



Transport Scotland
North West Unit



Statement to Inform Appropriate Assessment

A9 Dornoch Bridge 5 year marine licence

Statement to Inform Appropriate Assessment

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1. Habitats Regulations Appraisal Proforma

APPRAISAL IN RELATION TO REGULATION 48 OF THE CONSERVATION (NATURAL HABITATS, &C.) REGULATIONS 1994 AS AMENDED¹ (HABITATS REGULATIONS APPRAISAL)

NATURA SITE DETAILS

Name of Natura site(s) potentially affected:

1. Moray Firth Special Area of Conservation (SAC);
2. River Evelix SAC;
3. River Oykel SAC;
4. Dornoch Firth and Morrich More SAC;
5. Dornoch Firth and Loch Fleet Special Protection Area (SPA) and Ramsar Site;
6. Moray Firth proposed SPA.

Name of component SSSI if relevant:

Dornoch Firth, Loch Fleet, Morrich More, Mound Alderwoods, Tarbat Ness.

Natura qualifying interest(s) & whether priority/non-priority:

- 1. Moray Firth SAC:**
Subtidal sandbanks, Favourable Maintained;
Bottlenose dolphins (*Tursiops truncatus*), Favourable Recovered.
- 2. River Evelix SAC:**
Freshwater pearl mussel (*Margaritifera margaritifera*), Unfavourable Declining.
- 3. River Oykel SAC:**
Atlantic salmon (*Salmo salar*); Favourable, recovered;
Freshwater pearl mussel (*Margaritifera margaritifera*), Unfavourable No Change.
- 4. Dornoch Firth and Morrich More SAC:**
Atlantic salt meadows; Favourable Maintained;
Coastal dune heathland; Unfavourable No Change;
Dune grassland; Unfavourable No Change;
Dunes with juniper thickets; Unfavourable Recovering; **(Priority habitat)**
Estuaries;
Glasswort and other annuals colonising mud and sand; Favourable Maintained;
Harbour seal (*Phoca vitulina*); Unfavourable Declining;
Humid dune slacks; Favourable Maintained;
Intertidal mudflats and sandflats; Favourable Maintained;
Lime-deficient dune heathland with crowberry; Unfavourable No Change;
Otter (*Lutra lutra*); Favourable Maintained;
Reefs; Favourable Maintained;
Shifting dunes; Favourable Maintained;
Shifting dunes with marram; Favourable Maintained;
Subtidal sandbanks, Favourable Maintained.
- 5. Dornoch Firth and Loch Fleet SPA and Ramsar Site:**
Bar-tailed godwit (*Limosa lapponica*), non-breeding; Favourable Maintained;
Curlew (*Numenius arquata*), non-breeding; Favourable Maintained;
Dunlin (*Calidris alpina alpina*), non-breeding; Favourable Declining;
Greylag goose (*Anser anser*), non-breeding; Favourable Maintained;
Osprey (*Pandion haliaetus*), breeding; Favourable Maintained;
Oystercatcher (*Haematopus ostralegus*), non-breeding; Favourable Maintained;
Redshank (*Tringa totanus*), non-breeding; Not Assessed;
Scaup (*Aythya marila*), non-breeding; Not Assessed;
Teal (*Anas crecca*), non-breeding; Favourable Maintained;
Wigeon (*Anas penelope*), non-breeding; Favourable Maintained;
Waterfowl assemblage, non-breeding; Favourable Maintained;
Bar-tailed godwit (*Limosa lapponica*), non-breeding, **(Ramsar)**;
Curlew (*Numenius arquata*), non-breeding **(Ramsar)**;

¹ Or, where relevant, under regulation 61 of The Conservation of Habitats and Species Regulations 2010 as amended, or regulation 25 of The Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007 as amended.

Dunlin (*Calidris alpina alpina*), non-breeding (**Ramsar**);
 Greylag goose (*Anser anser*), non-breeding (**Ramsar**);
 Harbour seal (*Phoca vitulina*) (**Ramsar**);
 Intertidal mudflats and sandflats (Favourable maintained) (**Ramsar**);
 Invertebrate assemblage (**Ramsar**);
 Osprey (*Pandion haliaetus*), breeding (**Ramsar**);
 Otter (*Lutra lutra*) (**Ramsar**);
 Oystercatcher (*Haematopus ostralegus*), non-breeding (**Ramsar**);
 Redshank (*Tringa totanus*), non-breeding, (**Ramsar**);
 Scaup (*Aythya marila*), non-breeding (**Ramsar**);
 Teal (*Anas crecca*), non-breeding (**Ramsar**);
 Waterfowl assemblage, non-breeding, (**Ramsar**);
 Wigeon (*Anas penelope*), non-breeding (**Ramsar**);
 Intertidal mudflats and sandflats, (**Ramsar**);
 Reefs (**Ramsar**);
 Saltmarsh (**Ramsar**);
 Sand dunes (**Ramsar**);
 Wet woodland (**Ramsar**).

6. Moray Firth pSPA:

Great northern diver (*Gavia immer*), non-breeding;
 Red-throated diver (*Gavia stellata*), non-breeding;
 Slavonian grebe (*Podiceps auritus*), non-breeding;
 Greater scaup (*Aythya marila*), migratory;
 Common eider (*Somateria mollissima*), migratory;
 Long-tailed duck (*Clangula hyemalis*), migratory;
 Common scoter (*Melanitta nigra*), migratory;
 Velvet scoter (*Melanitta fusca*), migratory;
 Common goldeneye (*Bucephala clangula*), migratory;
 Red-breasted merganser (*Mergus serrator*), migratory;
 European shag (*Phalacrocorax aristotelis*), migratory.

None of the qualifying interest species are priority species.

Conservation objectives for qualifying interests:

1. Moray Firth SAC

The Conservation Objectives for the qualifying habitat (Subtidal sandbanks) of the Moray Firth SAC are as follows:

To avoid deterioration of the qualifying habitat 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 habitat that the following are maintained in the long term:

- *Extent of the habitat on site*
- *Distribution of the habitat within site*
- *Structure and function of the habitat*
- *Processes supporting the habitat*
- *Distribution of typical species of the habitat*
- *Viability of typical species as components of the habitat*
- *No significant disturbance of typical species of the habitat*

The Conservation Objectives for the qualifying species (bottlenose dolphin) are as follows:

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 established then 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*
- *No significant disturbance of the species*

2. River Evelix SAC

The Conservation Objectives for the qualifying species (Freshwater pearl mussel) of the River Evelix SAC are as follows:

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, 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*
- *No significant disturbance of the species*
- *Distribution and viability of freshwater pearl mussel host species*
- *Structure, function and supporting processes of habitats supporting freshwater pearl mussel host species*

3. River Oykel SAC

The Conservation Objectives for the qualifying species (Atlantic salmon and freshwater pearl mussel) of the River Oykel SAC are as follows:

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 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*
- *Distribution and viability of freshwater pearl mussel host species*
- *Structure, function and supporting processes of habitats supporting freshwater pearl mussel host species*

4. Dornoch Firth and Morrich More SAC

- *Atlantic salt meadows;*
- *Coastal dune heathland;*
- *Dune grassland;*
- *Dunes with juniper thickets;*
- *Estuaries;*
- *Glasswort and other annuals colonising mud and sand;*
- *Humid dune slacks;*
- *Intertidal mudflats and sandflats;*
- *Lime-deficient dune heathland with crowberry;*
- *Reefs;*
- *Shifting dunes;*
- *Shifting dunes with marram;*
- *Subtidal sandbanks.*

The Conservation Objectives for the qualifying habitats (listed above) of the Dornoch Firth and Morrich More SAC are as follows:

To avoid deterioration of the qualifying habitats 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 habitats that the following are maintained in the long term:

- *Extent of the habitat on site*
- *Distribution of the habitat within site*
- *Structure and function of the habitat*
- *Processes supporting the habitat*
- *Distribution of typical species of the habitat*
- *Viability of typical species as components of the habitat*
- *No significant disturbance of typical species of the habitat*

The Conservation Objectives for the qualifying species (otter and harbour seal) are as follows:

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 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
- No significant disturbance of the species

5. Dornoch Firth and Loch Fleet SPA and Ramsar

- Bar-tailed godwit (*Limosa lapponica*);
- Curlew (*Numenius arquata*);
- Dunlin (*Calidris alpina alpina*);
- Greylag goose (*Anser anser*);
- Osprey (*Pandion haliaetus*);
- Oystercatcher (*Haematopus ostralegus*);
- Redshank (*Tringa totanus*);
- Scaup (*Aythya marila*);
- Teal (*Anas crecca*);
- Wigeon (*Anas penelope*);
- Waterfowl assemblage.
- Bar-tailed godwit (*Limosa lapponica*), non-breeding, (**Ramsar**);
- Curlew (*Numenius arquata*), non-breeding (**Ramsar**);
- Dunlin (*Calidris alpina alpina*), non-breeding (**Ramsar**);
- Greylag goose (*Anser anser*), non-breeding (**Ramsar**);
- Harbour seal (*Phoca vitulina*) (**Ramsar**);
- Intertidal mudflats and sandflats (Favourable maintained) (**Ramsar**);
- Invertebrate assemblage (**Ramsar**);
- Osprey (*Pandion haliaetus*), breeding (**Ramsar**);
- Otter (*Lutra lutra*) (**Ramsar**);
- Oystercatcher (*Haematopus ostralegus*), non-breeding (**Ramsar**);
- Redshank (*Tringa totanus*), non-breeding, (**Ramsar**);
- Scaup (*Aythya marila*), non-breeding (**Ramsar**);
- Teal (*Anas crecca*), non-breeding (**Ramsar**);
- Waterfowl assemblage, non-breeding, (**Ramsar**);
- Wigeon (*Anas penelope*), non-breeding (**Ramsar**);
- Intertidal mudflats and sandflats, (**Ramsar**);
- Reefs (**Ramsar**);
- Saltmarsh (**Ramsar**);
- Sand dunes (**Ramsar**);
- Wet woodland (**Ramsar**).

As there are no specific conservation objectives or management measures for the Dornoch Firth and Loch Fleet Ramsar (Ramsar information sheet: UK13011, JNCC, 2008) the conservation objectives for the Dornoch Firth and Loch Fleet SPA have been considered. Hence, the conservation objectives for the qualifying species (listed above) of the Dornoch Firth and Loch Fleet SPA and Ramsar site are as follows:

To avoid deterioration of the habitats of the qualifying species (listed above) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and

To ensure for the qualifying species 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
- No significant disturbance of the species

In relation to the habitats that are qualifying features of the Ramsar it is assumed that the conservation objectives of the Dornoch Firth and Morrich More SAC would be appropriate:

To avoid deterioration of the qualifying habitats 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 habitats that the following are maintained in the long term:

- *Extent of the habitat on site*
- *Distribution of the habitat within site*
- *Structure and function of the habitat*
- *Processes supporting the habitat*
- *Distribution of typical species of the habitat*
- *Viability of typical species as components of the habitat*
- *No significant disturbance of typical species of the habitat*

6. Moray Firth pSPA

The SPA proposal is currently out to consultation and does not have any agreed Conservation Objectives; however, in the meantime the area has policy protection.

The pSPA has been specifically selected to protect a number of seabirds. The proposed qualifying features are:

- *Great northern diver (Gavia immer), non-breeding;*
- *Red-throated diver (Gavia stellata), non-breeding;*
- *Slavonian grebe (Podiceps auritus), non-breeding;*
- *Greater scaup (Aythya marila), migratory;*
- *Common eider (Somateria mollissima), migratory;*
- *Long-tailed duck (Clangula hyemalis), migratory;*
- *Common scoter (Melanitta nigra), migratory;*
- *Velvet scoter (Melanitta fusca), migratory;*
- *Common goldeneye (Bucephala clangula), migratory;*
- *Red-breasted merganser (Mergus serrator), migratory;*
- *European shag (Phalacrocorax aristotelis), migratory.*

The draft conservation objectives for the proposed qualifying features (listed above) of the Moray Firth pSPA are:

To avoid deterioration of the habitats of the qualifying species or significant disturbance to the proposed qualifying species, subject to natural change, thus ensuring that the integrity of the site is maintained in the long-term and it continues to make an appropriate contribution to achieving the aims of the Birds Directive for each of the qualifying species.

This contribution will be achieved through delivering the following objectives for each of the site's proposed qualifying features:

- a) *Avoid significant mortality, injury and disturbance of the qualifying features, so that the distribution of the species and ability to use the site are maintained in the long-term;*
- b) *To maintain the habitats and food resources of the qualifying features in favourable condition.*

STEP 1: WHAT IS THE PLAN OR PROJECT?

Proposal title:

A9 Dornoch Bridge 5 Year Marine Licence

Name of consultee:

BEAR Scotland

Name of competent authority:

Transport Scotland and Marine Scotland

Details of proposal (inc. location, timing, methods):

BEAR Scotland are applying for a marine licence to cover a 5-year programme of maintenance works on the A9 Dornoch Bridge, Highland. The maintenance activities are broken down into 'scheme' and 'cyclic maintenance'. 'Scheme' represents those works that will be required over the next 5 years, whilst 'cyclic maintenance' represents those works which may be required over the same timeframe. Inspections will also be carried out to identify the degree of maintenance activity required.

The activities will include:

Scheme

- Bridge levelling.

Cyclic maintenance

- Resurfacing;
- Minor concrete repairs;
- Drainage cleaning;
- Parapet repairs;
- Bird guano removal;
- Bearing renewal;
- Expansion joint renewal.

Inspection

- Principal inspections;
- Bridge level survey.

All activities are highly localised and will take place within the immediate vicinity of the bridge. In most cases, activity duration is likely to be less than a few weeks and, in all cases, less than six months. All maintenance works are, therefore, considered temporary and are unlikely to be carried out simultaneously. It is not desirable to programme more than one activity on the bridge at any one time. This is due to the traffic management and multiple subcontractor requirements increasing complexity of programming and delivery of these projects, as such it is not expected that there will be any overlap of the scheme activity 'bridge levelling' with cyclic maintenance activities.

To access the soffit of the bridge deck or piers, an underbridge access unit is required to complete maintenance or inspections underneath the bridge. It is not considered that a RIB, or any marine vessel, would be required to facilitate the activities proposed. The underbridge platforms will either be lorry-mounted underbridge platforms or fixed platforms suspended from the bridge. In line with health and safety requirements any work being carried out beneath the bridge will require an adequate working platform and railing to prevent any workers from falling. In line with good practice, around this platform and railing, containment will be achieved by the attachment of either debris netting or thickened sheets to prevent materials falling from the platform.

With the exception of the activities 'bird guano removal', 'minor concrete repairs', 'bearing renewal', all maintenance works will be carried out from the upper surface of the bridge (deck). Of these activities, only minor concrete repairs could require work to be carried out between mean high water and mean low water. However, as with all other activities, the works will not be specifically constrained by tidal cycles i.e. the proposed activities, or elements thereof, could take place at all states of the tide. None of the activities require work to be carried out within the subtidal environment.

Further detail for each of the maintenance activities is contained below. A range of good practice and management measures will be adopted by the successful contractor. These are detailed for each activity; however, the following good practice and management measures will also be adopted throughout the maintenance programme irrespective of the activity:

- The site supervisor will give toolbox talks prior to work commencing. These talks will highlight any sensitive features, including the designated sites and their qualifying features.
- In line with good practice, the contractor will follow the updated and relevant Guidance for Pollution Prevention (GPPs) including GPP 5 (Works and maintenance in or near water). Pollution Prevention Guidance (PPGs) will be followed if no corresponding GPP is available.

- Oils, fuels and chemicals will be stored in fully bunded areas.
- Spill kits will be available on site and workers trained in their use.
- The contractor will produce a contingency plan for dealing with spills or environmental incidents.
- Any waste generated will be removed from site and either recycled or disposed of in compliance with Waste Management Regulations.

Bridge Levelling

Bridge levelling will be required to alleviate stresses within the bridge deck and substructure. Work will entail the fitting of temporary jacks to the piers on the bridge and jacking-up the bridge, no more than a few centimetres, until the deck is level. Packing will then be fitted within any gap. The bridge will then be lowered back into place. Lane closures will only be necessary for delivery of equipment (jacks, packers, bearings etc.). There will be no requirement for works related to this activity to be carried out below the mean high water mark. The duration of these works will be approximately 2-3 months.

Summary methodology:

- Establish traffic management
- Establish access system
- Jack-up bridge.
- Install monitoring system
- Complete ancillary works
- Lower bridge into place
- Demobilise from site

The following good practice measure will also be adopted:

- Debris netting to be installed around the bearing to ensure that no materials fall into the estuary during bridge levelling.

Resurfacing

Footpath and road resurfacing requires periodic maintenance and renewal. These works will be carried out on the deck only. These works will take approximately 1-2 weeks to complete.

Summary methodology:

- Establish traffic management as required
- Excavate or plane off surfacing
- Complete concrete repairs on bridge deck as required
- Apply waterproofing if required
- Lay binder and surface course
- Demobilise traffic management

The following good practice and management measures will also be adopted:

- Ensure that all milling works are carried out during suitable periods of weather to ensure that waste material is not blown or washed into the water.
- Gullies and drainage points will be blocked with heavy duty plastic during spraying of surface binder to prevent entry into the water environment. They will be removed as waste on completion of works.
- Debris netting is to be installed around the area being milled.

Minor concrete repairs

Minor concrete repairs to both the superstructure and substructure may be required following inspections. This may include work on the piers below the mean high water level (but above mean low water). Works will require the use of hydro demolition for large repairs and hand tools for smaller repairs. The duration of these works will vary depending on the extent of the repairs, which will be identified during the inspection(s). However, the maximum duration of the repair work is approximately 2 to 3 weeks.

Where repair work is required, including hydro demolition, it will take place at a highly localised point on the bridge. Work will then progress at point locations, as required, along the bridge in a systematic fashion. Where works are required beneath the bridge they will be facilitated by an underbridge unit. In line with health and safety requirements, any work being carried out beneath the bridge will require an adequate working platform and railing to prevent any workers from falling. In line with good practice, around this platform and railing, containment will be achieved by the attachment of either debris netting (if small repairs only) or thickened sheets (if hydro demolition). If hydro demolition is being carried out, then the floor of the

platform will be layered with materials to fully contain the water and debris e.g. Terram and Visquine layers. Therefore, there will be no pathway for debris or work water to inadvertently enter the marine environment.

Concrete fragments that land on the access system floor, during large or small repair works will be cleaned up, taken to the surface of the bridge and removed from site by licensed waste carriers. The water generated during the hydro demolition will either be pumped back up to the bridge deck, where it will then be collected and removed from site by licensed waste carriers; or, the water will be filtered and pH reduced before discharging in to the marine environment. The contractor will ensure that the conditions of a SEPA CAR licence are adhered to, should one be required for the discharge. As outlined above, activities will not be specifically constrained to any state of the tide; therefore, discharge of water could take place at any period of the tidal cycle.

As noted above, there may be a requirement to access areas of the bridge that lie between mean high water spring and mean low water spring, specifically on the piers. This will be facilitated by either a fixed platform, that at certain states of the tide will be immersed or, as is more likely, and as previously done at Cromarty Bridge, by a platform that is raised/lowered accordingly and will thus always remain above the water. If a fixed platform is used then workers will ensure that all debris, material and work water is removed from the platform, before immersion, with this material then removed from the site by licensed waste carriers; or, filtered and pH reduced before discharging in to the marine environment (as above).

On the deck of the bridge, debris netting or sheeting will be applied around the working area to prevent materials and/or works water from entering the marine environment. Material will be collected in the same manner as described above and removed from the site by licensed waste carriers or, in the case of water, potentially discharged into the marine environment, ensuring that the conditions of a SEPA CAR licence are adhered to, should one be required.

Summary methodology, large repair:

- Establish traffic management.
- Hammer survey area
- Hydro demolition of damaged concrete.
- Clean steelwork and prepare surface.
- Install new concrete.
- Demobilise from site.

Summary methodology, small repair:

- Establish traffic management.
- Hammer survey area
- Break out damaged concrete
- Clean steelwork and prepare surface.
- Install new concrete.
- Demobilise from site.

The following good practice and management measures will be adopted for large repairs:

- Thickened sheets will be installed around the area being broken out.
- Hydro demolition will be contained using protective sheeting and a sump pit to catch run off water.
- If working from a platform beneath the bridge the floor will be layered with materials to fully contain the water
- Debris material and work water will be pumped back up to the bridge deck, where it will then be collected and removed from site by licensed waste carriers; or, the water will be filtered and pH reduced before discharging in to the marine environment.
- Fresh concrete will be poured in such a manner that no concrete is lost or can enter the marine environment.
- All waste concrete will be removed from site by licenced waste carriers.

The following good practice and management measures will be adopted for small repairs:

- Debris netting will be installed around the area being broken out.
- Containment of the working platform using the debris netting and flooring layers.
- All waste concrete will be removed from site by licensed waste carriers.
- Fresh concrete will be poured in such a manner that no concrete is lost or can enter the marine environment.

Drainage Cleaning

The drainage gullies and pipes on the bridge require periodic maintenance to ensure they are effective for draining water from the carriageway. This activity will take approximately 2 days to complete. These works will be carried out from the surface of the bridge.

Summary methodology

- Establish traffic management as required.
- Open kerb gully.
- Clean debris from gully using vacuum truck or hand tools.

The following good practice measure will also be adopted:

- Vacuum trucks will be emptied at licensed facilities.

Parapet Repairs

The bridge parapet has recently been replaced, however, accidental vehicle damage or defects to the parapet may require repair. These works will take place from the surface of the bridge. These works are likely to take around 2-3 weeks.

Summary methodology

- Establish traffic management.
- Install safety barrier around damaged parapet sections.
- Remove existing damaged parapet sections.
- Install new parapet sections.
- Remove safety barrier.
- Demobilise from site.

In order to prevent the materials entering the marine environment, the following good practice measures will also be implemented:

- Edge protection to be installed to ensure materials can't be knocked over the edge of the bridge.
- Debris netting or 'Envirowrap' to be used to stop waste and small items falling into the aquatic environment.

Bird Guano Removal

Bird guano on the crosshead beams requires periodic cleaning and removal to prevent build up. This activity will be carried out below the bridge deck. These works are likely to take around 2-3 days to complete.

Summary methodology

- Establish traffic management as required.
- Establish underbridge access unit (lorry mounted or fixed).
- Clean crosshead beams using hand tools.

The following good practice measure will also be adopted:

- Bird guano will need to be double-bagged to prevent spillage.
- Guano will be taken to a licensed facility for disposal.

Bearing Renewal

Bridge bearings require periodic renewal. These works will be carried out from under the bridge and take place above the mean high water spring level. These works are likely to take around 1-2 weeks to complete.

Summary methodology

- Establish traffic management.
- Establish access system.
- Jack up bridge.
- Replace bearings.
- Lower bridge onto new bearings.
- Demobilise from site.

The following good practice measures will also be adopted:

- Debris netting or 'Envirowrap' to be installed around the bearing to ensure no materials enter the aquatic environment.

Expansion joint renewal

Expansion joints require periodic renewal when they are life-expired. Dornoch Bridge has 2 expansion joints that are cast *in situ*. These works will take place on the deck of the bridge only. These works will take approximately 3-4 weeks to complete.

Summary methodology

- Establish traffic management.
- Hydro demolition of expansion joint and surrounding concrete.
- Remove existing expansion joint.
- Concrete in expansion joint.
- Demobilise from site.

To prevent the materials entering the marine environment, the following measures will be taken.

- Hydro demolition will require containment and a sump pit to catch run-off water.
- Thickened sheets will be installed around the area being broken out.
- Debris material will be collected and removed from site by licensed waste carriers
- All water will be pumped in to a 'silt buster' where it will be filtered and pH reduced. Water will then either be pumped into a storage tank and disposed of under licence or discharged into the marine environment. The contractor will ensure that the conditions of a SEPA CAR licence are adopted, should one be required.
- Fresh concrete will be poured in such a manner that no concrete is lost or can enter the marine environment.
- All waste concrete will be removed from site by licenced waste carriers.

STEP 2: IS THE PLAN OR PROJECT DIRECTLY CONNECTED WITH OR NECESSARY TO SITE MANAGEMENT FOR NATURE CONSERVATION?

The following points should be considered:

i) Has the effect on all qualifying interests been considered?

ii) Is the proposal part of a fully assessed and agreed management plan?

iii) Is there a clear rationale to justify the connection with the conservation objectives?

iv) If there is a clear connection with the conservation objectives will any benefits arising from the proposal outweigh any negative effects?

v) Have any alternative methods of implementing the proposal been explored to demonstrate that this is the least damaging option?

vi) Give a YES/NO conclusion in terms of whether the plan or project is considered directly connected with or necessary to site management for nature conservation.

*- If **YES** for all elements of a plan or project, for all the Natura qualifying interests (preferably as part of a fully assessed and agreed management plan), then consent can be issued. The rationale should be detailed below and no further appraisal is required (no need to proceed to step 3 or 4).*

*- If **No** for all Natura qualifying interests then proceed to step 3.*

*- **If a plan has multiple elements (e.g. a range of policies or management objectives)**, elements of the plan considered directly connected with or necessary to site management for nature conservation should be discussed below and a rationale given for this conclusion. No further appraisal is then required for those elements. All other elements of the plan must proceed to step 3.*

No, none of the activities are directly connected with or necessary to site management for nature conservation.

STEP 3: IS THE PLAN OR PROJECT (EITHER ALONE OR IN COMBINATION WITH OTHER PLANS OR PROJECTS) LIKELY TO HAVE A SIGNIFICANT EFFECT ON THE SITE?

Each qualifying interest should be considered in relation to their conservation objectives. The following points should be considered:

i) Briefly indicate which qualifying interest could be affected by the proposal and how; if none, provide a brief justification for this decision, and then proceed to v), otherwise continue:

ii) refer to other plans/projects with similar effects/other relevant evidence;

iii) consider the nature, scale, location, longevity, and reversibility of effects;

iv) consider whether the proposal contributes to cumulative or incremental impacts in combination with other plans or projects completed, underway or proposed;

v) Where the impacts of a proposal are the same for different qualifying interests these can be considered together however a clear conclusion should be given for each interest

vi) give Yes/No conclusion for each interest.

*- **If yes, or in cases of doubt**, continue to step 4.*

*- **If potential significant effects can easily be avoided**, record modifications required below.*

*- **If no for all features**, a consent or non-objection response can be given and recorded below (although if there are other features of national interest only, the effect on these should be considered separately). There is no need to then proceed to step 4.*

Following consultation with SNH Redacted 16th April 2018), regarding the proposed maintenance activities at Dornoch Bridge, SNH were in general agreement with initial conclusions of the HRA screening (see Appendix A, Appendix B).

SNH agreed that the proposal could lead to a potential Likely Significant Effect (LSE) on a number of qualifying features of the designated conservation sites (see Appendix A and B). A summary of these are provided in Table 1.

During further consultation with SNH (Ben Leyshon, 21st June 2018), it was advised that as Dornoch Bridge was at a distance of 6km from the nearest part of the Moray Firth pSPA it was considered unlikely that any of the qualifying features would occur in significant numbers to the proposed works. Hence, no adverse impacts on site integrity (of the Moray Firth pSPA) from the works were anticipated by SNH (see Appendix A). Acknowledging the nature of the works at the bridge and the advice from SNH, it is concluded that there would be no potential for a Likely Significant Effect on the features of the Moray Firth pSPA. Consequently, the Moray Firth pSPA is not considered further.

Since April 2018, further detail has been provided on the good practice and management measures that will be adopted (see step 1), specifically to prevent the loss of materials and/or pollution in the marine environment. These measures are acknowledged within step 3 accordingly.

Table 1: Qualifying (broad) features with potential for a LSE from the proposed works at Dornoch Bridge.

Broad Feature	Associated SAC, SPA and/or Ramsar site
Wintering birds	Dornoch Firth and Loch Fleet SPA and Dornoch Firth and Loch Fleet Ramsar
Otter	Dornoch Firth & Loch Fleet Ramsar and Dornoch Firth & Morrich More SAC

Dornoch Firth and Loch Fleet SPA and Dornoch Firth and Loch Fleet Ramsar

Following consultation with SNH (16th April 2018) it was agreed that the proposed maintenance works at the bridge would not lead to a potential LSE on the following qualifying features of Dornoch Firth and Loch Fleet SPA and Dornoch Firth and Loch Fleet Ramsar:

- Breeding osprey
- Intertidal mudflats and sandflats
- Invert assemblage
- Saltmarsh
- Sand dunes
- Vascular plant assemblage
- Wet woodland

Further justification that supported the conclusion of the applicant and subsequent agreement by SNH are provided in Appendix A and B. Essentially there is no reasonable pathway of effect to these qualifying features from the proposed activities.

It was initially considered that the works could have the potential for an LSE on overwintering birds (a feature of the SPA and Ramsar) and otter (a feature of the Ramsar), as a result of noise, light and visual disturbance as well as pollution.

However, given the good practice and management measures that will be adopted by the successful contractor (see step 1) to prevent loss of materials and/or pollution, it is concluded that there is no potential for an LSE from pollution on any of the qualifying features of these designated sites (Dornoch Firth and Loch Fleet SPA and Ramsar).

The potential LSE as a result of disturbance (noise, light and/or visual) would be short-term (less than one year) and reversible in all instances with no measurable effect from disturbance on the qualifying features expected in the medium or long term. Further consideration to the potential LSE from disturbance on overwintering birds and otter is detailed in step 4.

In-combination effects

Considering the scope of the works and the very limited potential for any overlap of activities it is concluded that there would be no cumulative effects from the proposed works on the qualifying features of the Dornoch Firth and Loch Fleet SPA and Ramsar.

There are no marine projects currently planned or recently completed that have the potential to contribute to in-combination effects on the qualifying features of the SPA and Ramsar; nor were any persisting impacts from past projects identified or advised during consultation (Redacted 16th April 2018). It is therefore concluded that there would be no potential for an LSE on qualifying features as a result of 'inter' in-combination effects.

River Evelix SAC

Freshwater pearl mussels require the presence of salmonids (salmon and trout) for the early steps of their lifecycle when they attach as glochidia to the fish's gills. Atlantic salmon migrate through the Dornoch Firth both as smolts, to spend part of their lifecycle at sea and as adults, returning to their natal rivers to spawn.

Following initial consultation, (Redacted 16th April 2018) SNH advised that the proposed maintenance works at the bridge could lead to a potential LSE on the qualifying feature of the River Evelix SAC, freshwater pearl mussel (see Appendix A), as a consequence of the minor concrete repairs and specifically those repairs that would be required below the mean high water spring mark. With the exception of the minor concrete repair activity, SNH were content that the good practice and management measures proposed for all other maintenance activities would ensure that no materials or pollution would enter the marine environment. However, SNH added that they would be happy to review their advice if further information on the exact nature of the concrete repair work is provided (Redacted 16th April 2018).

Since April 2018, considerably more detail on the concrete repair methodology has been provided (see step 1). Acknowledging the careful containment of the working area/platform when work is being carried out, both on the bridge deck and also under the bridge, has led to the conclusion that there is no potential to affect the migratory fish and/or species dependent on them. There being no reasonable pathway to affect these species. Therefore, there is no potential for a LSE on the qualifying feature of the River Evelix SAC, freshwater pearl mussels.

In-combination effects

Considering the small scope of the works, the very limited potential for any overlap of activities and that there is no reasonable pathway to affect the qualifying feature from these activities, it is concluded that there would be no cumulative effects from the proposed works on the qualifying feature, freshwater pearl mussel, of the River Evelix SAC.

There are no marine projects currently planned or recently completed that have the potential to contribute to in combination effects on the qualifying feature of the SAC; nor are there any persisting impacts from past projects identified or advised during consultation (Redacted 16th April 2018). It is therefore concluded that there would be no potential for an LSE on the qualifying feature because of 'inter' in-combination effects.

River Oykel SAC

Freshwater pearl mussels require the presence of salmonids (salmon and trout) for the early steps of their lifecycle when they attach as glochidia to the fish's gills. Atlantic salmon migrate through the Dornoch Firth both as smolts, to spend part of their lifecycle at sea and as adults, returning to their natal rivers to spawn.

Following initial consultation, (Redacted 16th April 2018) SNH advised that the proposed maintenance works at the bridge could lead to a potential LSE on the qualifying features of the River Oykel SAC, freshwater pearl mussel and Atlantic salmon (see Appendix A), as a consequence of the minor concrete repairs and specifically those repairs that would be required below the mean high water spring mark. Except for the minor concrete repair activity, SNH were content that the good practice and management measures proposed for all other maintenance activities would ensure that no materials or pollution would enter the marine environment. However, SNH added that they would be happy to review their advice if further information on the exact nature of the concrete repair work is provided.

Since April 2018, considerably more detail on the concrete repair methodology has been provided (see step 1). Acknowledging the careful containment of the working area/platform when work is being carried out, both on the bridge deck and under the bridge, has led to the conclusion that there is no potential to affect the migratory fish and/or species dependent on them. There being no reasonable pathway to affect these species. Therefore, there is no potential for a LSE on the qualifying features of the River Oykel SAC, freshwater pearl mussel and Atlantic salmon.

In-combination effects

Considering the small scope of the works, the very limited potential for any overlap of activities and that there is no reasonable pathway to affect the qualifying feature from these activities, it is concluded that there would be no cumulative effects from the proposed works on the qualifying features, freshwater pearl mussel and Atlantic salmon, of the River Oykel SAC.

There are no marine projects currently planned or recently completed that have the potential to contribute to in combination effects on the qualifying features of the SAC; nor are there any persisting impacts from past projects identified or advised during consultation (Redacted 16th April 2018). It is therefore concluded that there would be no potential for an LSE on the qualifying features because of in-combination effects.

Dornoch Firth and Morrich More SAC

Following consultation with SNH (Redacted 16th April 2018) it was agreed that the proposed maintenance works at the bridge would not lead to a potential LSE on the following qualifying features of the Dornoch Firth and Morrich More SAC:

- Atlantic salt meadows (favourable maintained);
- Coastal dune heathland (unfavourable no change);
- Dune grassland (unfavourable no change);
- Dunes with juniper thickets (unfavourable recovering);
- Estuaries (not assessed);
- Glasswort and other annuals colonising mud and sand (favourable maintained);
- Harbour seal (*Phoca vitulina*) (unfavourable declining);
- Humid dune slacks (favourable maintained);
- Intertidal mudflats and Sandflats (favourable maintained);
- Lime-deficient dune heathland with crowberry (unfavourable no change);
- Reefs (favourable maintained);
- Shifting dunes (favourable maintained);
- Shifting dunes with marram (favourable maintained); and
- Sub tidal sandbanks (favourable maintained).

Further justification that supported the conclusion of the applicant and subsequent agreement by SNH are provided in Appendix A and B. Essentially there is no reasonable pathway of effect to these qualifying features from the proposed activities.

It was initially considered that the works could have the potential for an LSE on otter (a qualifying feature of the Dornoch Firth and Morrich More SAC), because of noise, light and/or visual disturbance and pollution. However, acknowledging the good practice and management measures that will be adopted by the successful contractor (see step 1) to prevent loss of materials and/or pollution, it is concluded that there is no potential for an LSE from pollution on otter.

The potential LSE on otter because of disturbance (noise, light and/or visual) would be short-term (less than one year) and reversible in all instances with no measurable effect from disturbance on otter expected in the medium or long term. Further consideration to the potential LSE from disturbance on otter is detailed in step 4.

In-combination effects

Considering the small scope of the works and the very limited potential for any overlap of activities it is concluded that there would be no cumulative effects from the proposed works on any of the qualifying features of Dornoch Firth and Morrich More SAC.

There are no marine projects currently planned or recently completed that have the potential to contribute to in-combination effects on the qualifying features of these sites; nor are there any persisting impacts from past projects identified or advised during consultation (Redacted 16th April 2018). It is therefore concluded that there would be no potential for an LSE on the qualifying features as a result of in-combination effects.

Moray Firth SAC

Following consultation with SNH (Redacted 16th April 2018) it was agreed that the proposed maintenance works at the bridge would not lead to a potential LSE on any of the qualifying features of the Moray Firth SAC i.e. bottlenose dolphin; subtidal sandbanks. Further justification that supported this conclusion is provided in Appendix A and B. Essentially there is no reasonable pathway of effect to these qualifying features from the proposed activities. Consequently, the Moray Firth SAC is not considered further.

Next Steps

In recognition that the potential for **'Likely Significant Effect'** has been determined for several of the qualifying interests of the designated sites (see Table 1), step 4 will be considered.

Mitigation or modifications required to avoid a likely significant effect & reasons for these:

Please see step 1 for a description of good practice and management measures that will be implemented.

Following consideration of the proposed activities it is recognised that there is potential for a LSE on several features without the adoption of specific mitigation measures. These mitigation measures are considered below in step 4.

STEP 4: UNDERTAKE AN APPROPRIATE ASSESSMENT OF THE IMPLICATIONS FOR THE SITE IN VIEW OF ITS CONSERVATION OBJECTIVES

(It is the responsibility of the competent authority to carry out the appropriate assessment. The competent authority must consult SNH for the purposes of carrying out the appropriate assessment. SNH can provide advice on what issues should be considered in the appropriate assessment, what information is required to carry out the assessment, in some circumstances carry out an appraisal to inform an appropriate assessment and/or provide comments on an assessment carried out. Where we are providing advice to a competent authority our appraisal of the proposal should be recorded here.)

The following points should be considered:

- i) Describe for each qualifying interest the potential impacts of the proposal detailing which aspects or effects of the proposal could impact upon them and their conservation objectives.*
- ii) Evaluate the potential impacts, e.g. whether short/long term, reversible or irreversible, and in relation to the proportion/importance of the interest affected, and the overall effect on the site's conservation objectives. This should be in sufficient detail to ensure all impacts have been considered and sufficiently appraised. Record if additional survey information or specialist advice has been obtained.*
- iii) Each conservation objective should be considered, and a decision reached as to whether the proposal will affect achievement of this objective i.e. whether the conservation objective will still be met if the proposal is consented to.*

Baseline Environment

The bridge supports the A9, which is considered a class A trunk road through a rural area. The most recent count of traffic at the northern end of Dornoch Bridge (Traffic counter point ID 80002, Department for Transport, 2016) recorded 6672 motor vehicles over the count period, of which 302 were heavy goods vehicles. The number of motor vehicles that use the bridge have increased significantly over the last decade, the count in 2016 representing the highest value recorded by the DfT for this counter point.

It is reasonable to assume that animals that use the area immediately adjacent to the bridge are habituated to the regular movement of vehicles and therefore the noise of the engines and their lights. Just to the north west of the bridge lies Carnegie golf course. The Dornoch Firth and Loch Fleet SPA and Ramsar overlap with the golf course, as does the Dornoch Firth and Morrich More SAC, these sites are all intersected by a number of tracks and paths throughout the area. Immediately to the south of the bridge is Dornoch caravan park and several active farms, while the Glenmorangie distillery lies approximately 1.6 km from the bridge, abutting the SPA, Ramsar and SAC's.

The otter, a qualifying feature of the Ramsar and SAC, are considered to be present in the area all year round. As advised by SNH (16th April, 2018), the wintering period for the birds is from October to March, and therefore the overwintering birds would be expected in significant numbers during this period.

Dornoch Firth and Loch Fleet SPA & Dornoch Firth and Loch Fleet Ramsar

Wintering birds

The works will be constrained to the bridge itself and therefore there would be limited overlap of the works beyond a highly localised area i.e. the bridge. All proposed works are highly temporary in nature, being all less than one month in duration and many less than two weeks, with the exception of the scheme (bridge levelling) which will take up to three months to complete. Of the works proposed, only the bridge levelling will definitely be required within the next five years.

Access to and from the bridge will be facilitated by vehicular movements on the A9 with very minimal, if any requirement for foot access to the intertidal shores that are adjacent to the north and south of the bridge. The noisiest activity will be the hydro-demolition work that is required for the cyclic activities 'minor concrete repairs' and 'expansion joint renewal', both of which will be less than a month in maximum duration.

The bridge itself, spans approximately 850m of which less than 30m is intertidal; with this small area of intertidal comprising rocky mixed substrata and only fully emergent during low spring tides. Therefore, any differences between surface water available for passage of birds under the bridge would be minimal irrespective of the tidal state.

The bridge is connected to the road via a north and south causeway which runs through the intertidal sandflats. To the east and west of the bridge, extensive intertidal sandflats will be available, to varying degrees, for feeding birds (e.g. waders) during low tidal states. Conversely, at high water these flats will be largely immersed by the sea.

Works will potentially occur at any time within a full tidal cycle. Where a particular activity is required, it will take place at a point location along the bridge, before moving on to the next location along the bridge. Hydro demolition work is the noisiest activity but even if this were required at the mid-point of the bridge, and coincided with a low tide, there would be gap of approximately 400m to the north and 400m to the south where work would not be taking place.

The good practice and management measures to be adopted have already been detailed (see step 1). The following represents additional measures that would reduce the potential for a LSE from disturbance on the qualifying features.

- During the overwintering period (October to March) flood lighting will be directed away from the Firth and intertidal areas at all times
- During the overwintering period (October to March) lighting will kept to a minimum
- Should hydro-demolition work be required during the overwintering period (October to March) then it will only be carried out between the hours of 08:00 to 18:00.
- Should hydro-demolition work be required during the overwintering period (October to March) then it will be preceded by a 'soft start' in general activities, thus allowing a 'ramping-up' of noise levels.
- During the overwintering period (October to March), normal working operations will be constrained to the hours of 07:00 to 19:00 unless there is an urgent need to extend operations.
- If works are required to be carried out overnight the most disruptive activities will be scheduled for the earlier part of the evening.
- Where reasonably practicable, workers will avoid accessing the intertidal shores around the bridge at all times of the year.

Conclusion

The works are temporary and highly localised, with all works due to take place within the immediate vicinity of Dornoch Bridge. The bridge represents the primary route for vehicular access along the far north-east Scottish coastline, providing important links between to the towns along the north east coast. The bridge thus experiences consistent vehicular movements which DfT data have shown to be increasing. There are several farms, a caravan park, a golf course and a busy distillery in the local area of the bridge; all of which are either encompassed by, or adjacent to, the SPA and Ramsar. Given that there is some level of noise, visual and light disturbance that occurs along and around the bridge continually throughout the year; that the proposed activities are all short-term (three months or less) and acknowledging the additional measures that would be adopted (see above) to reduce effects from disturbance, it is concluded that the following conservation objectives would be 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
- No significant disturbance of the species

Dornoch Firth and Morrich More SAC & Dornoch Firth and Loch Fleet Ramsar

Otters

The works will be constrained to the bridge itself and therefore there would be limited overlap of the works beyond a highly localised area i.e. the bridge. All proposed works are highly temporary in nature, being all less than one month in duration and many less than two weeks, with the exception of the scheme (bridge levelling) which will take up to three months to complete. Of the works proposed, only the bridge levelling will definitely be required within the next five years.

Access to and from the bridge will be facilitated by vehicular movements on the A9 with very minimal, if any requirement for foot access to the intertidal shores that are adjacent to the north and south of the bridge. The noisiest activity will be the hydro-demolition work that is required for the cyclic activities 'minor concrete repairs' and 'expansion joint renewal' both of which will be less than a month in maximum duration.

The good practice and management measures to be adopted have already been detailed (see step 1). The following represents additional measures that would reduce the potential for a LSE from disturbance on otter.

- Flood lighting will be directed away from the Firth and intertidal areas at all times
- Between October to March lighting will kept to a minimum
- Should hydro-demolition work be required between October to March then it will only be carried out between the hours of 08:00 to 18:00.
- Should hydro-demolition work be required between October to March then it will be preceded by a 'soft start' in general activities, thus allowing a 'ramping-up' of noise levels.
- Where reasonably practicable, workers will avoid accessing the intertidal shores around the bridge at all times of the year.
- If works are required to be carried out overnight the most disruptive activities will be scheduled for the earlier part of the evening.
- Site personnel will be required to be vigilant for the presence of otters on site and should they be seen, work will be immediately stopped in the vicinity and the supervisor informed who will then seek specialist advice.
- Where machinery is left on site overnight, it will be checked at the start of each shift for the presence of otter. Should they be seen, work will be immediately stopped in the vicinity of the machinery and the supervisor informed who will then seek specialist advice.

Conclusion

The works are temporary and highly localised, with all works due to take place within the immediate vicinity of Dornoch Bridge. The bridge represents the primary route for vehicular access along the far north-east Scottish coastline, providing important links between to the towns along the north east coast. The bridge thus experiences consistent vehicular movements which DfT data have shown to be increasing. There are several farms, a caravan park, a golf course and a busy distillery in the local area of the bridge; all of which are either encompassed by, or adjacent to, the SAC and Ramsar.

Given that there is some level of noise, visual and light disturbance that occurs along and around the bridge continually throughout the year; that the proposed activities are all short-term (three months or less) and acknowledging the additional measures that would be adopted (see above) to reduce effects from disturbance it is concluded that the following conservation objectives would be 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
- No significant disturbance of the species

STEP 5: CAN IT BE ASCERTAINED THAT THE PROPOSAL WILL NOT ADVERSELY AFFECT THE INTEGRITY OF THE SITE?

In the light of the appraisal, ascertain whether the proposal will not adversely affect the integrity of the site for the qualifying interests. Conclusions should be reached beyond reasonable scientific doubt. If more than one SAC and/or SPA is involved, give separate conclusions. If mitigation or modifications are required, detail these below.

Dornoch Firth and Loch Fleet SPA

It is concluded that the works will not impact on the integrity of the European site, either alone or in-combination with other projects or plans, with respect to the site's structure and function and its conservation objectives.

As none of the conservation objectives would be adversely affected by the proposal it is our assumption that the integrity of the Dornoch Firth and Loch Fleet SPA would be maintained and thus not adversely affected.

Dornoch Firth and Loch Fleet Ramsar

It is concluded that the works will not impact on the integrity of the European site, either alone or in-combination with other projects or plans, with respect to the site's structure and function and its conservation objectives.

As none of the conservation objectives would be adversely affected by the proposal it is our assumption that the integrity of the Dornoch Firth and Loch Fleet Ramsar would be maintained and thus not adversely affected.

Dornoch Firth and Morrich More SAC

It is concluded that the works will not impact on the integrity of the European site, either alone or in-combination with other projects or plans, with respect to the site's structure and function and its conservation objectives.

As none of the conservation objectives would be adversely affected by the proposal it is our assumption that the integrity of the Dornoch Firth and Morrich More SAC would be maintained and thus not adversely affected.

Concluding remarks

Within step 3 it was concluded that there would be no potential for a LSE on the qualifying features of the Moray Firth SAC and pSPA; the River Evelix SAC; the River Oykel SAC. It was also concluded that there would be no potential for a LSE on several qualifying features of the Dornoch Firth and Loch Fleet SPA and Ramsar, and the Dornoch Firth and Morrich More SAC.

During assessment (step 4) of those features that have potential for a LSE from the proposed maintenance works, further consideration was given to the nature and scope of the works and the additional measures that would be adopted by the contractor. It was concluded that all conservation objectives would be maintained.

It can thus be concluded that would be no impact on the integrity of any of the European sites:

- Dornoch Firth and Loch Fleet Ramsar
- Dornoch Firth and Loch Fleet SPA
- Dornoch Firth and Morrich More SAC
- Moray Firth SAC
- Moray Firth pSPA
- River Evelix SAC
- River Oykel SAC

Mitigation or modifications required to ensure adverse effects are avoided, & reasons for these.

Mitigation:	Reason:
<p><u>Dornoch Firth and Loch Fleet SPA & Ramsar (wintering birds)</u></p> <ul style="list-style-type: none"> • During the overwintering period (October to March) flood lighting will be directed away from the Firth and intertidal areas at all times • During the overwintering period (October to March) lighting will kept to a minimum • Should hydro-demolition work be required during the overwintering period (October to March) then it will only be carried out between the hours of 08:00 to 18:00. • Should hydro-demolition work be required during the overwintering period (October to March) then it will be preceded by a 'soft start' in general activities, thus allowing a 'ramping-up' of noise levels. • During the overwintering period (October to March), normal working operations will be constrained to the hours of 07:00 to 19:00 unless there is an urgent need to extend operations. • If works are required to be carried out overnight the most disruptive activities will be scheduled for the earlier part of the evening. • Where reasonably practicable, workers will avoid accessing the intertidal shores around the bridge at all times of the year. 	<p>The Conservation Objectives for the qualifying feature (wintering birds) of the Dornoch Firth and Loch Fleet SPA are as follows:</p> <p><i>To avoid deterioration of the habitats of the qualifying species (listed qualifying species, thus ensuring that the integrity of the site is maintained)</i></p> <p><i>To ensure for the qualifying species that the following are maintained</i></p> <ul style="list-style-type: none"> ➤ <i>Population of the species as a viable component of the site</i> ➤ <i>Distribution of the species within site</i> ➤ <i>Distribution and extent of habitats supporting the species</i> ➤ <i>Structure, function and supporting processes of habitats supporting the species</i> ➤ <i>No significant disturbance of the species</i>
<p><u>Dornoch Firth and Morrich More SAC & Dornoch Firth and Loch Fleet Ramsar (otter)</u></p> <ul style="list-style-type: none"> • Flood lighting will be directed away from the Firth and intertidal areas at all times. • Between October to March lighting will kept to a minimum. • Should hydro-demolition work be required between October to March then it will only be carried out between the hours of 08:00 to 18:00. • Should hydro-demolition work be required between October to March then it will be preceded by a 'soft start' in general activities, thus allowing a 'ramping-up' of noise levels. • Where reasonably practicable, workers will avoid accessing the intertidal shores around the bridge at all times of the year. • If works are required to be carried out overnight the most disruptive activities will be scheduled for the earlier part of the evening. • Site personnel will be required to be vigilant for the presence of otters on site and should they be seen, work will be immediately 	<p>The Conservation Objectives for the qualifying feature (otter) are as follows:</p> <p><i>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</i></p> <p><i>To ensure for the qualifying species that the following are maintained in the long term:</i></p> <ul style="list-style-type: none"> ➤ <i>Population of the species a viable component of the site</i> ➤ <i>Distribution of the species within site</i> ➤ <i>Distribution and extent of habitats supporting the species</i> ➤ <i>Structure, function and supporting processes of habitats supporting the species</i> ➤ <i>No significant disturbance of the species</i>

<p>stopped in the vicinity and the supervisor informed who will then seek specialist advice.</p> <ul style="list-style-type: none">• Where machinery is left on site overnight, it will be checked at the start of each shift for the presence of otter. Should they be seen, work will be immediately stopped in the vicinity of the machinery and the supervisor informed who will then seek specialist advice.	
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APPENDIX A

Copy of correspondence with Redacted SNH 15th March 2018

From: Redacted
Sent: 22 June 2018 15:46
To: Redacted
Cc: Redacted
Subject: RE: A9 Dornoch Bridge 5 year Marine Licence - pre-application HRA consultation

Dear Reda

Thank you for your email.
I've made some comments below on your various points.
Let me know if you have further questions.

Re

Redacted | **Operations Officer**
Scottish Natural Heritage | Dingwall | Fodderty Way | Dingwall Business Park | Dingwall | IV15 9XB |
Redacted
Inbhir Pheofharain | Slighe Fhodhraitidh | Pàirc Gnothachais | Inbhir Pheofharain | Inbhir
Pheofharain | IV15 9XB
[nature.scot](#) – Connecting People and Nature in Scotland – [@nature_scot](#)

From: Redacted
Sent: 21 June 2018 11:34
To: Redacted
Subject: RE: A9 Dornoch Bridge 5 year Marine Licence - pre-application HRA consultation

Hi Re

I'm now getting round to writing the SIAA for Dornoch, but just wanted to confirm a few details. You've mentioned that there is likely to be disturbance for overwintering birds for Dornoch Firth and Loch Fleet SPA, but does this also mean I should screen in this same feature for both the Moray Firth pSPA the MF pSPA is *circa 6km's away and qualifying species associated with that site are unlikely to occur in significant numbers close to the proposed works. This is why I didn't include the MF pSPA in my earlier response. However, for completeness you could screen in the MF pSPA but I do not anticipate any adverse impacts on site integrity and Dornoch Firth and Loch Fleet Ramsar? Yes you can include the DF&LF Ramsar as part of the assessment, but the same species are also include in the DF&LF SPA and the same reasoning/rationale will apply. For completeness though you are correct in questioning this and yes, you should include in the HRA. I did initially screen these in with my initial email, but as you've not mentioned them in your email, I just wanted to confirm if this is the case or not.*

Thanks,

Reda

Redacted **BSc (Hons) MSc**
Environmental Specialist
BEAR Scotland | North West Unit

Redacted

From: Redacted

Sent: 16 April 2018 12:46

To: Redacted

Cc: Redacted

Subject: RE: A9 Dornoch Bridge 5 year Marine Licence - pre-application HRA consultation

Dear Reda

Many thanks for your e-mail below.

We offer the following advice:

1. There are new features for the [Dornoch Firth and Loch Fleet Ramsar site](#) and these should be reflected in the HRA spreadsheet. They do not affect the overall assessment.
2. Most of the proposed works will be carried out above MHWS and the mitigation measures described should ensure that no materials or pollution will enter the aquatic environment. The exception to this is the Concrete Repair works (see 4.2.3 of the supporting documentation). Works will occur both above and below MHWS and are likely entail the use of hydro demolition and hammer survey for large repairs. Without further details, our advice is that these works have the potential to affect migratory fish and/or species dependent upon them. As such we advise that the River Evelix SAC (freshwater pearl mussel) and River Oykel (freshwater pearl mussel and Atlantic salmon) should be screened in for this specific activity. We would be happy to review this advice if further information on the exact nature of the work is provided.
3. We note and support your assessment in the HRA spreadsheet for otter. As far as mitigation at the next stage of the HRA is concerned we advise that lighting, when required, should be directed away from the Firth – this will reduce visual disturbance to otter holts and resting places. Contractors should remain vigilant for otter at all times, including checking machinery and the working area regularly to ensure that any excavations are closed to prevent entrapment.
4. We also note and support your assessment in the HRA spreadsheet for the Dornoch Firth and Loch Fleet SPA. As far as mitigation at the next stage is concerned we advise that during the wintering period (October through to March) any flood lighting should be directed away from the Firth and intertidal areas at all times to prevent disturbance. Lighting during this period should also be kept to the minimum required at all times and should be turned off at night (between 6pm-8am) to avoid disturbance to nearby foraging waterfowl.

I hope these comments are helpful but if you have any questions then please contact me.

Best regards,

Re

Redacted | **Operations Officer**

Scottish Natural Heritage | Dingwall | Fodderty Way | Dingwall Business Park | Dingwall | IV15 9XB |

Redacted

Inbhir Pheofharain | Slighe Fhodhraitidh | Pàirc Gnothachais | Inbhir Pheofharain | Inbhir

Pheofharain | IV15 9XB

From: Redacted

Sent: 15 March 2018 17:18

To: SOUTH_HIGHLAND

Cc: Redacted

Subject: A9 Dornoch Bridge 5 year Marine Licence - pre-application HRA consultation

Good afternoon,

BEAR Scotland have been commissioned by Transport Scotland to apply for a 5 year Marine Licence to cover a 5 year programme of maintenance works on the A9 Dornoch Bridge. The Bridge spans and has connectivity with several Natura 2000 sites and a Ramsar site, listed below along with their qualifying interests. As part of the pre-application process, a Habitats Regulations Appraisal has been carried out to determine whether any of the activities planned could have a likely significant effect on any of the qualifying interests of the relevant sites.

Description of Works

Various maintenance activities will take place over the next 5 years during all times of the year with some work possible being required during night-time hours (see attached programme).



Designated sites

1. Moray Firth Special Area of Conservation (SAC) – qualifying interests of:
 - Subtidal sandbanks,
 - Bottlenose dolphin (*Tursiops truncatus*)
2. Moray Firth proposed marine (SPA) – qualifying interests of:
 - European shag (*Phalacrocorax aristotelis*), breeding & non-breeding;
 - Common eider (*Somateria mollissima*), non-breeding;

- Common goldeneye (*Bucephala clangula*), non-breeding;
- Common scoter (*Melanitta nigra*), non-breeding;
- Great northern diver (*Gavia immer*), non-breeding;
- Greater scaup (*Aythya marila*), non-breeding;
- Long-tailed duck (*Clangula hyemalis*), non-breeding;
- Red-breasted merganser (*Mergus serrator*), non-breeding;
- Red-throated diver (*Gavia stellata*), non-breeding;
- Slovenian grebe (*Podiceps auritus*), non-breeding;
- Velvet scoter (*Melanitta fusca*), non-breeding.

3. Dornoch Firth and Morrich More (SAC) – qualifying interests of:

- Atlantic salt meadows (favourable maintained);
- Coastal dune heathland (unfavourable no change);
- Dune grassland (unfavourable no change);
- Dunes with juniper thickets (unfavourable recovering);
- Estuaries (not assessed);
- Glasswort and other annuals colonising mud and sand (favourable maintained);
- Harbour seal (*Phoca vitulina*) (unfavourable declining);
- Humid dune slacks (favourable maintained);
- Intertidal mudflats and Sandflats (favourable maintained);
- Lime-deficient dune heathland with crowberry (unfavourable no change);
- Otter (*Lutra lutra*) (favourable maintained);
- Reefs (favourable maintained);
- Shifting dunes (favourable maintained);
- Shifting dunes with marram (favourable maintained); and
- Sub tidal sandbanks (favourable maintained).

4. Dornoch Firth and Loch Fleet SPA – qualifying interests of:

- Bar-tailed godwit (*Limosa lapponica*), non-breeding (favourable maintained);
- Curlew (*Numenius arquata*), non-breeding (favourable maintained);
- Dunlin (*Calidris alpina alpina*), non-breeding (favourable declining);
- Greylag goose (*Anser anser*) non-breeding (favourable maintained);
- Osprey (*Pandion haliaetus*), breeding (favourable maintained);
- Oystercatcher (*Haematopus ostralegus*), non-breeding (favourable maintained);
- Teal (*Anas crecca*), non-breeding (favourable maintained);
- Waterfowl assemblage, non-breeding (favourable maintained); and
- Wigeon (*Anas penelope*) (favourable maintained).

5. Dornoch Firth and Loch Fleet Ramsar – qualifying interests of:

- Bar-tailed godwit (*Limosa lapponica*), non-breeding (Favourable Maintained);
- Greylag goose (*Anser anser*), non-breeding (Favourable Maintained);
- Harbour seal (*Phoca vitulina*);
- Intertidal mudflats and Sandflats (Favourable Maintained);
- Invertebrate assemblage;
- Otter (*Lutra lutra*);
- Reefs (Favourable Maintained);
- Saltmarsh (Favourable Maintained);
- Sand dune (Unfavourable Declining);
- Vascular plant assemblage;
- Waterfowl assemblage, non-breeding (Favourable Maintained);

- Wet woodland (Unfavourable Declining);
- Wigeon (*Anas penelope*), non-breeding Favourable Maintained).

6. River Evelix SAC – qualifying interests of:

- Freshwater pearl mussel (*Margaritifera margaritifera*)

7. River Oykel SAC – qualifying interests of:

- Freshwater pearl mussel (*Margaritifera margaritifera*) (Unfavourable No change);
- Atlantic salmon (*Salmo salar*) (Favourable Recovered).

Please find attached a spreadsheet to show the screening stage for 'likely significant effect' for the above qualifying interests. I'd appreciate it if you could confirm whether SNH are in agreement with this. For information, the environment team at BEAR Scotland will produce a Statement to Inform Appropriate Assessment on behalf of Transport Scotland as the competent authority for roads projects.

If you need to discuss further, please do not hesitate to contact me on the number below. I look forward to hearing from you in due course.

Kind regards,
Reda

Redacted **BSc (Hons) MSc**
Environmental Specialist
BEAR Scotland | North West Unit
Redacted

Consultation with Kyle of Sutherland District Fisheries Trust/Board sent on 26th June 2018

From: Redacted
Sent: 27 June 2018 10:07
To: Redacted
Redacted
Cc: Redacted
Subject: Re: Fw: A9 Dornoch Bridge 5 year maintenance activities programme

Dear Redac

Thank you for your email making us aware of this.

In a quick response to your question, we do extensive smolt trapping on the Shin, which begins at the end of march, but the majority of fish movement is actually over April/May. I would imagine smolts from the Oykel are over much the same period of time.

Works on the Dornoch Bridge could be quite significant for migratory salmonids. Not only affecting the Oykel and Evelix SAC salmon, but also salmon from the Carron, Shin and Cassley which are popular rivers for recreational anglers. In short, the proposed works are on a bottleneck which could affect the fisheries on the entire system, and have significant implications for salmon and sea trout populations. I'll take a look at your proposals and probably get in contact with the NW environment team once I've had a chance to have a proper look. It may be the case that other mitigation measures to protect the fish (both smolts leaving and adults entering) may be prudent.

Kind regards,

Redacted
**Science and Mitigation Officer
Kyle of Sutherland Fisheries**

Phone: [01863 766702](tel:01863766702)
Mobile: Redacted
Email: Redacted
Website: www.ksft.org/



From: Redacted
Sent: 26 June 2018 15:25
To: Redacted
Cc: Redacted
Subject: A9 Dornoch Bridge 5 year maintenance activities programme

Good afternoon,

BEAR Scotland have been commissioned by Transport Scotland to apply for a 5 year Marine Licence to cover a 5 year programme of maintenance works on the A9 Dornoch Bridge. The Bridge spans and has connectivity with several Natura 2000 sites and a Ramsar site, listed below along with their qualifying interests. As part of the pre-application process, a Habitats Regulations Appraisal has been carried out to determine whether any of the activities planned could have a likely significant effect on any of the qualifying interests of the relevant sites.

Description of Works

Various maintenance activities will take place over the next 5 years during all times of the year with some work possible being required during night-time hours (see attached 5YML application).



BEAR are applying for a 5 year Marine Licence to authorise these works and we are also in consultation with SNH regarding Habitats Regulations Appraisal.

Consultation with SNH has stipulated that there is a possibility of likely significant effect from concrete works on salmonids and freshwater pearl mussel in the Evelix and Oykel river SAC's (consultation attached).

Programme details for the concrete works are not currently known, but every effort will be made to programme these works to avoid the main salmon smolt run period. Could you confirm that for Evelix and Oykel systems that the main run is in March?

Please do not hesitate to contact me with any further concerns/comments from a fisheries perspective and I'll feed these back to our engineers so that we can plan for minimal impact on migratory salmonids.

Please note I will be leaving BEAR on Thursday this week (28th June) so please contact my colleagues on the NW Environment email (cc'd in) if responding after this date.

Kind regards,

Redacted

Redacted **BSc (Hons) MSc**
Environmental Specialist
BEAR Scotland | North West Unit
Redacted

APPENDIX B

Likely Significant Effect screening - A9 Dornoch Bridge 5 yr Marine Licence							
Natura Site	Qualifying feature/interest	Species/habitat potentially impacted	Nature of impact	LSE?	Screen in?	Comments	Potential in-combination effects from future projects/plans
Moray Firth SAC	Marine mammals	Bottlenose dolpin (<i>Tursiops truncatus</i>)	No underwater disturbance anticipated as all maintenance works will be on the bridge itself with no working in water required. Possible pollution issues from debris and concrete wash out.	No	No	The location, nature and scale of the works are unlikely to cause disturbance to bottlenose dolphins. The works do not entail working underwater so noise transmission through the water will be low. The area adjacent to the works is not frequently used by bottlenose dolphins.	None known.
	Subtidal sandbanks	Subtidal sandbanks	Pollution.	No	No	Concrete, parapet and bearing renewals are planned as part of the 5 year maintenance programme. There will be no working on the areas of the qualifying habitats.	None known.
	Habitats	Atlantic salt meadows, subtidal sandbanks, reefs	Pollution.	No	No	No LSE due to distance from the SAC.	None known.
River Evelix SAC	Invertebrates	Freshwater pearl mussel (<i>Margaritifera margaritifera</i>)	Indirect effects as a result of numbers of salmon potentially not returning to River Evelix SAC due to pollution.	Uncertain	Yes	Freshwater pearl mussels require the presence of salmon (and trout) for the early stages of their lifecycle. There is connectivity in this case since salmon migrate through the Dornoch Firth to return to their natal river to spawn. Mitigation measures to prevent pollution are proposed, including implementing debris netting, combi safe and edge protection installed, CAR licence will be in place for hydrodemolition. With these measures in place, LSE on FWPM is unlikely.	None known.

Dornoch Firth and Loch Fleet SPA	Birds - aggregations of breeding birds	Osprey (<i>Pandion haliaetus</i>)	Disturbance from noise and proximity of people, machinery. Pollution.	No	No	Maintenance programme will take place at all times of year for 5 years. Ospreys are unlikely to be breeding in the immediate surroundings of the Firth, According to SNH the nearest known nest site is over 2km away. Likelihood that birds will be accustomed to existing level of disturbance from traffic on the trunk road. Any effects on foraging are not likely to be significant because of the large expanse of the Dornoch Firth which offers ample foraging opportunities away from the bridge. LSE unlikely.	None known.
	Birds - aggregations of non-breeding birds	Bar-tailed godwit (<i>Limosa lapponica</i>), Curlew (<i>Numenius arquata</i>), Dunlin (<i>Calidris alpina alpina</i>), Greylag goose (<i>Anser anser</i>), Oystercatcher (<i>Haematopus ostralegus</i>), Teal (<i>Anas crecca</i>), Wigeon (<i>Anas penelope</i>) Waterfowl assemblage.	Disturbance from noise, proximity of people, machinery. Pollution.	Uncertain	Yes	Maintenance programme will include parapet repairs, hydrodemolition and pressure-washing the bridge. Containment measures will be used to prevent pollution reaching the aquatic environment and sediments. Main roost sites for waders is 800m away but some smaller sites are located closer. LSE on wading birds unlikely, but screened in as a precaution. Likelihood that birds will be accustomed to existing level of disturbance from traffic on the trunk road. LSE unlikely but screened in as a precaution.	None known.

Dornoch Firth and Loch Fleet Ramsar	Habitats	Intertidal mudflats and sandflats, Reefs, Saltmarsh, Sand dune, wet woodland.	Pollution.	No	No	Concrete, parapet and bearing renewals are planned as part of the 5 year maintenance programme. These activities will be confined to bridge itself. These activities are likely to be small scale and unlikely to cause LSE on the habitats due to distance from works.	None known.
	Birds - aggregations of breeding birds	Osprey (<i>Pandion haliaetus</i>)	Disturbance from noise and proximity of people, machinery. Pollution.	No	No	Maintenance programme will take place at all times of year for 5 years. Ospreys are unlikely to be breeding in the immediate surroundings of the Firth, According to SNH the nearest known nest site is over 2km away. Likelihood that birds will be accustomed to existing level of disturbance from traffic on the trunk road. Any effects on foraging are not likely to be significant because of the large expanse of the Dornoch Firth which offers ample foraging opportunities away from the bridge. LSE unlikely.	
	Birds - aggregations of non-breeding birds	Bar-tailed godwit (<i>Limosa lapponica</i>), Curlew (<i>Numenius arquata</i>), Dunlin (<i>Calidris alpina alpina</i>), Greylag goose (<i>Anser anser</i>), Oystercatcher (<i>Haematopus ostralegus</i>), Redshank (<i>Tringa totanus</i>), Scaup (<i>Aythya marila</i>), Teal (<i>Anas crecca</i>), Waterfowl assemblage, Wigeon (<i>Anas penelope</i>).	Disturbance from noise, proximity of people, machinery, vessels. Pollution.	Uncertain	Yes	Maintenance programme will include parapet repairs, hydrodemolition and pressure-washing the bridge. Containment measures will be used to prevent pollution reaching the aquatic environment and sediments. Main roost sites for waders is 800m away but some smaller sites are located closer. LSE on wading birds unlikely, but screened in as a precaution. Likelihood that birds will be accustomed to existing level of disturbance from traffic on the trunk road. LSE unlikely but screened in as a precaution.	None known.
	Invertebrate assemblage	Invertebrate assemblage	Pollution	No	No	Works are considered to have little effect on invertebrates. With the implementation of pollution prevention measures as described above, there is low potential for LSE on invertebrate assemblage.	None known.
	Marine mammals	Harbour seal (<i>Phoca vitulina</i>)	Little disturbance anticipated as all maintenance works will be on the bridge itself, with no requirement for working underwater. Possible pollution issues from debris and concrete wash out.	No	No	Based on information from SNH, the nearest known seal haul out is over 2 km from the works location. This is sufficiently distant from the works for seals using the haul out not to be affected by the works activities. The works do not entail working underwater so noise transmission through the water will be low.	None known.
	Mammals	Otter (<i>Lutra lutra</i>)	Noise and on going works disturbance likely to have an effect on otters.	Yes	Yes	Otter resting places have been found on rip rap along the causeway approaches to the bridge on both the north and south side previously. As these resting places are in close proximity to the proposed works, it is deemed to have LSE on otters.	None known.
	Plants	Vascular Plant assemblage	Pollution.	No	No	Concrete, parapet and bearing renewals are planned as part of the 5 year maintenance programme. These activities will be confined to bridge itself. These activities are likely to be small scale and unlikely to cause LSE on vascular plant assemblage.	None known.

Dornoch Firth and Morrich More SAC	Habitats	Atlantic salt meadows, Coastal dune heathland, Dune grassland, Dunes with juniper thickets, Estuaries, Glasswort and other annuals colonising mud and sand, reefs, Shifting Dunes, Shifting Dunes with marram, Subtidal sandbanks Humid dune slacks, Intertidal mudflats and sandflats, Lime-deficient dune heathland with crowberry.	Pollution from maintenance works.	No	No	There will be no working on the areas of the qualifying habitats. Concrete, parapet and bearing renewals are planned as part of the 5 year maintenance programme. These activities will be confined to bridge itself. These activities are likely to be small scale and unlikely to cause LSE on the habitats.	None known.
	Marine mammals	Harbour seal (<i>Phoca vitulina</i>)	Little disturbance anticipated as all maintenance works will be on the bridge itself. No pilings so noise in the water environment is expected to be low. Possible pollution issues from debris and concrete wash out.	No	No	Based on information from SNH, the nearest known seal haul out is over 2 km from the works location. This is sufficiently distant from the works for seals using the haul out not to be affected by the works activities. The works do not entail working underwater so noise transmission through the water will be low.	None known.
	Mammals	Otter (<i>Lutra lutra</i>)	Noise and on going works disturbance likely to have an effect on otters.	Yes	Yes	Otter resting places have been found on rip rap along the causeway approaches to the bridge on both the north and south side previously. As these resting places are in close proximity to the proposed works, it is deemed to have LSE on otters.	None known.

River Oykel	Invertebrates	Freshwater pearl mussel (<i>Margaritifera margaritifera</i>)	Indirect effects as a result of numbers of salmon potentially not returning to River Oykel SAC.	Uncertain	Yes	Freshwater pearl mussels require the presence of salmon (and trout) for the early stages of their lifecycle. There is connectivity in this case since salmon migrate through the Dornoch Firth to return to their natal river to spawn. Mitigation measures to prevent pollution are proposed, including implementing debris netting, combi safe and edge protection installed, CAR licence will be in place for hydrodemolition. With these measures in place, LSE on FWPM is unlikely.	None known.
	Fish	Atlantic salmon (<i>Salmo salar</i>)	Pollution. Disturbance during salmon migration.	Uncertain	Yes	Freshwater pearl mussels require the presence of salmon (and trout) for the early stages of their lifecycle. There is connectivity in this case since salmon migrate through the Dornoch Firth to return to their natal river to spawn. Mitigation measures to prevent pollution are proposed, including implementing debris netting, combi safe and edge protection installed, CAR licence will be in place for hydrodemolition. With these measures in place, LSE on Atlantic salmon is unlikely.	None known.

Moray Firth proposed marine SPA	Birds	<p>European shag (<i>Phalacrocorax aristotelis</i>), breeding & non-breeding;</p> <p>Common eider (<i>Somateria mollissima</i>), non-breeding;</p> <p>Common goldeneye (<i>Bucephala clangula</i>), non-breeding;</p> <p>Common scoter (<i>Melanitta nigra</i>), non-breeding;</p> <p>Great northern diver (<i>Gavia immer</i>), non-breeding;</p> <p>Greater scaup (<i>Aythya marila</i>), non-breeding;</p> <p>Long-tailed duck (<i>Clangula hyemalis</i>), non-breeding;</p> <p>Red-breasted merganser (<i>Mergus serrator</i>), non-breeding;</p> <p>Red-throated diver (<i>Gavia stellata</i>), non-breeding;</p> <p>Slovonian grebe (<i>Podiceps auritus</i>), non-breeding;</p> <p>Velvet scoter (<i>Melanitta fusca</i>), non-breeding.</p>	Disturbance from noise and proximity of people, machinery. Pollution.	No	Yes	<p>Maintenance programme will include parapet repairs, hydrodemolition and pressure-washing the bridge.</p> <p>Containment measures will be used to prevent pollution reaching the aquatic environment and sediments. Main roost sites for waders is 800m away but some smaller sites are located closer.</p> <p>LSE on wading birds unlikely, but screened in as a precaution. Likelihood that birds will be accustomed to existing level of disturbance from traffic on the trunk road. LSE unlikely but screened in as a precaution.</p>	None known.
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