ramsar or River Teith SAC.		
Installation of Tennis Court and Fencing *Wheatfields Dunmore, Falkirk, FK2 8LX*	4km	P/22/0083/FUL Falkirk Council	Grant Planning Permission	An application for the installation of a tennis court and fencing within the garden grounds of Wheatfields, Dunmore. The application was granted planning permission in May 2022. The proposal is likely to be completed prior to the Proposed Works. The tennis court will be within 100m of the Firth of Forth SPA, set back within the grounds of the Wheatfields property. The fencing around the tennis count will be 2.75m high, however due to the existing vegetation along the Firth of Forth at this location it is likely to be screened from view from the estuary. Therefore, it is considered that noise and visual disturbance to qualifying features within the SPA/Ramsar, or qualifying features of the SAC moving through the estuary, from the construction of the court (which is assumed to involve some noisy activities) will not act in combination with the Proposed Works. Furthermore, once the works are completed there will be no significant residual disturbance effects which could act in-combination with the Proposed Works. **No potential for in-combination effects on Firth of Forth SPA/Ramsar or River Teith SAC.**	No	No
Grangemouth Flood Protection	4.2km	n/a Falkirk Council	Awaiting Decision	The flood protection scheme is being advanced as a formal flood protection scheme under the Flood Risk Management (Scotland) Act 2009. The environmental impact assessment has been completed	Possible	Possible

Project/Plan Application Name	Approximate Distance from Kincardine Bridge	Planning Application and/or Marine Licence Reference Number	Status/ Decision	Description of the Project/Plan and Assessment of In-Combination Effects	Potential for In-combination Effects	
					Firth of Forth SPA and Ramsar	River Teith SAC
Scheme *Grangemouth, Falkirk.*				and the statutory publication of the final scheme was in summer 2024;. Falkirk Council made a preliminary decision in January 2025 to confirm the scheme without modifications and referred it to Scottish Ministers. Scottish Ministers confirmed they would not be 'calling-in' the scheme for consideration and that Falkirk Council would now hold a hearing to consider the issues raised. No date has yet been set for the hearing. However, the programme currently assumes advance works will start in 2026, with main construction activities also commencing in 2026; the scheme is intended to be completed in 2034 (Grangemouth Flood Protection Scheme, 2025). The flood protection scheme construction period may overlap with the Proposed Works. However, the flood protection scheme covers a large area (communities in Grangemouth, Wholeflats, Glensburgh, Langlees, Carron and Carronshire) with the majority of these areas set back away from the Firth of Forth. At this stage it is unknown how the construction will be phased for this scheme, but there is the potential for disturbing works at locations near the Firth of Forth to be concurrent with the Proposed Works. A detailed in-combination assessment cannot be undertaken at this stage. **An in-combination assessment is not possible at this time.**		
Network Rail West of Fife	0.5km	20/02427/SCR	EIA Not Required	Improvements (electrification) to the railway line between Alloa and Longannet. This project is in the early stages of development. An	Possible	No

Project/Plan Application Name	Approximate Distance from Kincardine Bridge	Planning Application and/or Marine Licence Reference Number	Status/ Decision	Description of the Project/Plan and Assessment of In-Combination Effects	Potential for In-combination Effects	
					Firth of Forth SPA and Ramsar	River Teith SAC
Enhancement Project. *Site To The South Of Bothkennar Centre For Citizen Education Falkirk*		Fife Council		EIA screening request was submitted to Fife Council in October 2020 and it was confirmed on 7 December 2020 that an EIA was not required for the proposal as the Council determined that the improvements would be "*unlikely to cause significant environmental harm*". The electrification falls under the wider Scottish Government's rail de-carbonisation agenda which looks forward to 2035. Site investigations are ongoing until the end of the year along the 11.5km track to assess the ground conditions to inform the potential upgrade. These works will be localised to land within the railway boundary. The project is very early in the development stage, and there is no confirmation of when the enhancement could be delivered, although it may be just before, or in parallel, with works at Longannet Power Station. There is the potential for the electrification works to be undertaken concurrently with the Proposed Works however, this is unknown at this stage. Furthermore, advice to the applicant from their consultants stated that NatureScot should be consulted to discuss potential effects of the project upon the Firth of Forth SPA; the consultants pointed out that overhead line electrification may be considered as a collision risk/barriers to flightlines. No further information is available at this time and the proposed improvements no longer appear as a potential project. In-combination effects on the Firth of Forth SPA/Ramsar site are conceivable but given the status of the project		

Project/Plan Application Name	Approximate Distance from Kincardine Bridge	Planning Application and/or Marine Licence Reference Number	Status/ Decision	Description of the Project/Plan and Assessment of In-Combination Effects	Potential for In-combination Effects	
					Firth of Forth SPA and Ramsar	River Teith SAC
				it is not possible to say when or how such effects may occur. **An in-combination assessment on Firth of Forth SPA/Ramsar is not possible at this time. No potential for in-combination effects on River Teith SAC.**		
Redevelopment of former Power Station site with a mix of Class 4 (Business), 5 (General Industrial) and 6 (Storage and distribution) Uses, service facilities, SUDS, landscape works and associated development at Longannet	2.7km	19/02331/EIA 19/00627/PAN 19/01158/SCO 21/02995/EPN Fife Council	Application Permitted with Conditions	Planning permission has been granted, with conditions, for the redevelopment of the former power station. The total development area is 122.8ha on the site of Longannet Power Station, and is adjacent to the Firth of Forth, albeit set back from the shore front. The boiler house at the power station was demolished by controlled explosion on 4 February 2021 (BBC, 2021) and the chimney was demolished by controlled explosion on 9 December 2021 (The Guardian, 2021). The remaining redevelopment works at Longannet Power Station may be concurrent with the Proposed Works. Supporting documentation for the proposal included an EIA report and an HRA, the latter of which concluded no adverse effect on site integrity for the Firth of Forth SPA. The HRA concluded that due to the nature of the development and the responses of birds to disturbances, there would be no adverse effect on site integrity of the Firth of Forth SPA. Furthermore, there is no land-take from the Firth of Forth SPA/Ramsar proposed as part of the redevelopment, therefore the availability of habitat for waders and waterfowl will not change. It is therefore concluded that there is no potential for in-	No	No

Project/Plan Application Name	Approximate Distance from Kincardine Bridge	Planning Application and/or Marine Licence Reference Number	Status/ Decision	Description of the Project/Plan and Assessment of In-Combination Effects	Potential for In-combination Effects	
					Firth of Forth SPA and Ramsar	River Teith SAC
Power Station, Fife. *Longannet Power Station, Fife.*				combination effects with the Proposed Works. As the development does not involve working within the estuary, and is set-back from the banks, no in-combination disturbance on qualifying interests of the River Teith SAC are anticipated. Works at the site are on-going with the most recent application for the erection of one steel tower to connect two existing lines. **No potential for in-combination effects on Firth of Forth SPA/Ramsar or River Teith SAC.**		
Temporary testing of a reactive engine on moveable test bed; storage of ancillary equipment within isocontainers; short-term (up to five days) storage within pre-fabricated	4km	19/02632/CLP Fife Council	Application Permitted - no conditions	A certificate of lawfulness was approved for the temporary testing of a reactive engine and storage of kerosene, hydrogen peroxide and ancillary equipment. A noise and environmental assessment were undertaken to accompany the application which identified that the level of noise at 150m would be 72dB. Given the location of the engine site to the Firth of Forth (i.e. set back from the estuary), it is unlikely that the noise generated would have a significant disturbing effect on qualifying interests of the SPA Ramsar and SAC. In relation to the potential for accidental spillage of harmful materials, it was concluded that dilution with water would minimise the impact on the environment. The proposed testing regime states a maximum of three tests a month of 1-3 minutes' duration. It is not clear if this testing regime has been completed; however, in absence of further information, it is	No	No

Project/Plan Application Name	Approximate Distance from Kincardine Bridge	Planning Application and/or Marine Licence Reference Number	Status/ Decision	Description of the Project/Plan and Assessment of In-Combination Effects	Potential for In-combination Effects	
					Firth of Forth SPA and Ramsar	River Teith SAC
bunds of 400kg of kerosene and 2000kg of hydrogen peroxide. (Maximum of three tests per month/duration of tests 1-3 minutes). *Land to west of Caledonia Road, Rosyth Business Park, Rosyth, Fife.*				considered that this may be ongoing. However, given the nature of the works, in-combination disturbance effects with the Proposed Works are unlikely. **No potential for in-combination effects on Firth of Forth SPA/Ramsar or River Teith SAC.**		
Maintenance dredging - Port of Grangemouth *Port of Grangemouth,*	4.2km	Marine Licence Application – (07120) Falkirk Council	Granted consent	The licence application covers the maintenance dredging at the Port of Grangemouth in the training channel, bellmouth and docks. This site has been previously dredged (periodic maintenance), under licence, to maintain safety of navigation. The proposed start date stated in the application was 01/02/2020 with a proposed completion date of 31/01/2023. Dredging in the bellmouth is carried out over approximately four to five days each month and dredging within the	No	No

Project/Plan Application Name	Approximate Distance from Kincardine Bridge	Planning Application and/or Marine Licence Reference Number	Status/ Decision	Description of the Project/Plan and Assessment of In-Combination Effects	Potential for In-combination Effects	
					Firth of Forth SPA and Ramsar	River Teith SAC
Grangemouth.				docks is carried out in conjunction usually taking place over a four month period towards the latter half of the year. The Best Practice Environmental Option Report which accompanies the application states that *"[g]iven that disposal was an existing activity and ongoing disposal is at a similar scale to previous disposal activities it is considered that the proposals will not have significant effects on the qualifying interest of the SPA*." As the dredging is an ongoing activity that has been undertaken previously it is considered that qualifying interests of the European sites will be habituated to these activities and the works will be no more disturbing than background levels. It is therefore concluded that there is no potential for in-combination effects with the Proposed Works. The licence has now expired. **No potential for in-combination effects on Firth of Forth SPA/Ramsar or River Teith SAC.**		
Application for a Certificate of Proposed Lawful Use or Development relating to the installation of 3 No. above	4.5km	P/18/0608/CPL Falkirk Council	Certificate of Lawful Use or Development Granted	Proposal to install storage tanks and associated infrastructure within an already heavily industrialised site. The Environmental Screening Report submitted as supporting documentation states that although the development has the potential to cause noise and vibration, the construction methods should not have any greater impact than current activities, and the operation of the site following completion of the works will not change. Permission expired on 1 March 2024. Therefore, as the works are small scale and localised within an	No	No

Project/Plan Application Name	Approximate Distance from Kincardine Bridge	Planning Application and/or Marine Licence Reference Number	Status/ Decision	Description of the Project/Plan and Assessment of In-Combination Effects	Potential for In-combination Effects	
					Firth of Forth SPA and Ramsar	River Teith SAC
ground liquid storage tanks, bunds and associated infrastructure at Land North of McIntyres, North Shore Road, Grangemouth. *North Shore Road, Grangemouth.*				already industrialised area and are unlikely to result in significant disturbance above that which is already experienced in the locality, there is no potential for in-combination effects. Furthermore, once the storage tanks and associated infrastructure are erected it is assumed that there will be no residual disturbance effects which could act in-combination with the Proposed Works. **No potential for in-combination effects on Firth of Forth SPA/Ramsar or River Teith SAC.**		
Capital Dredging - River Carron	4.6km	Marine Licence Application – (00010438)	Application	The licence application covers the dredging of the River Carron Sea Locks at two locations where the Forth and Clyde Canal enters the River Carron. Due to the build-up of material this is expected to be a capital dredging project although the last dredging took place in 2017. A total of 10,900 tonnes a year is anticipated to be dredged. The preferred method would see the sediment to be dredged injected with high-pressure water jets to dislodge it from the mud flats and into the River Carron channel on the ebb tide. The	No	No

Project/Plan Application Name	Approximate Distance from Kincardine Bridge	Planning Application and/or Marine Licence Reference Number	Status/ Decision	Description of the Project/Plan and Assessment of In-Combination Effects	Potential for In-combination Effects	
					Firth of Forth SPA and Ramsar	River Teith SAC
				sediment would be removed from the area by a combination of river flow and tidal cycles. Risks to the designated sites within the Firth of Forth were considered and concluded to be low. The expiry date for the licence is 19/12/2024. The proposal is small scale and dredging activities will be of a short-term nature, undertaken over a single year. Furthermore, as dredging has been undertaken previously, and is ongoing as part of maintenance, it is considered that qualifying interests of the European sites will be habituated to these activities and the works will be no more disturbing than background levels. It is therefore concluded that there is no potential for in-combination effects with the Proposed Works. **No potential for in-combination effects on Firth of Forth SPA/Ramsar or River Teith SAC.**		
Final capping of remaining ash lagoons and associated engineering works, including the erection of a	7.6km	18/01662/FULL 18/00339/SCR 22/00373/FULL Fife Council	Application permitted with conditions October 2020	Proposals to cap the final three ash lagoons located at Low Valleyfield, east of Culross, to preserve their integrity and promote biodiversity. This will also include re-grading and the removal of physical infrastructure. The area is immediately adjacent to the Firth of Forth SPA and Ramsar site. A Section 42 application was submitted in February 2022 to amend permitted noise levels (amendment to condition 11 of planning permission 18/01662/FULL). The application was permitted with conditions.	No	No

Project/Plan Application Name	Approximate Distance from Kincardine Bridge	Planning Application and/or Marine Licence Reference Number	Status/ Decision	Description of the Project/Plan and Assessment of In-Combination Effects	Potential for In-combination Effects	
					Firth of Forth SPA and Ramsar	River Teith SAC
wind turbine of up to 11.8m blade-tip height *Valleyfield Ash Lagoons, Main Street, Low Valleyfield Dunfermline, Fife KY12 8TY.*				SNH (now NatureScot) considered that two of the lagoons acted as supporting habitat for qualifying species of the Firth of Forth SPA. Furthermore, they stated that did not agree with the conclusions of the applicant's HRA which concluded that there would be no adverse effect on the integrity of the SPA. It was SNH's view that the proposed mitigation within the HRA was not adequate to avoid an adverse effect on the integrity of the SPA. One of the conditions of the application approval is for a final, detailed restoration scheme for the application site to be submitted to Fife Council as Planning Authority for approval, in consultation with NatureScot (formerly SNH) and RSPB Scotland. Therefore, for the proposal to go ahead either appropriate mitigation or compensation would be required. This condition was restated in the decision notice for 22/00373/FULL. The project now includes the erection of a wind turbine of a height <11.8m to blade tip. The final details of the proposed wind turbine shall be submitted for the written approval of Fife Council as Planning Authority. The capping of the lagoons may result in a loss of supporting habitat for qualifying species of the Firth of Forth SPA. Whilst the Proposed Works are mostly localised to the Kincardine Bridge, some access may be required through the SPA which could result in temporary habitat loss however this is unlikely to be significant.		

Project/Plan Application Name	Approximate Distance from Kincardine Bridge	Planning Application and/or Marine Licence Reference Number	Status/ Decision	Description of the Project/Plan and Assessment of In-Combination Effects	Potential for In-combination Effects	
					Firth of Forth SPA and Ramsar	River Teith SAC
				There is the potential for the capping of the lagoons (and associated works) to be undertaken concurrently with the Proposed Works. The planning permission is conditional on approval of a detailed restoration scheme, CEMP, specification of the wind turbine, amongst others, to ensure protection of environmental features including the Firth of Forth SPA and Ramsar. Therefore, it is concluded there will therefore be no in-combination effect and no adverse effect on site integrity. As the development does not involve working within the estuary, and is set-back from the banks, no in-combination disturbance on qualifying interests of the River Teith SAC are anticipated. **No potential for in-combination effects on Firth of Forth SPA/Ramsar or River Teith SAC.**		
Erection of a Well-Being Hub (Class 11) Including … *Land At Alloa West Smithfield Loan Alloa*	0.3km	24/00149/FULL Clackmannansh-ire Council	Awaiting decision	The application concerns the erection of a well-being hub (Class 11) including swimming pool, sports hall and external sports and play facilities and erection of additional support needs school with external play areas (Class 10), with electricity sub-station, landscaping, drainage, access and parking and sustainable urban drainage. NatureScot responded in August 2024 that the Firth of Forth SPA and Ramsar site could be affected because of a permanent loss of approximately 4ha of potential pink footed goose foraging habitat,	No	No

Project/Plan Application Name	Approximate Distance from Kincardine Bridge	Planning Application and/or Marine Licence Reference Number	Status/ Decision	Description of the Project/Plan and Assessment of In-Combination Effects	Potential for In-combination Effects	
					Firth of Forth SPA and Ramsar	River Teith SAC
				and also as a result of disturbance. However, NatureScot concluded that with the information provided there would be no adverse effect on site integrity. **No potential for in-combination effects on Firth of Forth SPA/Ramsar or River Teith SAC.**		
Engineering Works To Form Piled Concrete Pad To Support Mobile Crane Within Existing Turning Circle on Access Road to South of Warehousing *Alloa*	7.0km	22/00298/FULL Clackmannansh-ire Council	Approved	The proposal concerns an application to form a concrete pad with piled foundations within a large paved vehicle area. The site is adjacent to the River Forth. NatureScot had no objections saying that they were satisfied that the proposal would not have any LSE on the Firth of Forth SPA. The River Teith SAC was not considered. This was due to the size and scale of the works and likely duration. In addition, there was to be a CEMP and also a Piling Risk Assessment. **No potential for in-combination effects on Firth of Forth SPA/Ramsar or River Teith SAC.**	No	No
Demolition of Existing Farm Buildings, Change of Use of Site From	10.15km	18/00239/PAN 22/00015/FULL Clackmannansh-ire Council	Approved	The proposal concerns the erection of storage warehouse buildings approximately 40m from the river and 60m from the Firth of Forth SPA /Ramsar, in Cambus. A Planning Application Notice was issued in 2018 (18/00239/PAN) and the proposal was subject to a scoping opinion. NatureScot (formerly SNH) stated that it had concerns	No	No

Project/Plan Application Name	Approximate Distance from Kincardine Bridge	Planning Application and/or Marine Licence Reference Number	Status/ Decision	Description of the Project/Plan and Assessment of In-Combination Effects	Potential for In-combination Effects	
					Firth of Forth SPA and Ramsar	River Teith SAC
Agricultural Land, Erection of 7 No Bonded Warehouse Blocks for Storage and Distribution, Erection of Welfare Building and Associated Infrastructure. *Cambus, Clackmannanshire*				about the potential to disturb or displace the qualifying species of the SPA or to reduce their foraging/roosting habitat and that an HRA would be required. An HRA was undertaken in September 2020 and LSE was identified on the Firth of Forth SPA/Ramsar. However, following the results of detailed ornithological surveys and desk study and consideration of the conservation objectives for the qualifying interests it was concluded that there would be no AESI in isolation or in-combination with other projects. NatureScot confirmed they were satisfied with the conclusions of the HRA in February 2022. As the development does not involve working within the estuary, and is set-back from the banks, no in-combination disturbance on qualifying interests of the River Teith SAC are anticipated. Based on the conclusions of the HRA for the proposal and the location of the proposal in relation to the Kincardine Bridge, in-combination effects are considered unlikely for any of the sites. **No potential for in-combination effects on Firth of Forth SPA/Ramsar or River Teith SAC.**		
Planning permission in principle for erection of 2	10.9km	22/01607/PPP 22/04288/PPP Fife Council	Unknown	Planning permission in principle was sought for the construction of two new houses and garages at Crombie Point on the Firth of Forth. The development site is adjacent to the Firth of Forth SPA/Ramsar. The application was withdrawn but resubmitted as 22/04288/PPP.	No	No

Project/Plan Application Name	Approximate Distance from Kincardine Bridge	Planning Application and/or Marine Licence Reference Number	Status/ Decision	Description of the Project/Plan and Assessment of In-Combination Effects	Potential for In-combination Effects	
					Firth of Forth SPA and Ramsar	River Teith SAC
dwellinghouses and associated garages and access. *Crombie Point, Fife*				The application was dismissed and appealed; the appeal was dismissed in November 2023 (23/00015/REF). **No potential for in-combination effects on Firth of Forth SPA/Ramsar or River Teith SAC.**		
Proposed redevelopment of former Prestonhill Quarry, Inverkeithing to create a mixed use development including approximately 180 residential units (including affordable housing), holiday lodges,	21.7km	22/04086/PPP Fife Council	Registered	Planning permission in principle has been sought for the redevelopment of a former quarry site in Inverkeithing. The development site is adjacent to the Firth of Forth SPA/Ramsar. A previous application for the redevelopment of this site was refused. Consultation was undertaken in 2023. NatureScot stated that their advice remained the same as for the previous application (21/01842/PPP) which was that Firth of Forth SPA would not be adversely affected although the HRA process would apply as there could be impacts. No decision on 22/04086/PPP has been made. If full planning application is granted, there is the potential that this development could be concurrent with the Proposed Works. However, as the proposal is early in the planning application process, detailed in-combination assessment is not possible at this stage.	Possible	No

Project/Plan Application Name	Approximate Distance from Kincardine Bridge	Planning Application and/or Marine Licence Reference Number	Status/ Decision	Description of the Project/Plan and Assessment of In-Combination Effects	Potential for In-combination Effects	
					Firth of Forth SPA and Ramsar	River Teith SAC
café/bistro, associated access, open space, landscaping, SuDS and other infrastructure. *Prestonhill Quarry Preston Crescent, Inverkeithing, Fife.*				**An in-combination assessment is not possible at this time.**		
Demolition Of Existing Farmhouse And Farm Buildings, Erection of 5 Bonded Warehouses (Class 6)	11.2km	22/00072/FULL Clackmannansh-ire Council	Approved	The proposal is for the demolition of existing farmhouse and farm buildings and construction of five warehouses along with associated hardstanding and parking facilities. A SuDS pond, a wetland pond and tree planting is also proposed. NatureScot were consulted on the proposal and concluded that, based on the information available, it was unlikely for the proposal to result in AESI due to the development being outwith the SPA, there being no loss of intertidal habitat, and that construction disturbance will be localised and short-term, as well as operational disturbance being similar to the existing	No	No

Project/Plan Application Name	Approximate Distance from Kincardine Bridge	Planning Application and/or Marine Licence Reference Number	Status/ Decision	Description of the Project/Plan and Assessment of In-Combination Effects	Potential for In-combination Effects	
					Firth of Forth SPA and Ramsar	River Teith SAC
containing 41 Cells, Ancillary Buildings (Workshop, Office, Fork Lift Charger Building), 2 No. Sprinkler Water Tanks And Pump House, Electricity Substation, Hardstanding for Cask/Pallet Storage, Vehicle And Pedestrian Accesses, Parking, Landscaping, Drainage Including SUDS Pond,				background disturbance in the industrialised area. As the development does not involve working within the estuary, and is set-back from the banks, no in-combination disturbance on qualifying interests of the River Teith SAC are anticipated. Based on the consultation response from NatureScot, and the location of the development in relation to the Kincardine Bridge, in-combination effects are considered unlikely. **No potential for in-combination effects on Firth of Forth SPA/Ramsar or River Teith SAC.**		

Project/Plan Application Name	Approximate Distance from Kincardine Bridge	Planning Application and/or Marine Licence Reference Number	Status/ Decision	Description of the Project/Plan and Assessment of In-Combination Effects	Potential for In-combination Effects	
					Firth of Forth SPA and Ramsar	River Teith SAC
And Security Fencing *Garvel Farm, Cambus, Clackmannanshire, FK10 2PG.*						
Demolition of existing buildings and erection of a 2850m^2 distillery building with access road, service buildings, landscaping and parking and conversion of Midhope Castle to	17km	0543/FUL/20 West Lothian Council	Grant Planning Permission	The proposed development is for the demolition of existing buildings, the erection of distillery buildings and conversion of Midhope Castle for visitor accommodation. An Extended Phase 1 habitat survey was undertaken in March/April 2020 which noted the Firth of Forth SPA, Ramsar and SSSI being 580m north of the application site. In initial consultation in August 2020 NatureScot stated that LSE on the SPA (disturbance to birds that travel inland, and pollution/hydrological impacts) was likely and an AA will be needed. An HRA was undertaken for the development in September 2020, and updated in February 2021, and concluded no adverse effects on the integrity of the Firth of Forth SPA. NatureScot agreed with the conclusions of the HRA, although identified that the document used incorrect terminology and was inaccurate in places with regard to the HRA process. However, NatureScot considered that for intents and purposes the HRA could be used by the council to undertake AA as	No	No

Project/Plan Application Name	Approximate Distance from Kincardine Bridge	Planning Application and/or Marine Licence Reference Number	Status/ Decision	Description of the Project/Plan and Assessment of In-Combination Effects	Potential for In-combination Effects	
					Firth of Forth SPA and Ramsar	River Teith SAC
provide visitor accommodation. *Midhope Castle Grounds, Abercorn, Newton, West Lothian, EH30 9SL*.				the competent authority. Based on the conclusions of the HRA for the proposal and the location of the proposal in relation to the Kincardine Bridge, and the estuary, in-combination effects are considered unlikely. **No potential for in-combination effects on Firth of Forth SPA/Ramsar or River Teith SAC.**		
Maintenance dredging and sea deposit - Port of Rosyth, Fife *Port of Rosyth, Fife*.	17.2km	Marine Licence Application – (00008987) (00010442) Fife Council	Application	The licence application covers the maintenance dredging at the Port of Rosyth and Rosyth Approach Channel to ensure appropriate depths of water to maintain operations. The site has been maintained previously under licence (06448/18/2) which expires on 11/02/2021. The proposed start date stated in the application is 12/02/2021 with a proposed completion date of 11/02/2024. Dredging would be expected to be carried out over approximately four to five days during each campaign, during the spring and autumn, as part of the routine maintenance at the ports, with disposal of material (up to 520,000 tonnes per year) to east of Inchcolm Island, east of the Forth Road Bridge. Application 10442 is for an extension of the existing licence up to 10/03/2027 (licence 00008987 expired on 10/03/2024).	No	No

Project/Plan Application Name	Approximate Distance from Kincardine Bridge	Planning Application and/or Marine Licence Reference Number	Status/ Decision	Description of the Project/Plan and Assessment of In-Combination Effects	Potential for In-combination Effects	
					Firth of Forth SPA and Ramsar	River Teith SAC
				The proposal is small scale and dredging activities will be of a short-term nature, undertaken over a three-year period. Furthermore, as dredging has been undertaken previously, and is ongoing as part of maintenance, it is considered that qualifying interests of the European sites will be habituated to these activities and the works will be no more disturbing than background levels. It is therefore concluded that there is no potential for in-combination effects with the Proposed Works. **No potential for in-combination effects on Firth of Forth SPA/Ramsar or River Teith SAC.**		
Maintenance and Capital Dredging and Sea Disposal - Port Babcock Rosyth, Dunfermline, Fife	17.2km	Marine Licence Application – (00010502) Fife Council	Application	The licence application covers the maintenance dredging to the non tidal basin entrance, including middle jetty and south arm tidal berths, as part of the routine maintenance of the port. The area was previously dredged in 2015/16. Dredging is planned to include all of ports eastern tidal approaches – the south arm is currently 11m @ CD and will be required to have a change to 12m. Initially, a total of 140,000 tonnes annually is expected to be dredged. The material is anticipated to be disposed of at Oxcars, a recognised sea disposal point. The proposed completion date is 19/02/2027. The proposal is small scale and dredging activities will be of a short-term nature, undertaken over a three-year period. Furthermore, as	No	No

Project/Plan Application Name	Approximate Distance from Kincardine Bridge	Planning Application and/or Marine Licence Reference Number	Status/ Decision	Description of the Project/Plan and Assessment of In-Combination Effects	Potential for In-combination Effects	
					Firth of Forth SPA and Ramsar	River Teith SAC
				dredging has been undertaken previously, and is ongoing as part of maintenance, it is considered that qualifying interests of the European sites will be habituated to these activities and the works will be no more disturbing than background levels. It is therefore concluded that there is no potential for in-combination effects with the Proposed Works. **No potential for in-combination effects on Firth of Forth SPA/Ramsar or River Teith SAC.**		
Creation of an international container terminal capable of simultaneously accommodating two container ships with a capacity in the range of 500 - 2000 Twenty-foot Equivalent Units (TEU)	18km	Marine Licence Application - (n/a) Fife Council	Pre-application	The proposal is for the development of a container port at Rosyth. The site is adjacent to the Firth of Forth SPA and dredging within the Firth of Forth itself would be required. The proposal went through public local inquiry in 2012 and revised Harbour Revision Orders were submitted in 2013. In response to this, an application for a Marine Licence for all in-estuary works was initiated by production of a scoping report. However, a Marine Licence was not submitted, although the terminal may still be under consideration for development. The revised Harbour Revision Orders requires a successful application for a Marine Licence to allow it to proceed. An HRA is required to accompany that application. No licence has been submitted and it is therefore not possible to determine what, if any, LSEs or adverse effects on European sites may occur. In addition,	Possible	Possible

Project/Plan Application Name	Approximate Distance from Kincardine Bridge	Planning Application and/or Marine Licence Reference Number	Status/ Decision	Description of the Project/Plan and Assessment of In-Combination Effects	Potential for In-combination Effects	
					Firth of Forth SPA and Ramsar	River Teith SAC
Rosyth, Fife				no timescale is available for further development of this Marine Licence. **An in-combination assessment is not possible at this time.**		
EIA Screening for proposed wind turbine (up to 4.2MW) (149m to blade tip) with associated infrastructure *HM Naval Base, Rosyth*	18km	23/00817/SCR Fife Council	Screening	Babcock Marine (Rosyth) Ltd submitted a request for a screening opinion for a proposed development of a single wind turbine generator within the Rosyth Royal Dockyard. The screening report stated that a HRA screening would be prepared and submitted at the application stage due to the proximity of designated sites. Fife Council confirmed that an EIA would be required and that the size/diameter of the proposed turbine blades had the potential to give rise to significant environmental impacts including those associated with bird features of the designated sites. No full application has been submitted and no consultation has taken place, therefore it is not possible to undertake an in-combination assessment. However, the EIA screening opinion did not indicate a potential link with the River Teith SAC and it is therefore concluded that an in-combination effect on that site is unlikely. **An in-combination assessment is not possible at this time.**	Possible	No
Erection of general Industrial	18km	24/00192/FULL Fife Council	Application permitted with	The application concerns the construction of a large building within the dockyard area. The application area is approximately 2.3 ha for the erection of a 1265 m^2 building. Planning assessment did not	No	No

Project/Plan Application Name	Approximate Distance from Kincardine Bridge	Planning Application and/or Marine Licence Reference Number	Status/ Decision	Description of the Project/Plan and Assessment of In-Combination Effects	Potential for In-combination Effects	
					Firth of Forth SPA and Ramsar	River Teith SAC
building (Class 5) and installation of external service modules and associated drainage works *HM Naval Base, Rosyth*			conditions	raise any issues with respect to biodiversity and no conditions relating to this were applied other than drainage and the potential for existing contamination. **No potential for in-combination effects on Firth of Forth SPA/Ramsar or River Teith SAC.**		
Certificate of lawfulness (proposed) for change of use of car park to form secure compound yard including erection of boundary wall/gates and associated drainage	18km	24/02001/CLP Fife Council	Application invalid	The application concerns the relocation of a car park with the dockyard area and the creation of a secure laydown area. The application was classed as invalid for a number of reasons and the status of the application is currently unknown. However, given the works are within the existing built-up/developed area of the dockyard it is anticipated that there would be no effects on biodiversity including European sites. **No potential for in-combination effects on Firth of Forth SPA/Ramsar or River Teith SAC.**	No	No

Project/Plan Application Name	Approximate Distance from Kincardine Bridge	Planning Application and/or Marine Licence Reference Number	Status/ Decision	Description of the Project/Plan and Assessment of In-Combination Effects	Potential for In-combination Effects	
					Firth of Forth SPA and Ramsar	River Teith SAC
infrastructure. *HM Naval Base, Rosyth*						
Development North Of Inchgarvie Lodge, Society Road, Port Edgar, South Queensferry	20.9km	The City of Edinburgh Council 22/02047/LBC 22/01987/SCR 22/01987/FUL 24/03383/FUL	Granted	The application is for the conversion of existing listed buildings to 49 residential units, cafe /restaurant, and serviced apartment. NatureScot initially advised that the development was likely to have a significant effect on the Firth of Forth SPA, and that further information was required. Subsequent to this, NatureScot were able to advise that there would not be adverse effect on site integrity. The River Teith SAC was not included in the advice. An additional application was submitted and granted in 2024 to allow formation of a new site access; NatureScot had no comments to make. **No potential for in-combination effects on Firth of Forth SPA/Ramsar or River Teith SAC.**	No	No
Construction and Maintenance Works - Forth Road Bridge, Forth	21.4km	Marine Licence Applications – (05568/ 00008903/ 00009122/ 00009380)	Granted	Marine Licence granted in April 2021 for maintenance works to the Forth Road Bridge (FRB). The FRB crosses over the Firth of Forth SPA/Ramsar and the Forth Islands SPA and an HRA was undertaken. LSE resulting from disturbance to qualifying interests of all designated sites was identified, however with the application of mitigation measures the assessment concluded no AESI on any	No	No

Project/Plan Application Name	Approximate Distance from Kincardine Bridge	Planning Application and/or Marine Licence Reference Number	Status/ Decision	Description of the Project/Plan and Assessment of In-Combination Effects	Potential for In-combination Effects	
					Firth of Forth SPA and Ramsar	River Teith SAC
Forth Road Bridge, Forth.		City of Edinburgh Council		designated site. The River Teith SAC was not included in the assessment due to the nature of works and absence of effects pathways. The works on the FRB may be concurrent with the Proposed Works. However, the bridges occupy different locations within the Firth of Forth (notably Kincardine is much further inland) and the availability of different supporting habitats within areas adjacent to the bridges are therefore quite different; for example saltmarsh and mudflats habitats are prominent within proximity of the Kincardine Bridge, with open water and rocky shores being more prevalent within proximity of the FRB. As such, disturbance events to qualifying interests of the SPA/Ramsar are unlikely to affect the same species therefore potential for significant disturbance and or displacement to qualifying interests is unlikely. Furthermore, with the implementation of mitigation identified within the HRA to safeguard the Firth of Forth SPA and Ramsar site (and the Forth Islands SPA), it is concluded that there is no potential for in-combination effects with the Proposed Works. Licence 00009380/00010164 expires 30/09/2026. **No potential for in-combination effects on Firth of Forth SPA/Ramsar or River Teith SAC.**		
Mixed-use development of	32.6km	City of Edinburgh	Awaiting assessmen	The application is a re-submission after planning application 21/06413/FUL was refused and the appeal was dismissed. The	Possible	No

Project/Plan Application Name	Approximate Distance from Kincardine Bridge	Planning Application and/or Marine Licence Reference Number	Status/ Decision	Description of the Project/Plan and Assessment of In-Combination Effects	Potential for In-combination Effects	
					Firth of Forth SPA and Ramsar	River Teith SAC
houses, flats (81 dwellings), commercial units, surrounding roads and public realm areas. Plot 35A Granton Harbour West Harbour Road Edinburgh		24/03097/FUL	t	application concerns a plot within the Granton Harbour wider development area, a 15 year masterplan for which was granted. The proposed development in Plot 35a comprise commercial and residential buildings (flats and houses). NatureScot stated (August 2024) that a HRA screening, and if necessary an AA, was required due to the proximity of the Firth of Forth SPA, and that once this information had been received they would provide further comment. A HRA was produced in January 2024 which stated that wit mitigation in place there would be no adverse effects. The HRA did not include the River Teith SAC in its assessment. Given the distance between the development site and the River Teith SAC, it is considered unlikely that there would be any adverse effects on that site. However, as NatureScot have highlighted the possibility of effects on the Firth of Forth SPA/Ramsar and have not yet commented on the HRA, it is concluded that there is the potential for an in-combination effect. **No potential for in-combination effects on the River Teith SAC. An in-combination assessment on the Firth of Forth SPA/Ramsar is not possible at this time.**		
Granton	32.6km	City of	Application	The HRA for the development concluded that the potential long-term	No	No

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					Firth of Forth SPA and Ramsar	River Teith SAC
Harbour Redevelopment		Edinburgh 18/01428/PPP 23/00756/FUL 23/00220/REF	dismissed.	displacement impact would not result in AESI due to sufficient alternative foraging habitat. However, an application was made in 2023 to amend conditions of approval PPA-230-2253 (18/01428/PPP), to extend the duration of the permission for three years to 20th June 2026. The application was refused. NatureScot commented that a new HRA was required for the application. An appeal was raised in November 2023 (23/00220/REF). This was dismissed in June 2024 by Scottish Ministers. However, the Reporter noted that two updated HRA documents has been provided and NatureScot advised that there was enough information to conclude that there would be no adverse effects on site integrity taking into account the proposed mitigation measures. Dismissal of the application was not related to HRA concerns. **No potential for in-combination effects on Firth of Forth SPA/Ramsar or River Teith SAC.**		
Construction – Port of Leith, Dredging – Port of Leith	35.4km	Marine Licence Application – (00010662) (00010663)	Application	The applications are for the development of the Port of Leith to increase port capacity and provide suitable infrastructure. The works include developing the port as well as dredging. A Marine Licence application has been submitted to increase water depth for access to the Port of Leith and is associated with previous applications (00009818 and 00009819). The proposed deepening	No	No

Project/Plan Application Name	Approximate Distance from Kincardine Bridge	Planning Application and/or Marine Licence Reference Number	Status/ Decision	Description of the Project/Plan and Assessment of In-Combination Effects	Potential for In-combination Effects	
					Firth of Forth SPA and Ramsar	River Teith SAC
				would increase the depth of the approach channel to -9.0m CD and extend the offshore extent, from the current maintenance dredge limit, to the -9.0m CD contour within the Firth of Forth. The Outer Berth berth pocket, most of which will have been deepened to -9.0m CD as part of the consented Outer Berth development, would be repositioned northwards, increased in size, and deepened to -13.0m CD. It is anticipated that the dredge and disposal activities would be completed within approximately four months, with approximately 1,300,000m^3 of material removed. The Narrow Deep B spoil disposal ground has been proposed for disposal of the arisings. The licence has not yet been granted. HRAs were undertaken and disturbance, habitat loss and water quality effects were examined for the Firth of Forth SPA/Ramsar site whilst underwater noise, changes in water quality and changes in habitat quality were screened in for the River Teith SAC. No adverse effects on either site were predicted, and no mitigation was required. **No potential for in-combination effects on Firth of Forth SPA/Ramsar or River Teith SAC.**		
Water injection maintenance dredging - Grangemouth	4.2km and 35.4km	Marine Licence Application – (00008842)	Application	A Marine Licence application has been submitted for Water Injection Dredging (WID) of engineered surfaces within Forth Ports jurisdiction e.g. Grangemouth and Leith locks and dock entrances. The works will include flushing the agitated material back into the estuary, from	No	No

Project/Plan Application Name	Approximate Distance from Kincardine Bridge	Planning Application and/or Marine Licence Reference Number	Status/ Decision	Description of the Project/Plan and Assessment of In-Combination Effects	Potential for In-combination Effects	
					Firth of Forth SPA and Ramsar	River Teith SAC
and Leith Locks Grangemouth Locks. *Grangemouth and Leith Locks, Leith.*		Falkirk Council and City of Edinburgh Council		where it originated. The site at Grangemouth has been previously dredged (periodic maintenance), under licence, to maintain safety of navigation. The proposed start date stated in the application was 10/08/2020 with a proposed completion date of 09/08/2023. No detrimental impacts to the surrounding environment were identified. Furthermore, Forth Ports do not foresee any negative impacts from this work based on the results of analysis of sediment samples from recent licence applications. Dredging would be expected to be carried out over approximately three to four days during each campaign as part of the routine maintenance at the locks. The proposal is small scale and dredging activities will be short-term nature over the period for which the licence is granted. Furthermore, as dredging has been undertaken previously, and is ongoing as part of maintenance, it is considered that qualifying interests of the European sites will be habituated to these activities and the works will be no more disturbing than background levels. It is therefore concluded that there is no potential for in-combination effects with the Proposed Works. Licence 00008842 has expired. **No potential for in-combination effects on Firth of Forth SPA/Ramsar or River Teith SAC.**		
Erection of mixed-use	35.6km	22/05599/FUL	Granted	A full planning application was submitted for redevelopment of part of the Ocean Terminal area at Leith Docks. NatureScot commented	No	No

Project/Plan Application Name	Approximate Distance from Kincardine Bridge	Planning Application and/or Marine Licence Reference Number	Status/ Decision	Description of the Project/Plan and Assessment of In-Combination Effects	Potential for In-combination Effects	
					Firth of Forth SPA and Ramsar	River Teith SAC
development comprising residential and commercial uses, comprising Class 1, 2 and 3 uses, installation of padel court (Class 11), and creation of new public realm, with associated landscaping, infrastructure, and access arrangements. *Ocean Terminal, 98 Ocean Drive, Edinburgh*		City of Edinburgh Council		that the proposal could affect internationally important natural heritage interests and that they therefore object to the proposal until further information is provided. The sites at risk were stated as being Imperial Dock Lock, Leith SPA; Firth of Forth SPA; Outer Firth of Forth and St Andrews Bay Complex SPA. Subsequent information (Development Management Sub-Committee Report, 10 January 2024) indicated that it had been possible to conclude 'no adverse effect on site integrity'. The application was granted in June 2024. **No potential for in-combination effects on Firth of Forth SPA/Ramsar or River Teith SAC.**		

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					Firth of Forth SPA and Ramsar	River Teith SAC
Planning permission in principle for mixed use development … Land West And North West Of 8A - 8D Bandeath Industrial Estate Throsk	7.5km	24/00651/PPP Stirling Council		Planning permission in principle is being sought a for mixed use development comprising Class 6 (storage and distribution) including new warehousing and areas for outside storage, Class 5 (general industry) including workshops and industrial units, and Class 4 (business) new offices and light industrial units; new roads and hard surfaced parking areas for HGVs, trailers, and cars; energy related proposals including roof mounted solar panels, ground mounted solar panels, EV charging facilities, and battery storage; other facilities for HGVs, including weigh bridge and refuelling facilities including tanks for diesel and hydrogen: new drainage and other infrastructure; and associated hard and soft landscaping. The PEA noted the presence of the "*Firth of Forth designated site*" although no impacts were identified. The application is awaiting decision. Whilst the application area is not immediately adjacent to a European site it is less than 1km from the Firth of Forth SPA and Ramsar site (and SSSI) and less than 15m from the Firth of Forth itself. No further ecological assessments have been made at this time and no decision has been made on the application. **An in-combination assessment is not possible at this time.**	Possible	Possible
Erection of 2No.	7.5km	22/00449/PPP	Permission granted	Planning Permission in Principle has been granted (September 2022) for the erection of two houses. As part of this permission, it	Possible	No

Project/Plan Application Name	Approximate Distance from Kincardine Bridge	Planning Application and/or Marine Licence Reference Number	Status/ Decision	Description of the Project/Plan and Assessment of In-Combination Effects	Potential for In-combination Effects	
					Firth of Forth SPA and Ramsar	River Teith SAC
dwellinghouses Land Adjacent To North And East Of Ochilview Cottage Throsk		Stirling Council		was stated that no development could take place within the Firth of Forth SSSI. The development site is also contiguous with the Firth of Forth SPA/Ramsar. A full application has not been submitted and therefore no timescale for the works is available. The works are minor in nature and due to their location and proximity to the main channel of the River Forth, it is concluded that there is no potential for in-combination effects with the Proposed Work on the River Teith SAC. As the development site is immediately adjacent to the Firth of Forth SPA/Ramsar, impacts on qualifying interests of the site are possible. However, as no further information is available, and full details of the development are required prior to full planning permission being given, it is not possible to say what effects, if any, may occur on the Firth of Forth SPA/Ramsar. **An in-combination assessment on Firth of Forth SPA/Ramsar is not possible at this time. No potential for in-combination effects on the River Teith SAC.**		
Erection of maturation warehouses for storage and maturation of whisky casks,	8.4km	23/00238/FUL Stirling Council	Permission granted	Planning permission has been granted for the erection of warehouses and other works. NatureScot commented that the HRA process applies; they stated that there were several possible impact pathways to the Firth of Forth SPA, but concluded that there would be no adverse effect on the site due to the localised nature of the works, its location and the construction methodology. No potential	No	No

Project/Plan Application Name	Approximate Distance from Kincardine Bridge	Planning Application and/or Marine Licence Reference Number	Status/ Decision	Description of the Project/Plan and Assessment of In-Combination Effects	Potential for In-combination Effects	
					Firth of Forth SPA and Ramsar	River Teith SAC
associated blend centre, tank farm and offices, associated landscaping, access, parking, SUDS, drainage and associated works *Land To South West Of Bandeath Dog Kennels And North West Of Throsk House Bandeath Industrial Estate Throsk*				effects on the River Teith SAC were raised. **No potential for in-combination effects on Firth of Forth SPA/Ramsar or River Teith SAC.**		
Proposed mixed tenure	14.2km	PAN-2020-007	Awaiting Decision	A Planning Application Notice has been submitted for the proposed 3.9ha residential development adjacent to the River Forth. Limited	No	Possible

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					Firth of Forth SPA and Ramsar	River Teith SAC
residential development including lodges and riverside access with associated roads, parking and landscaping *Land Adjacent To West Of Waterside Cottage, Ladysneuk Road, Stirling*		Stirling Council		details are available for the proposal and it is only at a very early stage in the planning process. It is likely that works will be undertaken directly adjacent to the river and therefore there is the potential for disturbance to qualifying interests of the River Tay SAC. Given the stage that the proposal is at, not enough information is currently available to determine what, if any, LSEs or adverse effects may occur on the River Teith SAC. Due to the location of the works and distance from Kincardine Bridge and the Firth of Forth SPA/Ramsar, it is concluded that there would be no potential for in-combination effects on the Firth of Forth SPA/Ramsar. **No potential for in-combination effects on Firth of Forth SPA/Ramsar. An in-combination assessment on the River Teith SAC is not possible at this time.**		
Upgrade lighting using existing floodlighting scheme	14.6km	19/00683/FUL Stirling Council	Approve with Conditions	Upgrades to the existing floodlighting at the Stirling Old Bridge is proposed. This proposal has been approved with conditions imposed to protect the archaeological and landscape features of and adjacent to the bridge. Permission expired in December 2022. The works will be undertaken directly adjacent to the River Forth, however it is considered unlikely for there to be significant	No	No

Project/Plan Application Name	Approximate Distance from Kincardine Bridge	Planning Application and/or Marine Licence Reference Number	Status/ Decision	Description of the Project/Plan and Assessment of In-Combination Effects	Potential for In-combination Effects	
					Firth of Forth SPA and Ramsar	River Teith SAC
Stirling Old Bridge, Bridgehaugh Road, Stirling				disturbance due to the small scale nature of the works. As the lighting will be directed towards the bridge there is limited potential for light spill onto sensitive habitats within the River Forth used by migrating qualifying interests of the River Teith SAC. No in-combination effects with the Proposed Works are identified on the River Teith SAC. Furthermore, due to the location of the works and distance from Kincardine Bridge and the Firth of Forth SPA/Ramsar, it is concluded that there would be no potential for in-combination effects on the Firth of Forth SPA/Ramsar. **No potential for in-combination effects on Firth of Forth SPA/Ramsar or River Teith SAC.**		
Install vehicle restraint barriers (VRS) in front of the traffic face of both parapets, for the full length of the bridge to remain in place for a temporary period of 2	14.7km	19/00036/LBC Stirling Council	Approve with Conditions	An application to install temporary restraint barriers on the Stirling New Bridge has been approved. The works will involve installation of VRS on the bridge which will tie in either side of the River Forth. The consent is valid for a period of two years from consent (a condition of the approval); therefore these works will be completed prior to the Proposed Works. There is no potential for in-combination effects. **No potential for in-combination effects on Firth of Forth SPA/Ramsar or River Teith SAC.**	No	No

Project/Plan Application Name	Approximate Distance from Kincardine Bridge	Planning Application and/or Marine Licence Reference Number	Status/ Decision	Description of the Project/Plan and Assessment of In-Combination Effects	Potential for In-combination Effects	
					Firth of Forth SPA and Ramsar	River Teith SAC
years. *Stirling New Bridge, Causewayhead Road, Causewayhead , Stirling.*						
Development of new riding centre including conversion of steel barn with new extension to provide tack room, toilets and changing areas, riding arena, services and landscaping works	16.7km	22/00829/FUL Stirling Council	Withdrawn	A planning application has been submitted for the development of a riding centre adjacent to the River Forth upstream of Stirling and adjacent to the River Teith SAC. NatureScot commented that the development was likely to have a significant effect on the River Teith SAC. They further outlined mitigation which if undertaken would avoid adverse effects. Due to the location of the development and the distance from the Proposed Works and the Firth of Forth SPA/Ramsar site no in-combination effects in relation to that site are predicted. However, the application was withdrawn and therefore there will be no in-combination effects. **No potential for in-combination effects on Firth of Forth SPA/Ramsar or River Teith SAC..**	No	No

Project/Plan Application Name	Approximate Distance from Kincardine Bridge	Planning Application and/or Marine Licence Reference Number	Status/ Decision	Description of the Project/Plan and Assessment of In-Combination Effects	Potential for In-combination Effects	
					Firth of Forth SPA and Ramsar	River Teith SAC
Kildean Loop To North Of Selbie Place Kildean Stirling						
New office development (Use Class 4) with associated landscaping, parking and site infrastructure *Land 320m North West Of The Highland Gate, Drip Road, Raploch, Stirling.*	16.8km	20/00291/FUL Stirling Council	Approve – Subject to Section 75	A new office development on a former industrialised site was approved in 2020 and is complete. The boundary of the site is within 10m of the River Forth. No HRA or environmental assessments are available as part of the application, however the conditions of the approval specified best practice mitigation measures for ecology. Due to the nature and location of the proposal, and as the development is now complete, no in-combination effects on the European sites are likely. **No potential for in-combination effects on Firth of Forth SPA/Ramsar or River Teith SAC.**	No	No

5.3 Assessment of the Firth of Forth SPA, Firth of Forth Ramsar and River Teith SAC

5.3.1 A total of 40 projects and licences were identified for inclusion in the in-combination assessment (Table 9). Of these projects, the SPV Replacement Scheme is particularly noteworthy as both the Proposed Works and the SPV Replacement Scheme relate to works on the Bridge, and there are potential in-combination effects identified. No other projects were identified to have the potential for in-combination effects with the Proposed Works, although for seven projects it was considered that an in-combination assessment was not possible at this time and that effects on the Firth of Forth SPA/Ramsar and/or River Teith SAC were possible. It is acknowledged, that these proposals, and future proposals adjacent to the estuary may act in-combination with the proposed scheme, but it would therefore be for these future developments to take into account the results of this assessment, especially if construction phases are concurrent.

SPV Replacement Scheme

5.3.2 The Proposed Works are required for the future maintenance of the Kincardine Bridge, and the SPV Replacement Scheme is necessary to preserve the long-term use of the Bridge. Both the Proposed Works and the SPV Replacement Scheme require access/working from the saltmarsh underneath and adjacent to the Bridge (specifically Works Item 2 of the Proposed Works, the repairs to the 50ft concrete spans and Bearing Replacement). As specified in the mitigation commitments for the SPV Replacement Scheme a saltmarsh management plan will be adhered to and will include measures for habitat regeneration post-construction. In order for the habitat to regenerate, access to the area of disturbed saltmarsh will need to be restricted once recovery measures are in place. Therefore there is the risk that the habitat regeneration will be jeopardised from any subsequent access within this restricted area.

5.3.3 As discussed in Table 3 (Screening Assessment), when taken in isolation, the Proposed Works are unlikely to result in long-term damage to the saltmarsh. It is acknowledged that localised deterioration of saltmarsh is likely, however this would be short-term, and measures such as use of geotextile matting would reduce the impact to the saltmarsh. However, in-combination with the SPV Replacement Scheme there is the potential for adverse effects; access to, and working from, the saltmarsh to repair the 50ft concrete spans and Bearing Replacement once the recovery measures are in place could impact the saltmarsh natural regeneration following the SPV Replacement Scheme.

5.3.4 It is therefore imperative that the 50ft concrete span repairs and Bearing Replacement are programmed to be undertaken immediately after the SPV Replacement Scheme, prior to recovery measures being in place. This would then allow for the saltmarsh management and regeneration to proceed unhindered. The Saltmarsh Management Plan will be developed by the Contractor for the SPV Replacement Scheme, in consultation with NatureScot, and will include reference to the 50ft concrete span repairs, where necessary, to ensure appropriate programming of the works to safeguard the regeneration process. Consultation between BEAR Scotland and the Contractor is required.

5.3.5 Where there is overlap between the 50ft concrete span repairs and Bearing Replacement and the existing Saltmarsh Management Plan currently under development/implementation, BEAR will ensure that the Plan will be updated to accommodate as necessary to take into account the span repairs and Bearing Replacement and any further restoration requirements/methods. BEAR will also ensure that the Plan is taken forward by any Contractor as required. In addition, in line with NatureScot advice, it will be necessary to consult NatureScot on updates to the Saltmarsh Management Plan before any changes in restoration methods are confirmed and before works commence.

Summary

5.3.6 In summary, one project was identified that have the potential to act in-combination with the Proposed Works to result in LSE on the Firth of Forth SPA and Ramsar site. However, with appropriate mitigation as discussed within Stage Two (Appropriate Assessment), there will be no AESI on the designated sites.

6 Summary and Conclusions

6.1 Screening Assessment

6.1.1 Relevant European and Ramsar sites were selected by identifying ecological connectivity and the potential effects pathways from the project, particularly with regards to disturbance. Following further assessment of potential effects pathways from the Proposed Works, three sites were identified to be considered within the screening: Firth of Forth SPA, Firth of Forth Ramsar and River Teith SAC.

6.1.2 Following the screening, it was concluded that the Proposed Works have the potential to result in LSEs on qualifying interests of the Firth of Forth SPA, Firth of Forth Ramsar and River Teith SAC, therefore there was a requirement to progress to Stage Two (AA) for all three sites.

6.1.3 An assessment of the Proposed Works in combination with other plans and projects was undertaken. One project was identified with the potential to act in-combination with the Proposed Works to result in a cumulative effect on the Firth of Forth SPA and Ramsar site. No in-combination effects were identified on the River Teith SAC.

6.2 Appropriate Assessment

6.2.1 Implications for the Firth of Forth SPA, Firth of Forth Ramsar and River Teith SAC's conservation objectives were avoided through application of mitigation measures.

6.2.2 Although a precautionary approach has been taken in relation to the anticipated programme and methods for the Proposed Works included in this HRA, the Contractor or BEAR Scotland may identify requirements to amend these, for example due to bad weather delaying activities, or improved methods. If Proposed Works do change in nature

or timing then a no worse environmental test will be undertaken, and NatureScot and/or Marine Directorate (as appropriate) will be consulted to confirm the protection of European and Ramsar sites is assured and the conclusions of the HRA remain valid.

6.2.3 With mitigation in place it is concluded that there will be no implications for the conservation objectives of the Firth of Forth SPA, Firth of Forth Ramsar and River Teith SAC from Proposed Works as described within this HRA. There will therefore be no AESI for the sites, either alone or in combination with other plans and projects.

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