A9 Cromarty Bridge 5 Year Maintenance Programme

Record of Determination

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EC DIRECTIVE 97/11 (as amended)
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RECORD OF DETERMINATION

Name of Project:	**Location:**
A9 Cromarty Bridge 5 Year Maintenance Programme Marine Licence Application	A9 Cromarty Firth **Structures:** A9 Cromarty Bridge, Inverness-shire

Description of Project:

As part of the 4G NW contract with Transport Scotland for the management and maintenance of the Scottish trunk road network, BEAR Scotland (NW Unit) are responsible for maintenance and improvement works on the Cromarty Bridge.

This RoD is being submitted in support of a Marine licence Application (MLA) for the five-year maintenance programme. The MLAs will ensure that work with short lead in times are delivered on programme.

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 maintenance activities encompass:

Scheme

- Scour repairs – scour protection around pier pile caps, it is anticipated that 18 no. piers will require repairs throughout the five-year period and that a maximum of six piers would be repaired in any one year.

Cyclic Maintenance

- Resurfacing
- Concrete repairs – minor repair to superstructure and substructure (some work to piers may be below MHWS) may include some hydro-demolition.
- Drainage cleaning
- Parapet repairs
- Bird guano removal
- Pavix CC100 treatment on the pre-stressed beams
- Cathodic Protection Maintenance (some work to piers may be below MHWS)
- Electrical repairs

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 three months in any given year. All maintenance works are considered temporary and are unlikely to be carried out simultaneously with any other activity. 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 'scour repairs' 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. 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.

Some of the cyclic maintenance activities will take place from the bridge deck only, including resurfacing and drainage cleaning. Other activities will require access beneath the bridge deck and these include bird guano removal and pavix treatment of the pre-stressed beams. Only the scour repairs and limited repairs to the cathodic protection system (only installed in spans 1-8) will take place in the subtidal zone.

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 (these can be found in the table Environmental Impacts and Proposed Good Practice, Management Measures and Mitigation: Summary.

- The site supervisor will give appropriate 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 (including jack-up barges) 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.

Scour repairs

The existing scour protection has partially eroded at some of the pile caps. Scour repairs will therefore be required at a number of piers (each pier consists of two reinforced concrete columns). In 2016 six piers were remediated with rock armour, with approximately 300m^3 of material excavated at each pier. The substrata consisted of muddy sediments which were sidecast by the excavator during the works. Scour repairs were carried out sequentially with one excavator working off a jack up barge to place scour protection (usually large rocks) around the pier pile caps before moving on to the next pier.

It is expected that a further 18 piers will require remediation over this five-year maintenance programme with a maximum of six piers being repaired in any one year (over a two to three-month period). It is likely that the same methodology will be incorporated for the proposed scour repair activity during this five-year maintenance programme as was done in 2016; however, it is possible that two jack-up barges with excavators could be used at each pier in unison, thereby reducing the duration of the works in any given year.

Excavated material will be sidecast at each pier, hence material will be redistributed in a similar location on the seabed during the activity. Following excavation, geotextile will be installed around the specific pile cap. Rock armour will then be placed around the pier pile caps with backfill of voids between armour achieved by infilling of granular material (sand and gravel).

The scour repair activity will take place at sequential piers across the bridge; therefore, the activity of scour repair will be limited to the immediate area around each pier at any one time. During the scour repair the material will be removed by an excavator mounted on a jack-up barge. Around the base of the piers (pile caps) the area affected by the excavation and then rock placement would be unlikely to exceed beyond a 5m radius. The diameter of each foot of the jack-up barge will be less than 2m^2.
The works will be highly localised and are not expected to take more than 3-10 days per pier (depending on the level of scour repairs required). Hence, the total duration of scour repairs in any given year is not expected to exceed 90 days. Note that this duration is based on a single excavator working from a single jack up barge, consequently the duration would be reduced if a second excavator and jack up barge were mobilised.

Scour repairs will not overlap with any other maintenance activities.

Summary methodology

- Install jack up barge to required pier location
- Excavate superficial sediments (sands and muds) around pier(s)
- Side cast sediments
- Install geotextile
- Place rock armour around piers and infill with granular material
- Demobilise from site

In addition to the good practice and management measures already listed the following will be adopted:
Production and implementation of a Biosecurity Management Plan (which will be appended to the SEMP when finalised) during the construction phase.

- Prior and during the construction phase, appropriate staff will be informed of relevant marine Invasive Non-Native Species (INNS). These staff will receive a copy of the Biosecurity Management Plan and understand how to implement the management measures. These staff will also be cognisant of guidance produced by SNH for the prevention of introduction of non-native species (Payne et al., 2014).
- The Contractor will produce a Ballast Water Management Plan[1] (if relevant) to prevent the risk of introducing invasive non-native species.
- All rock armour will be washed and cleaned prior to immersion to ensure that no contaminants are brought into contact with the marine environment.
- All equipment to be washed down and cleaned prior to immersion.

Resurfacing

Resurfacing will be completed as required to repair potholes and large-scale resurfacing to restore the surfacing condition. Removal of mastic waterproofing material would be carried out as part of large scale resurfacing, this would be carried out by either mechanical hand tools or grit blasting. The maximum duration of any single resurfacing scheme would not exceed four weeks.

Summary methodology

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

The following good practice 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 in the water.
- Debris netting is to be installed around the area being milled as required.

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 works are required beneath the bridge they will be facilitated by an underbridge unit. In line with health

[1] http://www.imo.org/en/OurWork/Environment/BallastWaterManagement/Pages/Default.aspx

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.

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 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.

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 measures will also be adopted:

Large repair

- Hydro demolition will be contained using protective sheeting and a sump pit to catch run off 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.

Small repair

- Debris netting to 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 would take place up to a maximum of one week to complete. These works will be carried out on the surface of the bridge.

Summary methodology

- Establish traffic management as required.
- Open kerb gully.
- Clean debris from gulley 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 was renewed in 2016; however, accidental vehicle damage or defects to the parapet may require repair. These works will be carried out above MHWS and would take a maximum duration of one week to complete for any single repair.

Summary methodology:

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

The following good practice measures will also be adopted:

- Edge protection to be installed to ensure material can't be knocked over the edge of the bridge
- Debris netting to be used to stop waste and small items falling over the side

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 and will take a maximum of 2 to 3 weeks to complete.

Summary methodology

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

The following good practice measures 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.

Pavix CC100 treatment on the pre-stressed beams

To seal cracking on the pre-stressed beams caused by alkali silica reaction (ASR), Pavix CC100 will be sprayed onto the beams after cleaning the beams. The maximum duration for these works is expected to be 4 weeks.

Summary methodology:

- Establish traffic management as required

- Establish underbridge access unit (lorry mounted or fixed)
- Clean pre-stressed beam using brushes and vacuum cleaners
- Apply Pavix CC100 using hand held spray or brush
- Demobilise underbridge unit and traffic management

The following good practice measures will also be adopted:

- Debris netting and containment will be installed around the working area to prevent entry of any materials into the marine environment
- All debris removed during the cleaning process will be taken off site by a licenced waste carrier.
- Application and treatment will take place during suitable weather conditions.

Cathodic Protection Maintenance

Cathodic protection components on the bridge may require maintenance to ensure the system remains functional. Currently cathodic protection on the bridge is only installed between spans 1 to 8. There may be a limited element of subtidal works associated with the cathodic protection repairs with only minor repairs to the galvanic anodes required (drilling into concrete piers, fixing cables and replacing broken components etc). There may be cathodic protection works within the intertidal zone, this would consist of repairs to the discrete anode cathodic protection system. Reference electrodes, cabling and titanium anode mesh may require repairing which may involve more intrusive repairs such as hydro-demolition, sprayed concrete, drilling and installing new electronic components. Works within the intertidal zone will be carried out during low tides in order for the works to be carried out in the dry, this is feasible due to the quick curing capabilities of sprayed concrete. Cathodic protection works will also include installation of cable tray and electrical wiring on west cantilever of bridge, these works will take place underneath the bridge.

Both the intertidal and the subtidal repairs will be completed using an lorry mounted underbridge unit access system for minor repairs. If major repairs are required (such as hydro-demolition), an underbridge access system will be required. 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. The water generated during 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.

Summary methodology:

- Establish traffic management as required
- Establish underbridge access unit (lorry mounted or fixed)
- Lay additional cabling as required
- Change out components as required
- Possible, drilling, grinding, welding, hydro-demolition and concrete repairs will be required to access components within the structure or to establish new components.
- Demobilise underbridge unit and traffic management.

The following good practice measures will also be adopted:

- Thickened sheets will be installed around the area being broken out.
- If working from a platform beneath the bridge, the floor will be layered with materials (see above) to fully contain the water and drill and grinding dust from entering the marine environment.
- Hydro demolition will be contained using protective sheeting and a sump pit to catch run off 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 sprayed 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

Project Procurement:

The maintenance programme is executed by the operating company as site operations – '**As of Right' scheme** with some activities being executed under **works contract**.

Description of Local Environment:
The following baseline descriptions have been sequenced to follow the appropriate Design Manual for Roads and Bridges (DMRB) chapters for environmental assessment and do not reflect a ranking of sensitivity.

AIR AND CLIMATE:
There is no Air Quality monitoring site within the vicinity of the scheme. Due to the rural locality of the scheme, air quality is likely to be reasonable with the main influence being vehicle emissions from traffic using the A9 trunk road. A waste water treatment works lies approximately 500m south of the bridge.

Sensitive receptors to changes in air quality include Ardullie Lodge and Shore Croft, both within 300m of the works. Refer to Appendix B for air and climate receptor locations.

CULTURAL HERITAGE AND MATERIAL ASSETS:

The Historic Environment Scotland (HES) PastMap online mapping tool shows a few sites of cultural heritage interest within 300m of the scheme. Cromarty Bridge is recorded on Canmore and the Historic Environment Record (HER). Ardullie Point has a boat wreck recorded on Canmore Maritime and the HER, located approximately 190m north of the northern extent of the works. Ardullie Lodge, located approximately 100m north of the Cromarty Bridge, is a Category B Listed Building. Refer to Figure C1 in Appendix C for Historic Environment Scotland (HES) PastMap results.

BIODIVERSITY:
Designated sites

Following initial consultation with SNH ([Redacted] 6th April 2018), regarding the proposed scour repairs and maintenance activities at Cromarty Bridge, they advised that the proposal could lead to a potential likely significant effect on a number of qualifying features of the designated conservation sites within 30km of the Cromarty Bridge (refer to consultation response in Appendix E). Accordingly a Statement to Inform Appropriate Assessment for the proposed works at Cromarty Bridge, hereafter referred to as the 'SIAA', has been produced. The SIAA accompanies this document.

The sites idenitifed as having one or more qualifying feature that could be potentially affected by the proposal are:

- The Cromarty Bridge spans the Cromarty Firth Special Protection Area (SPA), Site of Special Scientific Interest (SSSI) and Ramsar site.
- The Inner Moray Firth SPA and Ramsar (in the Beauly Firth);
- The Dornoch Firth and Loch Fleet SPA and Ramsar site approximately 30km north of the bridge;
- The Dornoch Firth and Morrich More SAC approximately 30 km to the north;
- The Moray Firth SAC at the mouth of the Cromarty Firth; and
- The Moray Firth pSPA to the east of Cromarty Bridge.

The qualifying features of these designated sites encompass the broad features:

- Wintering birds.
- Breeding birds.
- Annex I habitats.
- Harbour seal.
- Otter.
- Bottlenose dolphin.

Further detail on these sites, their features and their conservation objectives is provided in the accompanying SIAA.

Habitats

The Cromarty Firth contains one of the largest expanses of intertidal flats in the Moray Basin. These support a rich invertebrate fauna and beds of eelgrass *Zostera spp*., glasswort *Salicornia spp*., and *Enteromorpha* algae. The habitat surrounding the northern and southern ends of the bridge comprises intertidal flats. Terrestrial habitat set back from the coast at the southern end of the scheme is characterised by a rocky shoreline backing onto agricultural land. Terrestrial habitat set back from the coast at the northern end of the scheme comprises stands of mature deciduous trees, fringing agricultural land.

Birds

The Cromarty Firth is an important area for both wintering and breeding birds. The Firth regularly supports more than 30,000 waders and wildfowl between October and March. Of particular importance are whooper swan (*Cygnus cygnus*), bar-tailed godwit (*Limosa lapponica*), greylag goose (*Anser anser*) and redshank (*Tringa totanus*). The site is also an important stopping off point for a wide range of passage birds during August and September. A colony of both common (*Sterna hirundo*) and Arctic (*Sterna paradisaea*) terns are located on a stretch of shingle and grassland around 100m from the north end of the bridge. The terns arrive in late April to early May for the breeding season. Ospreys (*Pandion haliaetus*) nest in the wider surrounding area and forage in the Cromarty Firth from spring until early autumn. A peregrine falcon (*Falco peregrinus*) was observed flying under the bridge at the northern abutment during a survey in November 2015 and a peregrine falcon has since been filmed in 2016 on a wildlife camera positioned under the southern abutment. No evidence of nesting peregrine within the Cromarty Bridge has been identified during the 2018 survey and there are no records of peregrine ever having nested on the Cromarty Bridge. NBN Atlas search results are presented in Appendix D.

Otters

Otters are known to be present within the area. During a survey in July 2015, an otter resting place, marked with spraint and feeding remains, was found directly under the bridge in the rip-rap adjacent to the southern abutment. Spraint was also found at several locations along the rip-rap bounding the southern abutment. Old spraint was found on rip-rap at the northern abutment, but there was no evidence of resting places or holts. A further survey was carried out in November 2015, the resting place identified in July 2015 was confirmed. In addition, fresh spraint was found at both abutments but no resting places were identified at the northern abutment. A wildlife camera was set up at the southern abutment in January 2016 and has captured many images of otters using the rip rap as a commuting path underneath the bridge. During surveys in 2018 the resting place on the southern side was still found to be active and fresh spraint was found along riprap on the southern side, suggesting this is still being used as a commuting path for otter.

Marine mammals

The Protection of Seals (Designated Seal Haul-out Sites) (Scotland) Order 2014 introduced additional protection for seals at 194 designated haul-out sites: locations on land (intertidal) where seals come ashore to rest, moult or breed. The area surrounding the Cromarty Bridge is designated as a seal haul out.

Harbour seals (*Phoca vitulina*) and grey seals (*Halichoerus grypus*) are present at haul-out sites in the Moray Firth throughout the year, with a peak in June, July and August during the breeding season and moult (Thompson *et al.*, 1996). Seasonal patterns show that the Cromarty Firth contained a higher proportion of harbour seals during the winter months (Thompson *et al.*, 1996). The Moray Firth harbour seal population is considered to be relatively discrete in contrast to the grey seal population that shows interchange with other grey seal breeding areas in Orkney, the Firth of Forth and the Farne Islands (Thompson *et al.*, 1996). There are four known haul-out sites close to the Cromarty Bridge that are primarily used by harbour seals. The closest of these is a haul-out site that lies approximately 1 km north-east of the works. Refer to Appendix D for

map of designated haul-out sites.

The Moray Firth supports the only known resident population of bottlenose dolphins (*Tursiops truncatus*) in the North Sea (Wilson *et al*., 1997) estimated to be around 130 individuals. Studies on bottlenose dolphin habitat use within the Moray Firth showed that dolphin sightings were concentrated in three main regions, Kessock, Chanonry and the Sutors. The first two sites are located within the Moray Firth; the Sutors site is located at the mouth of the Cromarty Firth.

Fish

Three diadromous fish species are known to be present in the area: Atlantic salmon (*Salmo salar*), anadromous brown trout (sea trout) (*Salmo trutta*) and European eel (*Anguila anguila*). Cromarty Firth is an important migration route for Atlantic salmon and sea trout, both for smolts as they head out to sea, and for adult fish returning to their natal rivers. The river lamprey (*Lampetra fluviatilis*) and sea lamprey (*Petromyzon marinus*) may also be present in the wider area. All five species are listed as PMF and the Scottish Biodiversity List (SBL). Atlantic salmon and lamprey are also listed on Annex II of the Habitats Directive, whilst European eel are considered Critically Endangered and are on the International Union for Conservation of Nature (IUCN) Red List.

The Firth receives its principal river, the Conon, at its head 5 km west of the bridge and there are a number of other rivers important for migratory fish connected with the Firth. These include the Allt Graad and the River Sgitheach to the north of the Cromarty Bridge.

LANDSCAPE:

The landscape surrounding the Cromarty Bridge is characterised by open views across the Cromarty Firth to agricultural land, forestry plantation, industrial development to the east and Ben Wyvis and the mountains to the west. There are several residential receptors surrounding the proposed works including Shoretown (1.3 km south) and the village of Culbokie (1.5 km south east).

LAND:

Land use in the area surrounding the bridge is a mixture of agriculture, plantation forestry and industrial development with pockets of urban settlement.

NOISE:

Existing noise and vibration levels are primarily influenced by traffic using the A9 trunk road which carries commercial and public traffic and is a popular tourist route. Traffic using the B-roads at the southern and northern ends of the bridge will add to the noise levels. There will also be some intermittent noise generated by trains on the Far North Line at the northern end of the bridge. There is likely to be some noise generated as a result of agricultural activities and as a result of plant at the Scottish Water Waste Water Treatment Works at the south-eastern end of the bridge.

The Scottish Government noise maps on Scotland's Environment Web indicate Lden[2] levels ranging between 70 dB along the carriageway to 55 dB approximately 1.5 km either side of the bridge. Lnight[3] levels range between 60 dB along the carriageway to less than 50 dB approximately 1.5 km either side of the bridge.

Sensitive receptors to noise and vibration disturbance include Ardullie Lodge and Shore Croft, both within 300m of the works.

POPULATION AND HUMAN HEALTH:

No formally recognised cycle routes cross the Cromarty Bridge. National Cycle Route 1 (Devon to Shetland) passes through Dingwall which may therefore increase the likelihood of cyclists utilising the Bridge. However, it is known that cyclists do use the bridge and the footway. A footway exists along the west side of the

[2] The Environmental Noise Directive requires noise levels to be assessed in terms of Lden and Lnight.
Lden is the equivalent continuous noise level over a whole 24-hour period, but with noise in the evening (19:00 to 23:00) increased by 5 dB(A) and noise at night (23:00 to 07:00) increased by 10 dB(A) to reflect the greater noise-sensitivity of people at those times.
Lnight is the equivalent continuous noise level over the night-time period (23:00 to 07:00). Lnight does not contain any night-time noise weighting. http://www.noisemap.ltd.uk/home/eu%20noise%20directive.html

[3] As per 2

carriageway. Equestrians are unlikely to use the bridge due to the high speed and volume of traffic.

The Cromarty Bridge carries the A9 trunk road north over the Cromarty Firth and is an important connection for commercial, domestic and tourist traffic. It reduces the travelling time and distance between Tore and Evanton from 13.8 miles and 26 minutes to 9.7 miles and 15 minutes. The Transport Scotland traffic count has recorded Average Annual Daily Flow (AADF) as 11,321 vehicles with an average am peak of 919 vehicles and an average pm peak of 1082 vehicles (http://www.transportscotland.gov.uk/map-application).

WATER:

The Cromarty Firth is a long, deep, sheltered estuary which receives freshwater from a number of rivers including the Rivers Conon, Glass, Sgitheach, Averon and Balnagown. The Inner Cromarty Firth is a transitional water body and was classified by the Scottish Environment Protection Agency (SEPA) in 2015 as being at Good status.

The Cromarty Bridge consists of 67 piers (each made up of a pair of reinforced concrete pillars) making it unnavigable by all but the smallest vessels. Headquartered at Invergordon, the Port of Cromarty Firth is home to 6 key marine facilities, of which the Port of Cromarty Firth is the statutory Port Authority. These facilities include Highland Deephaven Industrial Estate and Spoolbase, Admiralty Pier, Saltburn Pier, Nigg Oil Terminal, Nigg Energy Park and Invergordon Service Base.

The Cromarty Bridge lies approximately 25km from the mouth of the Cromarty Firth. The Nigg Energy Park lies at the mouth of the firth which is 1.3km at the narrowest point. The Nigg Energy Park is the largest port facility in the Moray Firth containing a dry dock and >900m of deepwater quayside. The Port of Nigg is used for maintenance of drilling rigs, mobilisation and demobilisation of subsea construction vessels and a key hub for supporting renewable energy industries. A continuous ferry link runs between Nigg and Cromarty in the summer months.

The waters at the mouth of the Cromarty Firth form part of a busy navigation channel with 50 to 150 vessel transits per week between 2012 and 2015 (National Marine Plan interactive (NMPi), 2018). In 2017 620 commercial vessel arrivals (and 620 departures) were recorded by the Port of Cromarty Firth. This does not include small leisure craft, local fishing vessels or the internal movement of small commercial craft.

Other pressures on water quality include sewage disposal, the presence of the invasive non-native species common cord-grass (*Spartina anglica*) and historic pollution.

The northern end of the bridge sits in the Strath Peffer and Alness Coastal groundwater body, classified by SEPA in 2016 as being at Good status. The southern end of the bridge sits in the Black Isle groundwater body, classified by SEPA in 2016 as being at Good status.

Road drainage at the bridge is via short sections of pipe at each drain site. These discharge pipes can be found on the eastern side of the road, at each of the bridge's 67 piers, giving a total of around 130 discharge pipes.

SOILS AND GEOLOGY:

There are no statutory or non-statutory geologically designated areas within the scheme footprint. The landward ends of the Cromarty Bridge are supported on embankments created when the bridge was constructed. These embankments extend into the Firth with the southern embankment being the longest at around 500m.

Bedrock geology at the northern end of the bridge comprises the Cnoc Fyrish Conglomerate Formation – Conglomerate and Sandstone, interbedded. This is Sedimentary bedrock formed approximately 385 to 398 million years ago in the Devonian Period. Superficial geology here comprises Raised Marine Deposits, Devensian – Gravel, Sand and Silt, formed up to 2 million years ago in the Quaternary Period.

Bedrock geology at the southern end of the bridge comprises the Raddery Sandstone Formation, sedimentary bedrock formed approximately 385 to 398 million years ago in the Devonian Period. Superficial geology here comprises Raised Marine Deposits, Devensian – Gravel, Sand and Silt, formed up to 2 million years ago in the Quaternary Period.

The National Soil Map of Scotland records soils immediately to the north and south of the bridge as mineral podsals.

WASTE, MATERIALS AND USE OF NATURAL RESOURCES:

Waste generated as a result of each activity will range from road planings to bird guano and are described below.

Schemes

Scour Repairs
Materials and resources used for scour repairs will comprise rock armour and geotextile.

Cyclic maintenance

Resurfacing
Materials and resources used for resurfacing will comprise surfacing and waterproofing material. Waste materials will comprise of excavated road planings,mastic waterproofing material and waste grit (if grit blasting is required).

Concrete repairs
Materials and resources used for concrete will comprise concrete and water for hydro-demolition (where required). Water volumes for hydro-demolition will vary depending on the size of the repairs. In any one hour upto 2,000l of water could be used and in any single day upto 25,000l. Waste materials will comprise wash water from hydro-demolition, concrete wash water and waste concrete.

Drainage cleaning
Materials and resources used for drainage cleaning will comprise fuels for vehicles. Waste materials will comprise material removed from the drainage system.

Parapet repairs
Materials and resources used for parapet repairs will comprise new parapet sections. Waste materials will comprise damaged parapet sections.

Bird guano removal
Materials and resources used for bird guano removal will comprise bags for removing material. Waste materials will comprise bird guano.

Pavix CC100 treatment of pre-stressed beams
Materials and resources used for pavix CC100 treatment of the pre-stressed beams will include pavix CC100. Waste will comprise materials from cleaning the pre-stressed beams and any waste pavix CC100 material in opened containers.

Cathodic Protection Maintenance
Materials and resources used for cathodic protection will include cathodic protection components and wiring, water for hydro-demolition (if required) and spray concrete (if required) . Waste will comprise expired lifetime cathodic protection components, hydro-demolition wash waster and waste concrete.

Description of the main environmental impacts of the project and proposed mitigation:

As a result of a desktop study and site visit, issues requiring consideration have been identified and potential effects, their magnitude and overall significance (based on the sensitivity of receptor) have then been considered. Effects have been split into construction (maintenance activities) and operational effects. Generic good practice and management measures have been considered (see **Description of Project**), along with additional mitigation to determine whether the resdidual effect on a given receptor is significant.

The table Environmental Impacts and Proposed Good Practice, Management Measures and Mitigation:

Summary provides a summary of all the predicted effects and the good practice, management and mitigation measures that will be implemented.

In some cases, compliance with environmental consents, authorisations and licences will also form part of the measures in place to minimise environmental impacts. The table Environmental Impacts and Proposed Good Practice, Management Measures and Mitigation: Summary will also include reference to the conditions of various licences, where relevant.

Unless otherwise stated, the study area considered for the assessment of potential impacts extends 200 m in each direction from the centre of the road.

AIR AND CLIMATE:

There is potential for a short-term minor decrease in air quality during the construction phase due to activities associated with the works including:

- Emissions from construction vehicles, plant and machinery;
- Resuspension of dust by haulage vehicles, other construction vehicles and from plant.

Impacts on air quality are anticipated to be negligible, with no significant effects, with the following measures in place:

- Plant, machinery and vehicles associated with the works will have engines switched off when not in use in order to minimise emissions;
- Machinery and vehicles will have been serviced regularly;
- A traffic management plan will be in place to control the length of time that traffic needs to idle;
- Dust generated from construction activities will be minimised as far as possible via wetting down;
- Large material stockpiles will not be required and drop heights will be minimised to avoid excessive dust generation;
- Any skips holding waste on site will be covered to prevent dust movement; and
- Any loose materials will be covered during transportation to and/or from site.

During construction, there will be no significant effects in terms of heat and radiation emissions. The construction activities, for example, emissions from construction vehicles and plant will result in the release of 'greenhouse' gases for a short-term period. However, due to the short-term nature of the construction works, this effect is not considered to be significant.

The proposed work will not affect air quality during the operational stage, as operation will not differ from baseline.

CULTURAL HERITAGE AND MATERIAL ASSETS:

The 5 year maintenance programme is ultimately designed to maintain the structural and cultural integrity of the Cromarty Bridge. The proposed works will be confined to the existing footprint of the bridge structure and compound, it is likely that the compound will be located on the bridge deck therefore no other sites of cultural heritage interest (other than the Cromarty Bridge itself) identified in the baseline section will be impacted.

Mitigation measures are as follows:

- Confine work related activities to the existing footprint of the scheme.

The scour repairs and cyclic maintenance activities will protect the structural integrity of the bridge and is likely to result in a minor significant positive impact through maintining the cultural heritage of the bridge.

A minor positive significant impact is anticipated on cultural heritage and material assets during the operation phase.

BIODIVERSITY:

Designated Sites

Following consultation with SNH [Redacted] , 6th April 2018), regarding the proposed scour repairs and maintenance activities at Cromarty Bridge, SNH were in general agreement with initial conclusions of the HRA screening (see Appendix E). This has led to the screening out of a number of qualifying features, including all features of the Dornoch Firth and Loch Fleet SPA.

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 (Table 1). Since the intial consultation (6th April 2018), further detail has been provided on the good practice and management measures that will be adopted during construction, specifically those measures that would prevent the loss of materials and/or pollution in the marine environment. These measures are acknowledged and detailed futher within the SIAA and also in the section **Description of Project** within this document. In addition the following good practice and management measures will also be adopted throughout the maintenance programme irrespective of the activity:

- The site supervisor will give appropriate 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 In bunded areas.
- Spill kits will be available on site (including jack-up barges) 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.

Table 1: Qualifying (broad) features with potential for a likely significant effect from the proposed works at Cromarty Bridge

Broad Feature	Associated Designated Site
Harbour seal	Dornoch Firth and Loch Fleet Ramsar, Dornoch Firth and Morrich More SAC
Bottlenose dolphin	Moray Firth SAC
Breeding birds	Inner Moray Firth SPA, Inner Moray Firth Ramsar, Cromarty Firth SPA, Moray Firth pSPA
Intertidal mudflats and sandflats	Cromarty Firth Ramsar
Wintering birds	Cromarty Firth Ramsar, Cromarty Firth SPA, Moray Firth pSPA, Inner Moray Firth SPA and Inner Moray Firth Ramsar

With the application of specific additional mitigation the SIAA then considered the potential for LSE against each of those features identified in Table 1. It concluded that all conservation objectives of the designated sites would be maintained and thus the qualifying features and corresponding desigated sites would not be adversely affected by the proposed maintenance.

Where specific additional mitigation was acknowledged for a given feature, a breakdown has been provided below. Further detail is given within the SIAA.

Bottlenose dolphin and harbour seal (*Moray Firth SAC, Dornoch Firth and Morrich More SAC and Dornoch Firth and Loch Fleet Ramsar)*

With the following additional mitigation measures implemented throughout the works the SIAA concluded that there would be no adverse effect on the conservation objectives of harbour seal and bottlenose dolphin:

- Scour repair works will be programmed, where feasible, to take place outside the summer months (June to August inclusive) to avoid the harbour seal and bottlenose dolphin breeding season.
- Normal working operations of the scour repair activities will take place between the hours of 07:00 to 19:00, unless there is an urgent need to extend operations.
- The scour repair activity will be preceded by a 'soft start' in general activities, thus allowing a 'ramping-up' of noise levels.
- Following cessation of scour repair activities on any given day, works lighting will be directed away

from the water, as much as practicable.

- Vessels used for the works are to maintain constant speed and direction when transiting between working areas and berth point, unless otherwise required for reasons of safe navigation.
- Vessels used for the works will adhere to set routes (in accordance with the general requirements of the Port of Cromarty Firth for transit between working areas and berth point.
- Vessels used for the works will adhere to the general principles in the Scottish Marine Wildlife Watching Code.

Wintering and breeding birds *(Inner Moray Firth SPA and Ramsar, Cromarty Firth SPA and Ramsar, Moray Firth pSPA)*

With the following additional mitigation measures implemented throughout the works the SIAA concluded that there would be no adverse effect on the conservation objectives of wintering birds:

- Normal working operations of the scour repair activities will take place between the hours of 07:00 to 19:00, unless there is an urgent need to extend operations.
- The scour repair activity will be preceded by a 'soft start' in general activities, thus allowing a 'ramping-up' of noise levels.
- Following daily cessation of fender replacement or scour repair activity in the bird overwintering period (October to March), works lighting will be directed away from the water and intertidal areas, as much as practicable.
- During the overwintering period (October to March) lighting will be kept to a minimum
- Works will be progressive eg should avoid lighting the whole bridge at the same time.
- Vessels used for the works are to maintain constant speed and direction when transiting between working areas and berth point, unless otherwise required for reasons of safe navigation.
- Vessels used for the works will adhere to set routes (in accordance with the general requirements of the Port of Inverness) for transit between working areas and berth point.
- Vessels used for the works will adhere to the general principles in the Scottish Marine Wildlife Watching Code.
- If works are required to be carried out over night 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.

With the following additional mitigation measures implemented throughout the works the SIAA concluded that there would be no adverse effect on the conservation objectives of breeding birds (specifically breeding terns).

- No significant works i.e. scour repairs will take place within 250m exclusion zone around the common tern breeding colony (at the north end of the bridge) between April 1st and July 31st inclusive.

Staff will remain vigilant for breeding birds and nests immediately adjacent to the proposed works (up to 10m from the carriageway) between the months of March and August inclusive. If works are required during this timeframe, pre-maintenance breeding bird checks will be required. The requirement of these surveys will be dependent on the maintenance work in question and should be taken under advisement of the BEAR Environmental Team.

Intertidal mudflats and sandflats (*Cromarty Firth Ramsar)*

The scour repairs will entail the side-casting of approximately 300m^3 of sandy mud at each bridge pier. It is assumed that work will be carried out at up to six piers in any given year, amounting to a maximum of 1800m^3 of muddy sediment that will be sidecast back into the immediate environment over the duration of the works (two to three months if one jack-up barge; one to one and half months if two jack-up barges). The accumulation of a predominantly muddy substratum around the bridge suggests that settlement of fine material takes place under baseline conditions; however, assuming that all the excavated material would be dispersed and end up on the surrounding intertidal mudflats and/or sandflats the level of sedimentation would be undetectable from background. It is also considered that subsequent tides would remobilise much of the fine material deposited

on the intertidal zone.

The characteristic communities of intertidal mud and sandflats are tolerant of sediment deposition and would not be affected by such minimal quantities of deposition especially over such a prolonged timescale.

During the works, temporary disturbance to the intertidal mudflats and sandflats may occur for example from the feet of the jack-up barge when working at the northern or southern ends of the bridge. Such disturbances to the habitat would be highly temporary and in most cases measured over days rather than weeks. Following removal of the source of disturbance to intertidal mudflats and sandflats the area and community affect would recover rapidly and be undetectable from baseline within the short-term. It is therefore concluded that there would be no net loss of these habitats (intertidal mudflats and sandflats), nor would there be any significant effects on the structure or function of the features or their overall distribution. Consequently, all conservation objectives of the features 'intertidal mudflats' and 'intertidal sandflats' would be maintained.

Habitats

With the exception of the scour repairs, no direct or indirect impacts on habitats are envisaged from the maintenance work actvities. During the scour repair work there will be some disturbance of intertidal mudlats and sandflats adjacent to the bridge. However, with consideration of the potential effects, the good practice and management measures (see **Description of Project**) and the nature of the habitats, it is concluded that there would be no significant long-term effect (see above).

Birds

Staff will remain vigilant for breeding birds and nests in the treelines immediately adjacent to the proposed works (up to 10m from the carriageway), between the months of March and August inclusive. If works are required during this timeframe, pre-maintenance breeding bird checks will be required. The requirement of these surveys will be dependent on the maintenance work in question and should be taken under advisement of the BEAR Environmental Team. Should evidence of nests or breeding birds be seen at any time, works will stop and the site supervisor will be informed who will then seek advice from the BEAR Environment Team.

With the adoption of additional mitigation, as outlined above and in the SIAA, the effects on breeding and wintering birds from the proposal would not be significant.

Marine mammals

Acknowledging the good practice and management measures, along with the adoption of additional mitigation, as outlined above and in the SIAA, the effects on marine mammals (including seals, dolphins and harbour porpoise) from the proposal would not be significant.

Fish

Acknowledging the good practice and management measures, along with the adoption of additional mitigation provided for reducing the potential for effects on wintering birds, harbour seal and bottlenose dolphin (see **Designated Sites**) the effects on fish populations (including migratory species) would not be significant.

In relation to migratory species such as Atlantic salmon, sea trout and European eel, specific consideration was given to the potential effects from the subtidal activity scour repair. Underwater noise from scour repair will be limited to the tasks of excavation and localised rock placement and are thus considered to be highly temporary. The scour repair work will take place at consecutive localised points along the piers and therefore will not create a barrier across the water.

Darkness is a known contributing factor to influencing the migration of fish species. As stated above, under normal working operations there would be no scour repairs and thus no subtidal maintenance activity, taking place from 19:00 to 07:00. Given this and the highly localised and temporary of the scour repair activity it is concluded that there would be no significant effect on migratory fish populations.

Otters

There is the potential to impact otters using the area during the construction phase as a result of pollution and

disturbance caused by the presence of plant and machinery, vehicles, floodlighting and increased human activity. This could cause disruption to normal foraging routes. An otter couch was recorded in rip rap at the southern end of the bridge during the site walkover and so an organisational licence will be required. BEAR currently hold an organisational licence that permits disturbance of otter for the purpose of preserving public health and safety.

An organisational otter licence (Number 118944 valid from 10 April 2018 to 31 December 2019) obtained by BEAR Scotland NW Unit and its accompanying Species Protection Plan (SPP) will be followed during the main works to reduce disturbance to otter; the licence and SPP are included as Appendix F. The contractor must obtain a copy of an updated or extended organisational licence, or obtain a project-specific one if the organisational one is not updated, for any works affecting otters after 31 December 2019. Conditions outlined in the licence will be followed by way of mitigation.

Otter monitoring surveys will be required if works are conducted that could impact the otter couch at the southern end of the bridge. Cameras will be deployed for a period of 14 days to monitor the activity of otters using the couch. The requirement of these surveys will be dependent on the maintenance work in question and should be taken under advisement of the BEAR Environmental Team.

The following mitigation is also proposed:

- Following the monitoring surveys, SNH will be provided with the survey data and consulted on the need for a site-specific licence and appropriate mitigation;
- Site supervisor will brief all persons on site as part of the induction process to ensure everyone is aware of the presence of otter, the mitigation measures and their legal obligations;
- The Otter Toolbox talk will be included in the Site Environmental Management Plan (SEMP) and delivered to site personnel prior to commencement of works;
- A “soft start” will be implemented on the works each day. This will involve checking under/around vehicles and the immediate work area and then switching on vehicles prior to works commencing, with the aim of ensuring no otters or other species, are in the vicinity of works before vehicular movement and there is a gradual increase in noise;
- Any excavations, entrances to pipes/drains or areas where an animal could be trapped will be covered over at the end of each shift and following completion of the works to avoid animals falling into them and becoming trapped; and
- If lighting is required during the hours of darkness during the active season it be as focused as far as is possible on the works.
- Refer to and follow above mitigation regarding adherence to PPGs and GPPs.

LANDSCAPE:

During the maintenance works there will be a temporary visual impact as a result of works on the bridge, provision of fencing, traffic management, situation of vehicles and machinery, and use of the site compound. Due to the nature of the works and location of the site there is minimal vegetation removal expected as a result of the works. With the following mitigation in place impacts on landscape are not anticipated to be significant.

Mitigation proposed:

- Land required for building the compound area will be confined to the minimum required area, and the contractor will agree the location of the compound if it is outwith the traffic management area;
- The site will be kept clean and tidy during and following maintenance works;
- All waste will be removed from site, with a preference for recycling, otherwise disposal at a licensed waste facility in compliance with Waste Management Regulations;
- Vehicles and large machinery/equipment will be kept as clean as possible and switched off when not in use;
- Mitigation detailed in the Waste, Materials and Use of Resources and Water sections will be strictly adhered to.

LAND:

It is anticipated that the site compound will be located on the bridge deck. It is anticipated that, no land take will

occur, and no change in land use is expected. No residential or commercial properties, community facilities or agricultural land will be affected by the works and so the impact on land use is not anticipated to be significant.

NOISE:

There is a potential for disruption of sensitive receptors during the maintenance works to the protected species outlined in the Biodiversity section, as well as the residential / commercial properties described in the baseline. The maintenance works noise may be derived from the following activities:

- construction plant including vacuum trucks, concrete mixers and underbridge access units etc.;
- haulage of materials and movement of vehicles;
- road planing;
- spraying of waterproof materials;
- excavation, sidecasting and installation of new rock armour; and

With the implementation of the following mitigation, noise impacts are not anticipated to be significant.

Mitigation proposed:

- The owners and occupiers of the residential/commercial properties located within 300m of Cromarty Bridge will be informed of the works at least 14 days in advance of the works;
- All plant and machinery will be switched off when not in use;
- The Being a Good Neighbour toolbox talk will be included in the SEMP and delivered to site personnel prior to works.
- The Best Practicable Means, as defined in Section 72 of the Control of Pollution Act 1974, will be employed at all times to reduce noise to a minimum;
- Scour repair work will not take place at night during normal operations;
- Night works may be required for the cyclical maintenance works but this will depend on design requirements and the contractor's programme and method of works. If required, the Highland Council Environmental Health Officer will be consulted prior to the works and evening and night-time working will be completed as quickly and efficiently as practicable;
- Where practicable, the successful contractor will try and ensure the most disruptive activities (e.g. milling, planning) are carried out within daylight hours;
- All plant will be operated in a mode that minimises noise emissions and will have been maintained regularly to comply with relevant national and international legislation;
- Where fitted and Health and Safety requirements allow, white noise reversing alarms will be used on plant to reduce noise impact;
- All site personnel will be fully briefed in advance of works regarding the need to minimise noise during the night-time period and of the site specific sensitivities;
- Consultation will be carried out ahead of the works with affected residents to inform them of the proposals;
- Residents will be provided with a 24-hour contact number within the consultation letter;
- Temporary staff toilets/site compound will be located as far as is practicable from sensitive receptors;
- If generators are required, these will be located as far away from residences as reasonably practicable.

The proposed works are not expected to affect noise levels during the operational phase since it will not result in a change in traffic levels or dynamics.

POPULATION AND HUMAN HEALTH:

There is a potential for disruption of Non-Motorised Users (NMU) during the maintenance works. Although there are no recognised cycle routes or core paths, both pedestrians and cyclists access to the bridge will likely be impacted during the period of maintenance works, whilst traffic management measures remain in place. Equestrians are unlikely to use this section of the A9 and Cromarty Bridge due to the high speed and volume of traffic. With the employment of mitigation measures, the impact on NMUs is predicted to be low and not significant. Mitigation proposed is as follows:

- The needs of NMU traffic will be considered within the design of the Traffic Management Plan; and
- NMU access over the Cromarty Bridge will be maintained during and following the maintenance works

as far as is practicable;
- Mitigation measures outlined in the Air Quality and Climate and Noise sections will be strictly adhered to.

There will be a temporary impact on vehicle travellers during construction due to traffic management.

Traffic management will be implemented to alleviate disruption to vehicle travellers throughout the maintenance periods. Traffic management will be required periodically and the duration of which will depend on the works required at the time. Lane closures and traffic lights will be set out in accordance with the Traffic Signs Manual Chapter 8 and Safety at Street Works and Road Works: A Code of Practice will likely be required for most of the works. Speed limits will be reduced from 60mph to 30mph throughout the works area, which is expected to result in minor delays and a slight increase in travel times along the A87. Emergency vehicles will have access through the works at all times.

With the implementation of the following mitigation, impacts on vehicle travellers are not anticipated to be significant.

Mitigation proposed:
- A Traffic Management Plan will be developed to minimise disruption to vehicle travellers;
- Traffic will be controlled by temporary traffic lights, allowing vehicles to continue to use one lane of Cromarty Bridge during the construction phase;
- Motorists will be informed of works and likely delays via the Traffic Scotland website, media releases and by variable message and fixed signs; and
- Mitigation measures outlined in the Air and Climate and Noise sections will be strictly adhered to.

The proposed works will not affect the surrounding local population or human health during the operational phase since works will not result in a change in access. This includes both NMUs and vehicle users.

WATER:

If hydro-demolition works are required this will result in the production of large amounts of solids in solution which is likely to be mildly alkaline. This has potential to cause deterioration of habitats and have adverse impacts on aquatic species should this be discharged directly into the Firth without treatment.

Any waste water generated from hydro-demolition will be contained and either disposed of under a licence or treated before being discharged into Firth. Before any water is discharged the water parameters must meet a pH requirement of between 4 – 10 and also a Suspended Solids limit of 100mg/l. Depending on the amount of water discharged daily, a registration or simple licence under the Controlled Activities Regulations (CAR) must be obtained from SEPA.

With the implementation of the following mitigation, impacts on the water environment are not anticipated to be significant.

Mitigation proposed with regards to the cyclical maintenance works are as follows:
- A Marine Licence will be secured and all conditions will be adhered to;
- If required, an appropriate SEPA CAR licence will be obtained for all discharges into the Firth and the conditions of the licence will be complied with throughout the course of the works;
- Relevant Construction Industry Research and Information Association (CIRIA) guidance and SEPA's Pollution Prevention Guidelines (PPGs) and Guidance for Pollution Prevention (GPPs) will be followed including PPG 1, 6, 7, 8, 13, 18, 21 and 22. Particular attention will be paid to GPP 5: Works and maintenance in or near water, PPG 6: Working at construction and demolition sites and PPG 21: Pollution incident response planning;
- In the event of a pollution incident occurring, SEPA and BEAR Environment Team will be notified within 24 hours of the event;
- A contingency plan will be put in place to minimise the risk from pollution incidents or accidental spillages and all necessary containment equipment will be available on site and staff trained in its use;
- Sediment traps and sedimentation mats will be used where required during construction to prevent sediments and chemicals entering the water environment;
- All re-fuelling will take place at a designated re-fuelling site, away from the Firth and any road drains within the area of works;
- Oils, fuels and chemicals will be stored in bunded areas off the bridge at the best practice requirement of 110% of containment capacity of the volume stored. Drip trays will be used and maintained when

dispensing;

- Spill trays will be fitted to all stationary construction plants;
- Waste will be stored in designated areas, isolated from surface water drains and any area that discharges into the water environment;
- All skips will be covered or enclosed and waste materials will be removed from site by licenced waste carriers;
- Works will be encapsulated in a double-skinned membrane to filter hydro-demolition water. Solid waste captured will be bagged and removed from site to a licenced landfill site by licenced waste carriers;
- Containment will be in place for hydro-demolition and a sump pit will be used to catch run-off water;
- Fresh concrete will be poured in such a manner that no concrete is lost or can enter the marine environment and debris netting will be installed around the area being broken out;
- Gully cleaning vehicles are to be used which will vacuum water and debris from the gullies, and vacuum trucks will be emptied at licenced facilities;
- Bird Guano will be double bagged to prevent spillage and will be taken to a licenced facility;
- All milling works will be carried out during suitable periods of weather to ensure that waste material is not blown or washed in the water.
- Debris netting is to be installed around the area being milled as required;
- Edge protection and debris netting to be installed to ensure materials can't be knocked over the edge of the bridge during construction of the new parapet.

In addition to the above, mitigation specific to scour repair works will be adopted, which is as follows:

- All armour rock will be washed and cleaned prior to installation to ensure that no contaminants are brought into contact with the marine environment; and
- All equipment to be washed down and clean prior to use for installing materials.

The proposed works are not expected to affect water quality during the operational phase since it will not result in a change in road drainage patterns or traffic levels.

SOILS AND GEOLOGY:

Within the 200m study area there are no sensitive receptors identified in relation to geology and soils, and no impact is predicted from the works during construction or operation. Mitigation detailed within the Water section will minimise the risk of potential contamination of soils and geology through spillages.

WASTE, MATERIALS AND USE OF NATURAL RESOURCES:

Schemes

Scour Repairs
Waste material will comprise excavation of up to 300m^3 of sediment around each bridge pier, these will primarily comprise sands and muds which will be sidecast in the icinity of the bridge pier. There is no requirement to dispose of materials to landfill or at sea.

Cyclic maintenance

Resurfacing
Waste materials will comprise of excavated road planings,mastic waterproofing material and waste grit (if grit blasting is required) which will be recycled where feasible or removed to a licenced waste facility for landfill.

Concrete repairs
Waste material will comprise of waste concrete which will be removed off site for disposal to a licences waste facility for landfill. Wash water from hydrodemolition and concrete wash water will be filtered and pH reduced on site and then discharged under a SEPA CAR Licence into the Firth..

Drainage cleaning
Waste from the drainage system will be removed by a gully vacuum truck and disposed of at licenced waste facility for landfill.

Parapet repairs
Damaged parapet sections will be recycled where feasible or removed to a licenced waste facility for landfill.

Bird guano removal
Bird guano will be double bagged to prevent spillage and removed off site for disposal to a licences waste facility for landfill.

Pavix CC100 treatment of pre-stressed beams
Waste material from cleaning pre-stressed beams will be removed from site for disposal to a licenced waste facility for landfill. Any waste pavix CC100 material not used on site will be transported off site for disposal to a licenced waste facility for landfill or retained for use on future projects.

Cathodic Protection Maintenance
Hydro-demolition wash water will be filtered and pH reduced on site and then discharged under a SEPA CAR Licence into the Firth. Expired lifetime cathodic protection components will be recycled where feasible or removed to a licenced waste facility for landfill

All waste will be removed from site and disposed of safely and legally, preferably by recycling or re-use. Planings will be disposed of under a paragraph 13(a) exemption. All temporary traffic signs and road cones will be removed from site on completion of works. Waste water generated from hydro-demolition must be disposed of legally under the conditions of the CAR registration or simple licence.

Mitigation proposed:

- The sub-contractor will adhere to waste management legislation and ensure they comply with their Duty of Care;
- The sub-contractor will provide all information on quantities of waste (including recycled and re-used) and transportation of materials required by the Operating Company;
- Re-use and recycling of waste is encouraged and the sub-contractor will be required to fully outline their plans and provide documentary evidence for waste arising from the works (e.g. waste carriers licence, transfer notes and waste exemption certificates) as well as filling in the sub-contractor's waste return spreadsheet; and
- Mitigation measures described in the Water section will be adhered to.

No impacts on waste, materials, or natural resources are predicted during the operational stage.

RISK OF MAJOR ACCIDENTS OR DISASTERS:

During the construction phase, with the implementation of appropriate signage and traffic management road users and NMUs will be made aware of lane and footpath closures and the presence of traffic lights. No significant impact on road safety is expected during the construction phase.

The works will not result in a change to the alignment or width of the road. The maintenance works are necessary to ensure the longevity of the bridge and operational reliability. The proposed works are not anticipated to result in a greater risk of major accidents during operation as there is will be no change in traffic levels or alignment.

CUMULATIVE EFFECTS:

With the good practice, management and appropriate mitigation measures in place, as described in each section, potential impacts are not considered significant. Therefore, there is no potential for significant cumulative effects.

There are two other five-year maintenance programmes scheduled over the same timeframe as the A9 Cromarty Bridge; these will take place at Kessock Bridge and Dornoch Bridge. In addition, the A9 Cromarty Bridge Phase 2 scheme is currently ongoing and the A9 Cromarty Bridge Phase 3 scheme is programmed to commence in 2019. No significant adverse effects were predicted at Kessock or Dornoch Birdge or for the Cromarty Phase 2 works as outlined in the respective RoDs, and hence there would be no in-combination effect from these proposals with Cromarty.

Appropriate programme planning will be undertaken, including scheduling the works so as to avoid simultaneous traffic management at Cromarty, Kessock and Dornoch where practicable.

Extent of EIA work undertaken and details of consultation:

The following environmental parameters have been considered within this Record of Determination:

- Air and Climate
- Cultural Heritage and Material Assets
- Biodiversity
- Landscape
- Land
- Noise
- Population and Human Health
- Water
- Soils and Geology
- Waste, Materials and Use of Natural Resources
- Risk of Major Accidents or Disasters
- Cumulative Effects

Consultation with statutory consultees was deemed necessary because there are potential nature biodiversity parameters which could be affected during the works. Appendix E provides a list of consultees and a synopsis of their comments.

Statement of case in support of a Determination that a formal EIA and EIA Report is not required:

This is a relevant project falling within Annex II that:

- Lies within the Cromarty Firth Ramsar and Cromarty Firth SPA; and
- Has connectivity with the Inner Moray Firth SPA and Ramsar, The Dornoch Firth and Loch Fleet Ramsar, Dornoch Firth and Morrich More SAC, Moray Firth pSPA and Moray Firth SAC.

The project has been subject to screening using the Annex III criteria to determine whether a formal Environmental Impact Assessment is required under the Roads (Scotland) Act 1984 as amended. Screening using Annex III criteria, reference to consultations undertaken and review of available information has not identified the need for a full EIA.

The project will not have significant effects on the environment by virtue of factors such as:

Characteristics of the scheme:

- Scour repair works along with cyclic maintenance activities which will include drainage cleaning, bird guano removal, pavix treatment of pre-stressed beams, resurfacing operations, parapet repairs and concrete repairs;
- All works will be confined to Cromarty Bridge, with no change in the structure's footprint;
- Works will improve the integrity of the existing structure;
- The area of works will not exceed 1ha.

Location of the scheme:

- The works will take place entirely within the footprint of the bridge and the compound area, with no requirement for further land take;
- Adherence to relevant good practice and management measures (i.e. SEMP), appropriate mitigation, and the conditions of the marine licence and CAR registration or simple licence, will occur throughout the duration of the works. This will ensure protection of the environmental features and designated conservation sites.

Characteristics of potential impacts of the scheme:

- No significant adverse environmental impacts are predicted;
- Potential impacts during construction on the environmental disciplines discussed will be minimised through robust mitigation measures, good practice, management measures and compliance with licences e.g. Marine Licence.
- Operation of the bridge will not differ from existing baseline, therefore there would be no impacts on environmental receptors during the operation.

File references of supporting documentation:

- Marine Licence – applied for, awaiting licence currently
- Statement to Inform Appropriate Assessment
- Site Environmental Management Plan

I have determined, following discussions with the Project Manager, that an EIA Report is not required for this project.

SIGNATURE: …… (Transport Scotland Environmental Advisor)

PRINT NAME:……

DATE: ……

Authorisation to publish Notice of Determination

SIGNATURE: …… (Director, Trunk Road and Bus Operations)

PRINT NAME:……..

DATE: ……

ENVIRONMENTAL IMPACTS AND PROPOSED GOOD PRACTICE, MANAGEMENT MEASURES AND MITIGATION: SUMMARY

Issue	Baseline Conditions	Impact	Mitigation
General: activity specific good practice and management measures	N/A	N/A	<u>All activities</u> • The site supervisor will give appropriate 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 (including jack-up barges) 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. <u>Scour repairs</u> • Prior and during the construction phase, appropriate staff will be informed of relevant marine Invasive Non-Native Species (INNS). These staff will receive a copy of the Biosecurity Management Plan and understand how to implement the management measures. These staff will also be cognisant of guidance produced by SNH for the prevention of introduction of non-native species (Payne et al., 2014). • The Contractor will produce a Ballast Water Management Plan[4] (if relevant) to prevent the risk of introducing invasive non-native species. • All rock armour will be washed and cleaned prior to immersion to ensure that no contaminants are brought into contact with the marine environment. • All equipment to be washed down and cleaned prior to immersion. <u>Resurfacing activities</u> • Ensure that all milling works are carried out during suitable periods of weather to ensure that waste material is not blown or washed in the water. • Debris netting is to be installed around the area being milled as required. <u>Concrete repairs</u> Large repair • Hydro demolition will be contained using protective sheeting and a sump pit to catch run off 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. Small repair • Debris netting to 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 <u>Drainage cleaning</u> • Vacuum trucks will be emptied at licensed facilities. <u>Parapet repairs</u> • Edge protection to be installed to ensure material can't be knocked over the edge of the bridge • Debris netting to be used to stop waste and small items falling over the side

[4] http://www.imo.org/en/OurWork/Environment/BallastWaterManagement/Pages/Default.aspx

			Bird guano removal • Bird guano will need to be double-bagged to prevent spillage. • Guano will be taken to a licensed facility for disposal. Pavix CC100 treatment on the pre-stressed beams • Debris netting and containment will be installed around the working area to prevent entry of any materials into the marine environment • All debris removed during the cleaning process will be taken off site by a licenced waste carrier. • Application and treatment will take place during suitable weather conditions Cathodic Protection Maintenance • Thickened sheets will be installed around the area being broken out. • If working from a platform beneath the bridge, the floor will be layered with materials (see above) to fully contain the water and drill and grinding dust from entering the marine environment. • Hydro demolition will be contained using protective sheeting and a sump pit to catch run off 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 sprayed 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
Air and Climate	Due to the rural locality of the scheme, air quality is likely to be reasonable with the main influence being vehicle emissions from traffic using the A9 trunk road. Sensitive receptors to changes in air quality include Ardullie Lodge and Shore Croft, both within 300m of the works.	During the construction phase, air quality impacts are likely to stem from construction vehicles and plant on-site as well as delivery and handling of construction materials, dust generation, aerial dispersal of debris, construction traffic and vehicles idling due to the traffic management system.	• Plant, machinery and vehicles associated with the works will have engines switched off when not in use in order to minimise emissions; • Machinery and vehicles will have been serviced regularly; • A traffic management plan will be in place to control the length of time that traffic needs to idle; • Dust generated from construction activities will be minimised as far as possible via wetting down; • Large material stockpiles will not be required and drop heights will be minimised to avoid excessive dust generation; • Any skips holding waste on site will be covered to prevent dust movement; and • Any loose materials will be covered during transportation to and/or from site.
Cultural Heritage and Material Assets	Cromarty Bridge itself is recorded on Canmore and Historic Environment Record (HER). Ardullie Point is a boat wreck recorded on Canmore Maritime and HER, located approximately 190m north of the northern extent of the works. Ardullie Lodge, located approximately 100m north of the Cromarty Bridge, is a Category B Listed Building.	The scour repairs and cyclic maintenance activities will protect the structural integrity of the bridge and is likely to result in a minor significant positive impact through maintining the cultural heritage of the bridge.	• Confine work related activities to the existing footprint of the scheme.
Biodiversity	Following initial consultation with SNH ([Redacted] 6th April 2018), regarding the proposed scour repairs and maintenance activities at Cromarty Bridge, they advised that the proposal could lead to a potential likely significant effect on a number of qualifying features of the designated conservation sites within 30km of the Cromarty Bridge (refer to consultation response in Appendix E). Accordingly a Statement to Inform Appropriate Assessment for the proposed works at Cromarty Bridge, hereafter referred to as the 'SIAA', has been produced. The SIAA accompanies this document. The sites idenitifed as having one or more qualifying feature that could be potentially affected by the proposal are: • The Cromarty Bridge spans the Cromarty	There is potential for 'likely significant effect' (LSE) on the qualifying interests of the Moray Firth SAC, Moray Firth pSPA, Inner Moray Firth SPA and Ramsar, Cromarty Firth SPA and RAMSAR, Dornoch Firth and Morrich More SAC and Dornoch Firth and Loch Fleet Ramsar due to disturbance, presence of vessels, underwater noise and potential pollution. The maintenance programme activities have the potential to impact on breeding common tern and overwintering birds due to the increased presence of vessels, machinery and lighting over and above the existing levels of disturbance caused by traffic and vessels. There is the potential to impact otters using the area during the construction phase as a result of pollution and disturbance caused by the presence of plant and machinery, vehicles, floodlighting and increased human activity. The scour repairs and maintenance activities are of a nature that	Designated Sites the following good practice and management measures will also be adopted throughout the maintenance programme irrespective of the activity: • The site supervisor will give appropriate 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 In bunded areas. • Spill kits will be available on site (including jack-up barges) 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. **Bottlenose dolphin and harbour seal** (*Moray Firth SAC, Dornoch Firth and Morrich More SAC and Dornoch Firth and Loch Fleet Ramsar)*

	Firth Special Protection Area (SPA), Site of Special Scientific Interest (SSSI) and Ramsar site. • The Inner Moray Firth SPA and Ramsar (in the Beauly Firth); • The Dornoch Firth and Loch Fleet SPA and Ramsar site approximately 30km north of the bridge; • The Dornoch Firth and Morrich More SAC approximately 30 km to the north; • The Moray Firth SAC at the mouth of the Cromarty Firth; and • The Moray Firth pSPA to the east of Cromarty Bridge. The qualifying features of these designated sites encompass the broad features: • Wintering birds. • Breeding birds. • Annex I habitats. • Harbour seal. • Otter. • Bottlenose dolphin. <u>Habitats</u> The Cromarty Firth contains one of the largest expanses of intertidal flats in the Moray Basin which support a rich invertebrate fauna and beds of eelgrass *Zostera spp*., glasswort *Salicornia spp*., and *Enteromorpha* algae. The habitat surrounding the northern and southern ends of the bridge comprise intertidal flats. <u>Birds</u> The Cromarty Firth is an important area for both wintering and breeding birds. The Firth regularly supports more than 30,000 waders and wildfowl (between October and March. Of particular importance are whooper swan (*Cygnus cygnus*), bar-tailed godwit (*Limosa lapponica*), greylag goose (*Anser anser*) and redshank (*Tringa totanus*). The site is also an important stopping off point for a wide range of passage birds during August and September. A colony of both common (*Sterna hirundo*) and Arctic (*Sterna paradisaea*) terns is located on a stretch of shingle and grassland around 100m from the north end of the bridge. The terns arrive in late April to early May for the breeding season. Ospreys (*Pandion haliaetus*) nest in the wider surrounding area and forage in the Cromarty Firth from spring until early autumn. <u>Otters</u> Otters are known to be present within the area. <u>Marine mammals</u> Harbour (*Phoca vitulina*) and grey (*Halichoerus grypus*) seals are present at haul-out sites in the Moray Firth throughout the year, with a	has the potential to disturb bottlenose dolphin and common seals due to the requirement for underwater working and increased presence of plant, vehicles and site staff. The scour repair works and cyclic maintenance activities are of a nature that have the potential to impact migrating Atlantic salmon as a result of potential pollution.	With the following additional mitigation measures implemented throughout the works the SIAA concluded that there would be no adverse effect on the conservation objectives of harbour seal and bottlenose dolphin: • Scour repair works will be programmed, where feasible, to take place outside the summer months (June to August inclusive) to avoid the harbour seal and bottlenose dolphin breeding season. • Normal working operations of the scour repair activities will take place between the hours of 07:00 to 19:00, unless there is an urgent need to extend operations. • The scour repair activity will be preceded by a 'soft start' in general activities, thus allowing a 'ramping-up' of noise levels. • Following cessation of scour repair activities on any given day, works lighting will be directed away from the water, as much as practicable. • Vessels used for the works are to maintain constant speed and direction when transiting between working areas and berth point, unless otherwise required for reasons of safe navigation. • Vessels used for the works will adhere to set routes (in accordance with the general requirements of the Port of Cromarty Firth for transit between working areas and berth point. • Vessels used for the works will adhere to the general principles in the Scottish Marine Wildlife Watching Code. • **Wintering and breeding birds** *(Inner Moray Firth SPA and Ramsar, Cromarty Firth SPA and Ramsar, Moray Firth pSPA)* With the following additional mitigation measures implemented throughout the works the SIAA concluded that there would be no adverse effect on the conservation objectives of wintering birds: • Normal working operations of the scour repair activities will take place between the hours of 07:00 to 19:00, unless there is an urgent need to extend operations. • The scour repair activity will be preceded by a 'soft start' in general activities, thus allowing a 'ramping-up' of noise levels. • Following daily cessation of fender replacement or scour repair activity in the bird overwintering period (October to March), works lighting will be directed away from the water and intertidal areas, as much as practicable. • During the overwintering period (October to March) lighting will be kept to a minimum • Works will be progressive eg should avoid lighting the whole bridge at the same time. • Vessels used for the works are to maintain constant speed and direction when transiting between working areas and berth point, unless otherwise required for reasons of safe navigation. • Vessels used for the works will adhere to set routes (in accordance with the general requirements of the Port of Inverness) for transit between working areas and berth point. • Vessels used for the works will adhere to the general principles in the Scottish Marine Wildlife Watching Code. • If works are required to be carried out over night 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. With the following additional mitigation measures implemented throughout the works the SIAA concluded that there would be no adverse effect on the conservation objectives of breeding birds (specifically breeding terns). • No significant works i.e. scour repairs will take place within 250m exclusion zone around the common tern breeding colony (at the north end of the bridge) between April 1st and July 31st inclusive. <u>Otters</u> Otter monitoring surveys will be required if works are conducted that could impact the otter couch at the southern end of the bridge. Cameras will be deployed for a period of 14 days to monitor the activity of otters using the couch. The requirement of these surveys will be dependent on the maintenance work in question and

	peak in June, July and August during the breeding season and moult (Thompson *et al.*, 1996). Fish Cromarty Firth is an important migration route for Atlantic salmon (*Salmo salar*) and sea trout (*Salmo trutta*), both for smolts as they head out to sea, and for adult fish returning to their natal rivers. The Firth receives its principal river, the Conon, at its head 5 km west of the bridge and there are a number of other rivers important for migratory fish connected with the Firth. These include the Allt Graad and the River Sgitheach to the north of the Cromarty Bridge.		should be taken under advisement of the BEAR Environmental Team. • Following the monitoring surveys, SNH will be provided with the survey data and consulted on the need for a site-specific licence and appropriate mitigation; • Site supervisor will brief all persons on site as part of the induction process to ensure everyone is aware of the presence of otter, the mitigation measures and their legal obligations; • The Otter Toolbox talk will be included in the Site Environmental Management Plan (SEMP) and delivered to site personnel prior to commencement of works; • A "soft start" will be implemented on the works each day. This will involve checking under/around vehicles and the immediate work area and then switching on vehicles prior to works commencing, with the aim of ensuring no otters or other species, are in the vicinity of works before vehicular movement and there is a gradual increase in noise; • Any excavations, entrances to pipes/drains or areas where an animal could be trapped will be covered over at the end of each shift and following completion of the works to avoid animals falling into them and becoming trapped; and • If lighting is required during the hours of darkness during the active season it be as focused as far as is possible on the works. • Refer to and follow above mitigation regarding adherence to PPGs and GPPs. Fish • In line with good practice, the contractor will follow the updated and relevant Relevant Scottish Environment Protection Agency's (SEPA) Pollution Prevention Guidelines (PPGs) and Guidance for Prevention of Pollution (GPPs) will be adhered to at all times throughout the works. These will be specifically PPG 1: Understanding your environmental responsibilities – good environmental practices, GPP 5: Works and maintenance in or near water and PPG 22: Incident response – dealing with spills. 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. • Implementation of debris netting, protective shelters, containment; and sumps; • Ensure that all milling works are carried out during suitable periods of weather; • Remove debris from gullies and drains using vacuum truck; • Double bag guano; • Contain the underbridge working platform with either debris netting or thickened sheets (if hydro-demolition); • Layering floor of working platform to prevent any material or water going through (if hydro-demolition); • Remove all waste concrete from site; • Edge protection and toerails to prevent any materials dropping into water. • Rock armour will be washed and cleaned prior to placement • Equipment used for scour repair works will be cleaned prior to immersion
Landscape	The landscape surrounding the Cromarty Bridge is characterised by open views across the Cromarty Firth to agricultural land, forestry plantation, industrial development to the east and Ben Wyvis and the mountains to the west.	During the maintenance works there will be a temporary visual impact as a result of works on the bridge, provision of fencing, traffic management, situation of vehicles and machinery, and use of the site compound.	• Land required for building the compound area will be confined to the minimum required area, and the contractor will agree the location of the compound if it is outwith the traffic management area; • The site will be kept clean and tidy during and following maintenance works; • All waste will be removed from site, with a preference for recycling, otherwise disposal at a licensed waste facility in compliance with Waste Management Regulations; • Vehicles and large machinery/equipment will be kept as clean as possible and switched off when not in use; • Mitigation detailed in the Waste, Materials and Use of Resources and Water sections will be strictly adhered to.

Land	Land use in the area surrounding the bridge is a mixture of agriculture, plantation forestry and industrial development with pockets of urban settlement.	It is anticipated that the site compound will be located on the bridge deck. It is anticipated that, no land take will occur, and no change in land use is expected. No residential or commercial properties, community facilities or agricultural land will be affected by the works and so the impact on land use is not anticipated to be significant.	• None required
Noise	Existing noise and vibration levels are primarily influenced by traffic using the A9 trunk road which carries commercial and public traffic and is a popular tourist route.	There is a potential for disruption of sensitive receptors during the maintenance works to the protected species outlined in the Biodiversity section, as well as the residential / commercial properties described in the baseline if works are carried out during night time hours.	• The owners and occupiers of the residential/commercial properties located within 300m of Cromarty Bridge will be informed of the works at least 14 days in advance of the works; • All plant and machinery will be switched off when not in use; • The Being a Good Neighbour toolbox talk will be included in the SEMP and delivered to site personnel prior to works. • The Best Practicable Means, as defined in Section 72 of the Control of Pollution Act 1974, will be employed at all times to reduce noise to a minimum; • Scour repair work will not take place at night during normal operations; • Night works may be required for the cyclical maintenance works but this will depend on design requirements and the contractor's programme and method of works. If required, the Highland Council Environmental Health Officer will be consulted prior to the works and evening and night-time working will be completed as quickly and efficiently as practicable; • Where practicable, the successful contractor will try and ensure the most disruptive activities (e.g. milling, planning) are carried out within daylight hours; • All plant will be operated in a mode that minimises noise emissions and will have been maintained regularly to comply with relevant national and international legislation; • Where fitted and Health and Safety requirements allow, white noise reversing alarms will be used on plant to reduce noise impact; • All site personnel will be fully briefed in advance of works regarding the need to minimise noise during the night-time period and of the site specific sensitivities; • Consultation will be carried out ahead of the works with affected residents to inform them of the proposals; • Residents will be provided with a 24-hour contact number within the consultation letter; • Temporary staff toilets/site compound will be located as far as is practicable from sensitive receptors; • If generators are required, these will be located as far away from residences as reasonably practicable.
Population and Human Health	No formally recognised cycle routes cross the Cromarty Bridge. National Cycle Route 1 (Devon to Shetland) passes through Dingwall. However, it is known that cyclists do use the bridge and the footway. A footway exists along the west side of the carriageway. Equestrians are unlikely to use the bridge due to the high speed and volume of traffic.	There is a potential for disruption of Non-Motorised Users (NMU) during the maintenance works. Although there are no recognised cycle routes or core paths, both pedestrians and cyclists access to the bridge will likely be impacted during the period of maintenance works, whilst traffic management measures remain in place. There will be a temporary impact on vehicle travellers during construction due to traffic management.	• The needs of NMU traffic will be considered within the design of the Traffic Management Plan; and • NMU access over the Cromarty Bridge will be maintained during and following the maintenance works as far as is practicable; • Mitigation measures outlined in the Air Quality and Climate and Noise sections will be strictly adhered to. • A Traffic Management Plan will be developed to minimise disruption to vehicle traveller; • Traffic will be controlled by temporary traffic lights, allowing vehicles to continue to use one lane of Cromarty Bridge during the construction phase; • Motorists will be informed of works and likely delays via the Traffic Scotland website, media releases and by variable message and fixed signs; and • Mitigation measures outlined in the Air and Climate and Noise sections will be strictly adhered to.
Water	The Cromarty Firth is a long, deep, sheltered estuary which receives freshwater from a number of rivers including the Rivers Conon, Glass, Sgitheach, Averon and Balnagown. The Inner Cromarty Firth is a transitional water body and was classified by the Scottish Environment Protection Agency (SEPA) in 2015 as being at Good status.	If hydro-demolition works are required this will result in the production of large amounts of solids in solution which is likely to be mildly alkaline. This has potential to cause deterioration of habitats and have adverse impacts on aquatic species should this be discharged into the Firth.	• A Marine Licence will be secured and all conditions will be adhered to; • If required, an appropriate SEPA CAR licence will be obtained for all discharges into the Firth and the conditions of the licence will be complied with throughout the course of the works; • Relevant Construction Industry Research and Information Association (CIRIA) guidance and SEPA's Pollution Prevention Guidelines (PPGs) and Guidance for Pollution Prevention (GPPs) will be followed including PPG 1, 6, 7, 8, 13, 18, 21 and 22. Particular attention will be paid to GPP 5: Works and maintenance in or near water, PPG 6: Working at construction and demolition sites and PPG 21:

	The northern end of the bridge sits in the Strath Peffer and Alness Coastal groundwater body, classified by SEPA in 2014 as being at Good status with no change in 2015. The southern end of the bridge sits in the Black Isle groundwater body, classified by SEPA in 2014 as being at Good status with no change in 2015. Road drainage at the bridge is via short sections of pipe at each drain site. These discharge pipes can be found on the eastern side of the road, at each of the bridge's 67 piers, giving a total of around 130 discharge pipes.		Pollution incident response planning; • In the event of a pollution incident occurring, SEPA and BEAR Environment Team will be notified within 24 hours of the event; • A contingency plan will be put in place to minimise the risk from pollution incidents or accidental spillages and all necessary containment equipment will be available on site and staff trained in its use; • Sediment traps and sedimentation mats will be used where required during construction to prevent sediments and chemicals entering the water environment; • All re-fuelling will take place at a designated re-fuelling site, away from the Firth and any road drains within the area of works; • Oils, fuels and chemicals will be stored in bunded areas off the bridge at the best practice requirement of 110% of containment capacity of the volume stored. Drip trays will be used and maintained when dispensing; • Spill trays will be fitted to all stationary construction plants; • Waste will be stored in designated areas, isolated from surface water drains and any area that discharges into the water environment; • All skips will be covered or enclosed and waste materials will be removed from site by licenced waste carriers; • Works will be encapsulated in a double-skinned membrane to filter hydro-demolition water. Solid waste captured will be bagged and removed from site to a licenced landfill site by licenced waste carriers; • Containment will be in place for hydro-demolition and a sump pit will be used to catch run-off water; • Fresh concrete will be poured in such a manner that no concrete is lost or can enter the marine environment and debris netting will be installed around the area being broken out; • Gully cleaning vehicles are to be used which will vacuum water and debris from the gullies, and vacuum trucks will be emptied at licenced facilities; • Bird Guano will be double bagged to prevent spillage and will be taken to a licenced facility; • All milling works will be carried out during suitable periods of weather to ensure that waste material is not blown or washed in the water. • Debris netting is to be installed around the area being milled as required; • Edge protection and debris netting to be installed to ensure materials can't be knocked over the edge of the bridge during construction of the new parapet. In addition to the above, mitigation specific to scour repair works will be adopted, which is as follows: • All armour rock will be washed and cleaned prior to installation to ensure that no contaminants are brought into contact with the marine environment; and • All equipment to be washed down and clean prior to use for installing materials.
Soils and Geology	There are no statutory or non-statutory geologically designated areas within the scheme footprint. The landward ends of the Cromarty Bridge are supported on embankments created when the bridge was constructed. These embankments extend into the Firth with the southern embankment being the longest at around 500m.	Within the 200m study area there are no sensitive receptors identified in relation to geology and soils, and no impact is predicted from the works during construction or operation.	• None required
Waste, Materials and Use of Natural Resources	Scour Repairs Materials and resources used for scour repairs will comprise rock armour and geotextile. Waste material will comprise excavation of up to 300m^3 of sediment around each bridge pier, these will primarily comprise sands and muds. Resurfacing Materials and resources used for resurfacing will comprise surfacing and waterproofing material. Waste materials will comprise of excavated road planings,mastic waterproofing material and waste grit (if grit blasting is required). Concrete repairs Materials and resources used for concrete will comprise concrete and water for hydro-	No impacts on waste, materials, or natural resources are predicted during the operational stage.	• The sub-contractor will adhere to waste management legislation and ensure they comply with their Duty of Care; • The sub-contractor will provide all information on quantities of waste (including recycled and re-used) and transportation of materials required by the Operating Company; • Re-use and recycling of waste is encouraged and the sub-contractor will be required to fully outline their plans and provide documentary evidence for waste arising from the works (e.g. waste carriers licence, transfer notes and waste exemption certificates) as well as filling in the sub-contractor's waste return spreadsheet; and • Mitigation measures described in the Water section will be adhered to.

	demolition (where required). Water volumes for hydro-demolition will vary depending on the size of the repairs in any one hour period 2,000l of water would be used and in any single day 25,000l would be used. Waste materials will comprise wash water from hydrodemolition, concrete wash water and waste concrete. Drainage cleaning Materials and resources used for drainage cleaning will comprise fuels for vehicles. Waste materials will comprise material removed from the drainage system. Parapet repairs Materials and resources used for parapet repairs will comprise new parapetssections. Waste materials will comprise damaged parapet sections. Bird guano removal Materials and resources used for bird guano removal will comprise bags for removing material. Waste materials will comprise bird guano. Pavix CC100 treatment of pre-stressed beams Materials and resources used for pavix CC100 treatment of the pre-stressed beams will include pavix CC100. Waste material will compriseand materials from cleaning the pre-stressed beams and any waste pavix CC100 material in opened containers. Cathodic Protection Maintenance Materials and resources used cathod protection will include cathodic protection components and wiring, water for hydro-demolition (if required) and spray concrete (if required) . Waste material will compriseand materials expired lifetime cathodic protection components, hydro-demolition wash waster and waste concrete.		
Risk of Major Accidents or Disasters	N/A	During the construction phase, with the implementation of appropriate signage and traffic management road users and NMUs will be made aware of lane and footpath closures and the presence of traffic lights. No significant impact on road safety is expected during the construction phase. The works will not result in a change to the alignment or width of the road. The maintenance works are necessary to ensure the longevity of the bridge and operational reliability. The proposed works are not anticipated to result in a greater risk of major accidents during operation as there is will be no change in traffic levels or alignment.	N/A
Cumulative Effects	N/A	With the good practice, management and appropriate mitigation measures in place, as described in each section, potential impacts are not considered significant. Therefore, there is no potential for significant cumulative effects.	• Mitigation detailed in the RoD and SEMP will be adhered to; • Nearby residents to be informed of the works; • There will be media releases and signage to inform drivers of traffic management.

APPENDIX A: SCHEME LOCATION AND EXTENTS

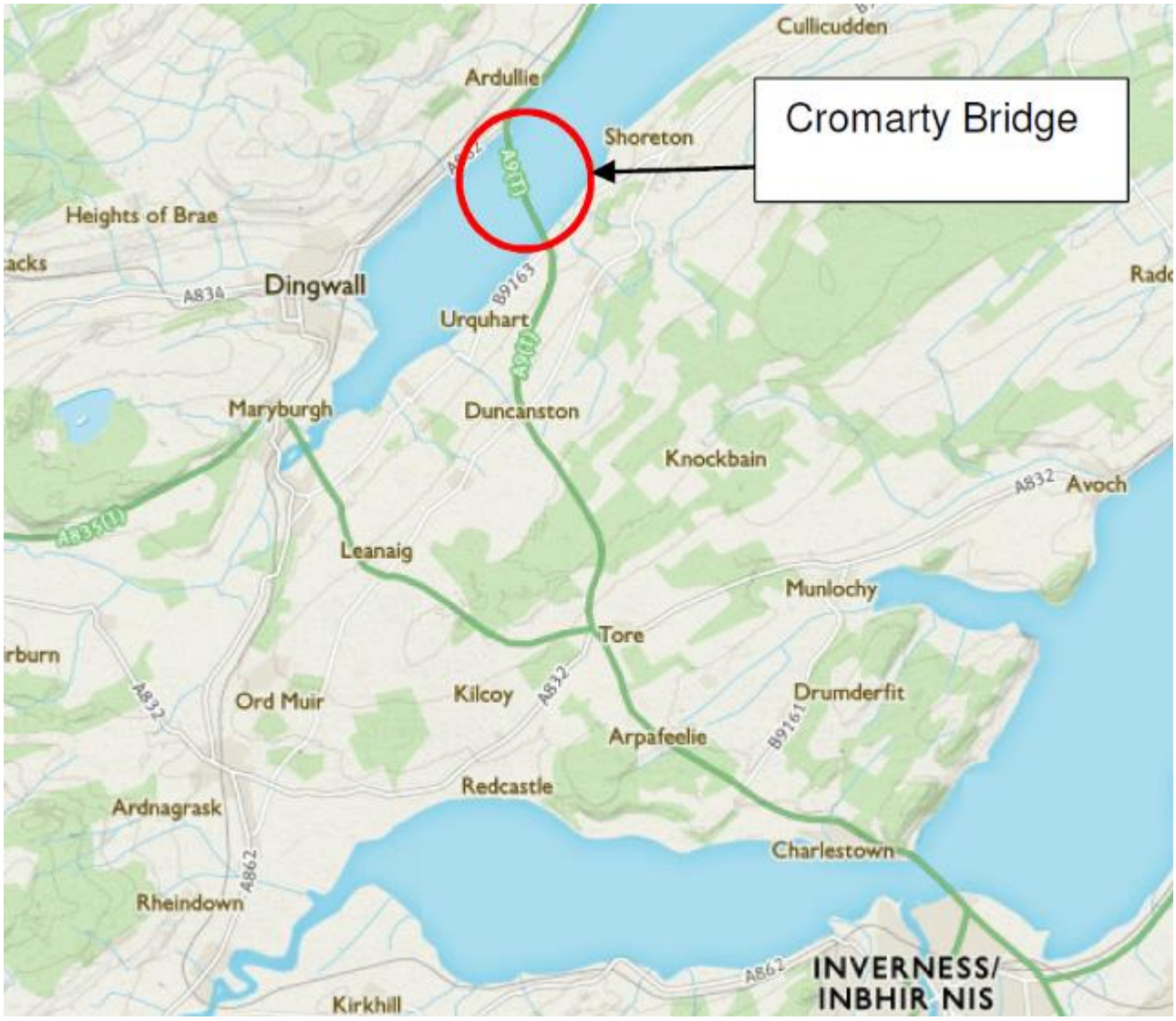


Figure A1: Location of scheme

APPENDIX B: AIR AND CLIMATE

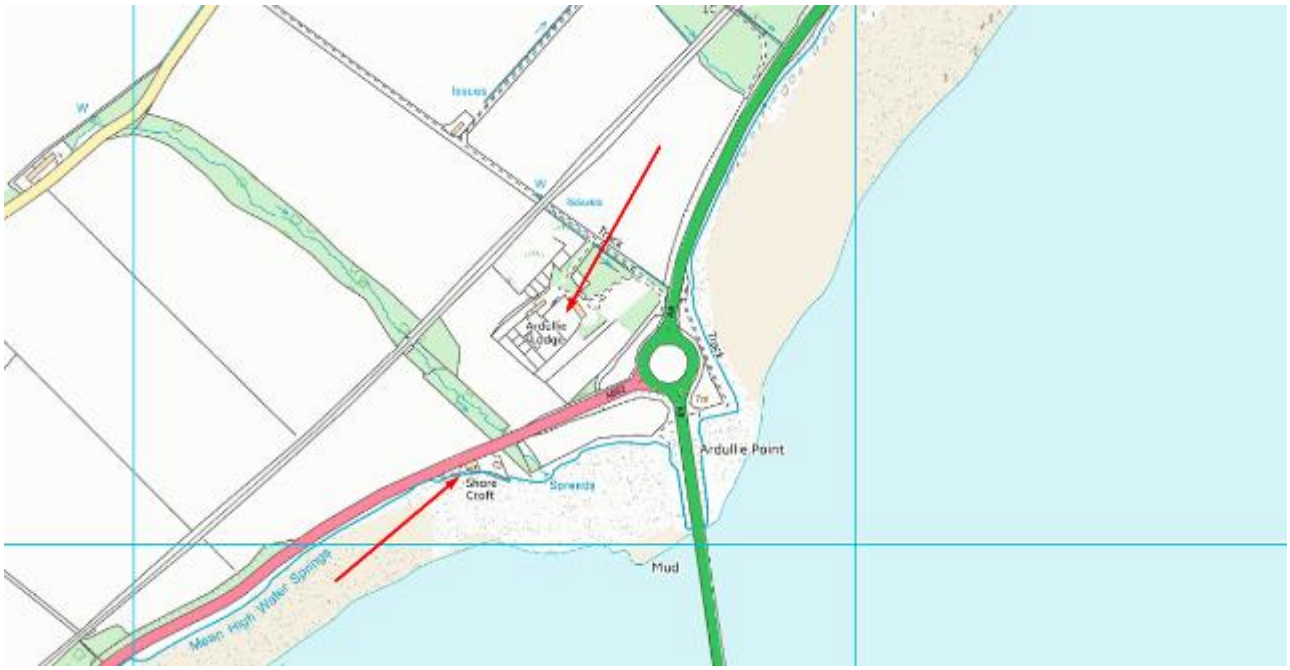


Figure B1: Air and Climate receptors

Table B1: Receptors within 300m of the works

Receptor	Distance from Works
Ardullie Lodge	Circa 100m
Shore Croft	Circa 200m

APPENDIX C: CULTURAL HERITAGE AND MATERIAL ASSETS

Figure C1: Sites of cultural heritage interest recorded within 300 m of works. Source: HES PastMap

Table C1: Sites of cultural heritage interest recorded within 300 m of works. Source: HES PastMap

Reference	Name	OS NGR	Classification
102038	Ardullie Point	NH 58830 62281v	Craft
LB7903	Ardullie Lodge	NH 58615 62317	Listed Building
MHG27879	Cromarty Bridge	NH 58770 62018	Bridge

APPENDIX D: BIODIVERSITY

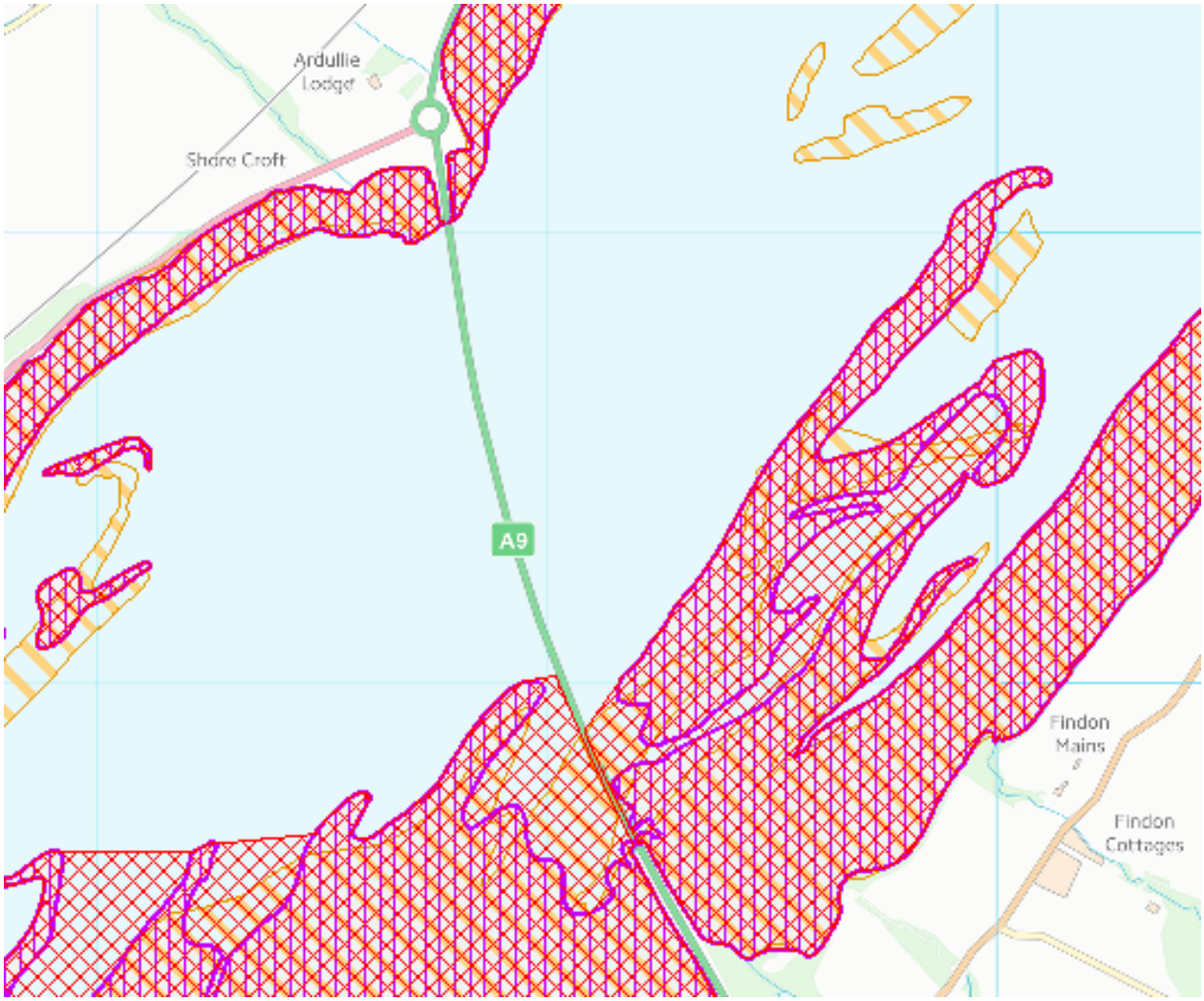


Figure D1: Cromarty Bridge Ramsar, SPA and SSSI SNH Sitelink search results

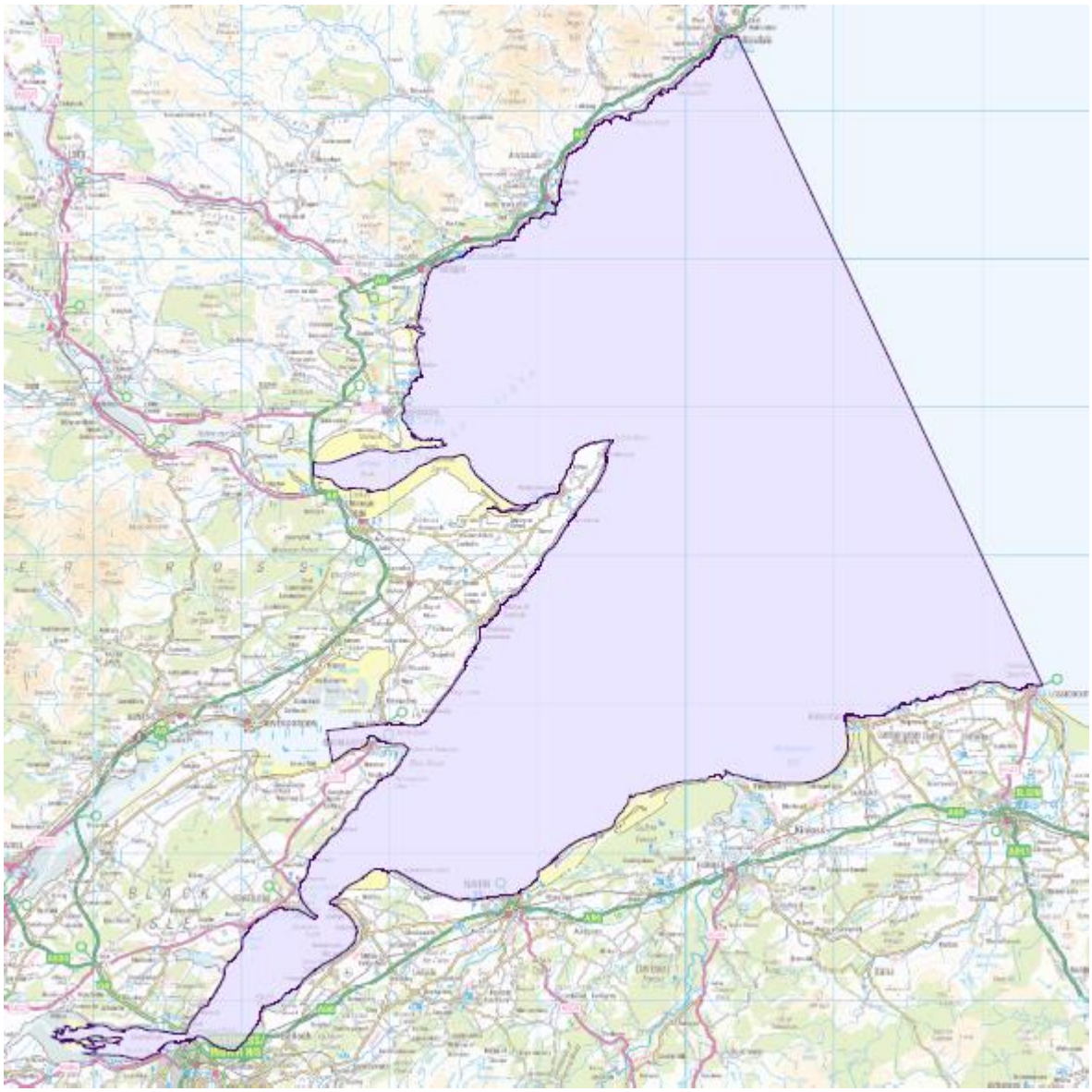


Figure D2: Moray Firth SAC

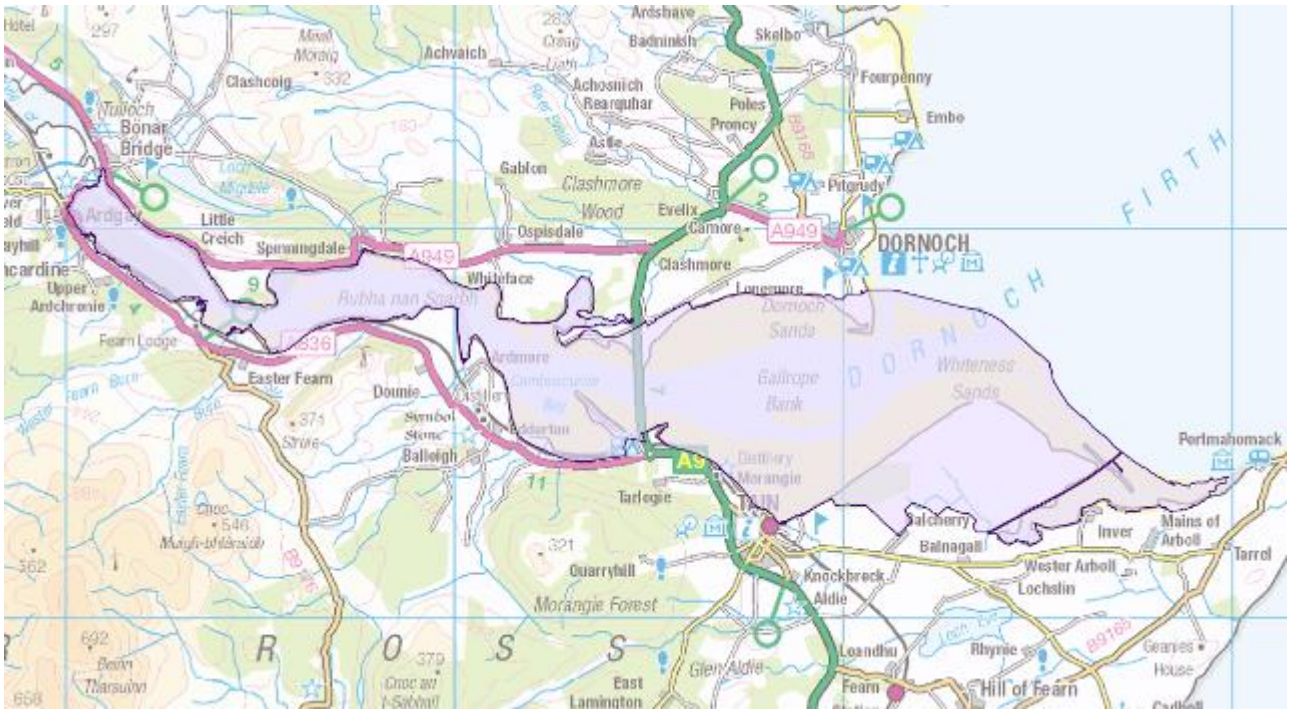


Figure D3: Dornoch Firth and Morrich More SAC

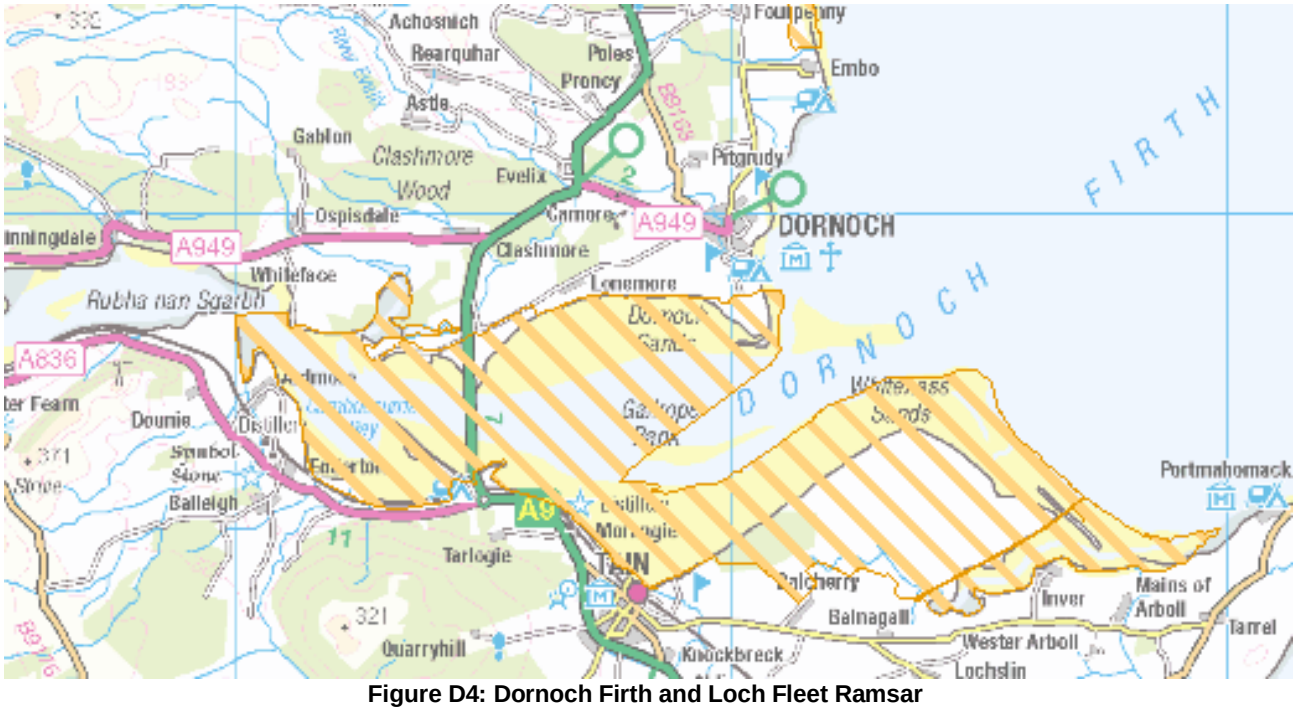


Figure D4: Dornoch Firth and Loch Fleet Ramsar

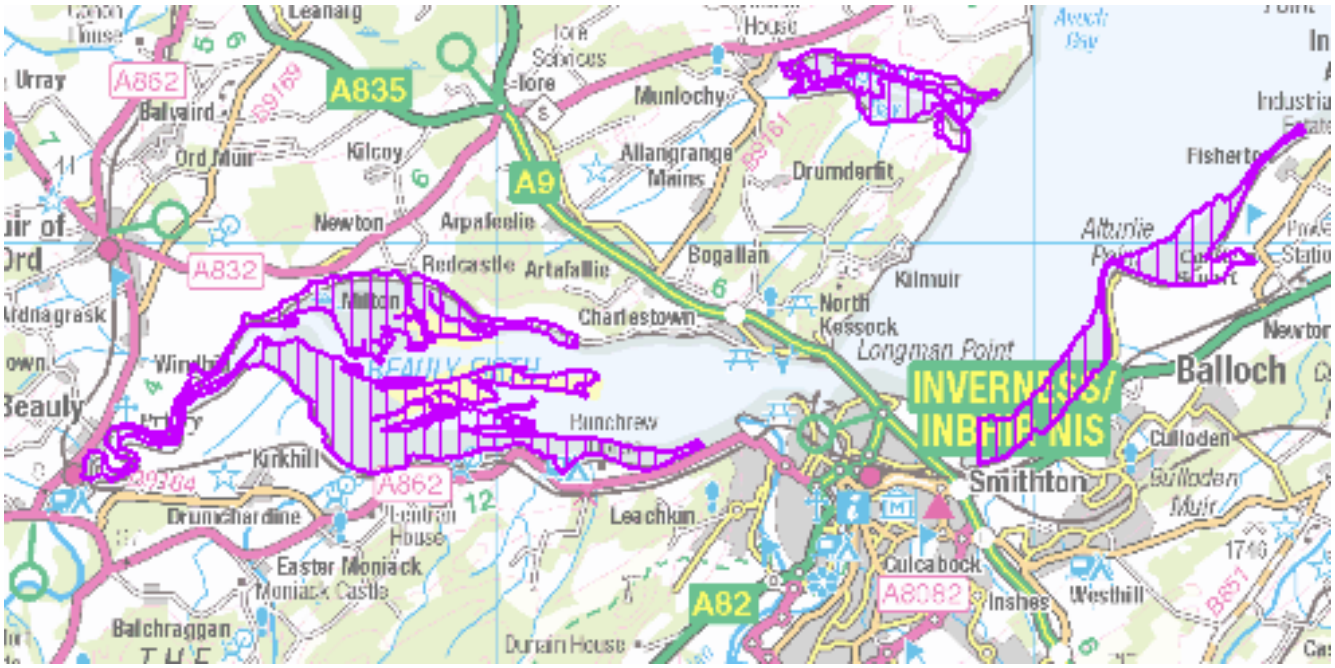


Figure D5: Inner Moray Firth SPA

Document:

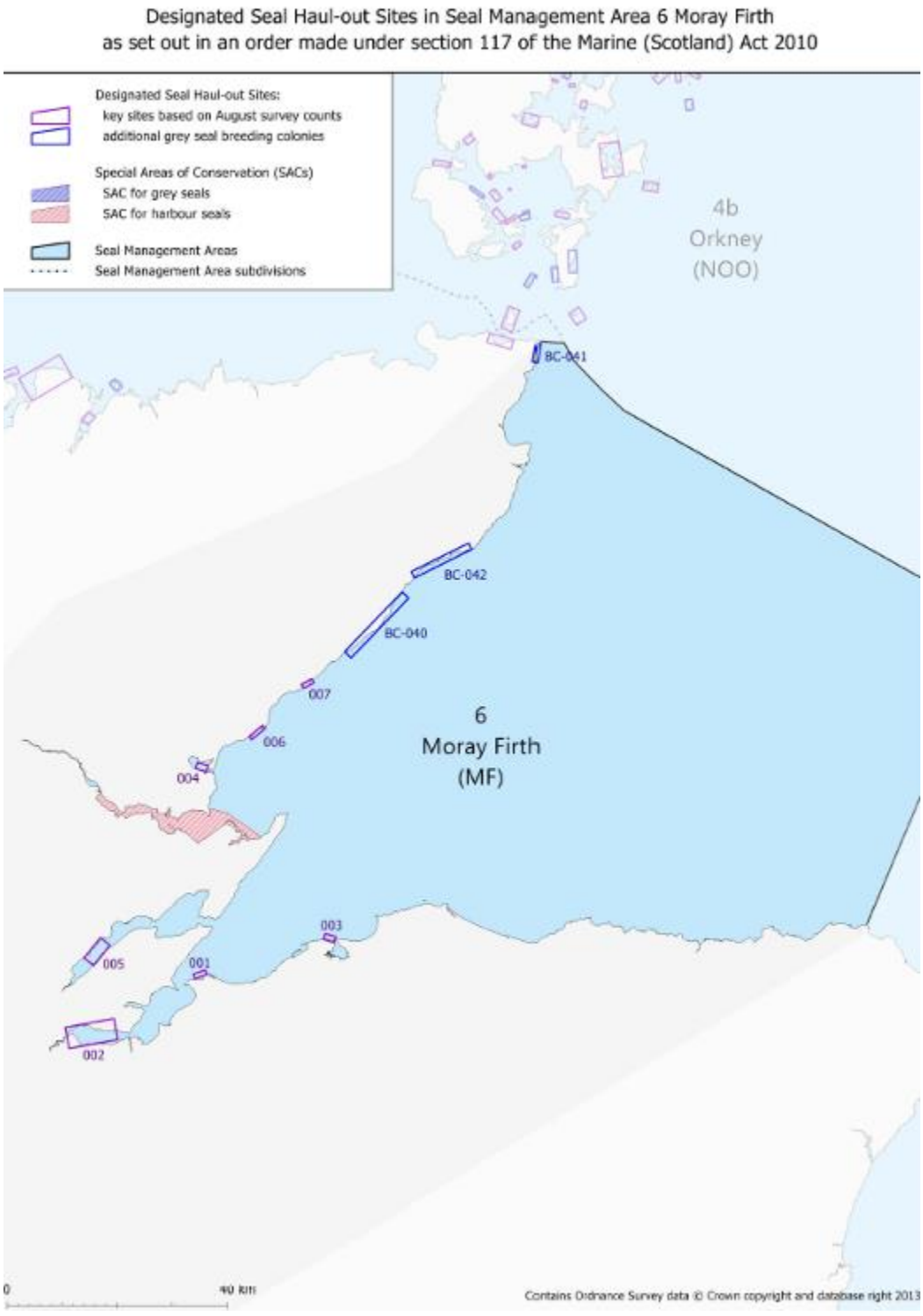


Figure D6: Designated seal haul out sites

Table D2: NBN Atlas search results within 5 km of the scheme

Taxon Name	Common Name	Taxon Group	Licence	Data Provider
Anguilla anguilla	European eel	Fish	CC-BY	Biological Records Centre
Salmo salar	Atlantic salmon	Fish	CC-BY	Biological Records Centre
Salmo trutta	Brown/sea trout	Fish	CC-BY	Biological Records Centre
Falco peregrinus	Peregrine	Bird	CC-BY	The Scottish Ornithologists' Club
Zootoca vivipara	Common lizard	Reptile	CC-BY	Highland Biological Recording Group
Felis silvestris	Wildcat	Terrestrial mammal	CC-BY	Highland Biological Recording Group
Lutra lutra	European otter	Terrestrial mammal	CC-BY	Highland Biological Recording Group
Martes martes	Pine marten	Terrestrial mammal	CC-BY	Highland Biological Recording Group
Meles meles	Eurasian badger	Terrestrial mammal	CC-BY	Highland Biological Recording Group
Myotis daubentonii	Daubenton's bat	Terrestrial mammal	CC-BY	Highland Biological Recording Group
Myotis nattereri	Natterer's bat	Terrestrial mammal	CC-BY	Highland Biological Recording Group
Arvicola amphibius	Water vole	Terrestrial mammal	CC-BY	Highland Biological Recording Group
Plecotus auritus	Brown long-eared bat	Terrestrial mammal	CC-BY	Highland Biological Recording Group
Sciurus vulgaris	Eurasian red squirrel	Terrestrial mammal	CC-BY	Highland Biological Recording Group
Phoco vitulina	Common seal	Marine Mammal	CC-BY	Highland Biological Recording Group

Document:

APPENDIX E: CONSULTATION

Summary of Consultation

Consultee	Consultee Response	Addressing Concerns
SNH	Generally agree with our conclusions of potential LSE. Highlighted that the main potential impact on breeding birds is on common tern.	Any significant change to the scope of the works will be communicated to SNH.
MS-LOT	Separate marine licence applications should be submitted for each bridge and no PAC is required.	We have submitted individual marine licence applications for each of the bridges.
CDSFB	No response	Robust good practice and management measures have been put in place to protect the water environment

Consultation with SNH:
From: [Redacted]
Sent: 06 April 2018 16:46
To: [Redacted]
Subject: RE: A9 Cromarty Bridge 5yr Marine Licence - pre application HRA consultation

Dear [Red

Many thanks for your e-mail below.

We offer the following advice:

- In general we agree with the analysis and conclusions of the HRA spreadsheet
- HRA spreadsheet – row 5: we consider that the osprey and common tern interests of the Inner Moray Firth SPA would be picked up through the Cromarty Firth SPA interests and as such do not need to be separately screened in.
- HRA spreadsheet – row 11: Cromarty Firth SPA - non breeding birds – you seek our view on whether we consider there to be potential of LSE on the non-breeding bird interests of the SPA. We consider that some elements of the work may have a LSE depending on timing, location on the bridge. However we advise that with the following measures, impacts on the integrity of the SPA can be avoided:
    - Works should be are progressive e.g. from north to south to avoid lighting the whole bridge at the same time.
    - Direct lighting away from the water as far as possible.
    - Avoid pointing lighting towards the sky or land at either side of the firth.
    - Plant and equipment to be chosen to minimise noise generation.
    - Schedule the most disruptive activities for earlier in the evening.
    - Movement of plant onto and around the site to have regard to minimising noise – avoid running equipment if not required for immediate use.
    - Consider deploying acoustic screens around compressors and generators.

Transport Scotland
Trunk Road and Bus Operations

Document:

- HRA spreadsheet – row 12: Cromarty Firth SPA - breeding birds: this section primarily focuses on the osprey interest however the main potential impact is to the breeding common terns. Specifically, adverse impacts on the integrity of the SPA common tern interest can be avoided as long as no works take place within a 250 metre exclusion zone around the common tern breeding colony at the north end of the bridge during the period from 1st April 2016 to 31st July 2016 (inclusive).

Additional comments

- Otter – whilst otter are not a qualifying interest of any of the designated sites in the vicinity of the A9 Cromarty Bridge, they are known to occur at the southern end of the bridge. An EPS licence will therefore be required for works in this area.
- We recommend that you consult the Cromarty District Salmon Fishery Board on future proposals. Whilst Atlantic salmon are not a qualifying interest of any of the designated features, this species will pass underneath the bridge to access the River Conon, which is an important fishery. The Fishery Board will be able to advice about any issues they may have any how to mitigate them. Contact: [Redacted] cromartyfish@hotmail.co.uk
- Please note error in the e-mail below.

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

Best regards,

[Redacted]

[Redacted] | **Operations Officer**
Scottish Natural Heritage | Dingwall | Fodderty Way | Dingwall Business Park | Dingwall | IV15 9XB | t: [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 March 2018 11:04
To: SOUTH_HIGHLAND
Cc: [Redacted]
Subject: A9 Cromarty Bridge 5yr Marine Licence - pre application HRA consultation

Good morning,

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 Cromarty Bridge. My colleague [Redacted] and [Redacted] have recently submitted pre-application HRA consultation for Dornoch and Kessock Bridges 5yr Marine Licences.

The Cromarty Bridge spans and has potential connectivity with several Natura 2000 sites and Ramsar Sites, listed below. As part of the pre-application process, a LSE screening has been carried out to determine

whether any of the activities planned could have a likely significant effect on any of the qualifying features of the relevant sites, please find attached (HRA A9 Cromarty Bridge 5yr Marine Licence).

Location of the Site

Description of Works

Various maintenance activities will take place over the next 5 years with potential to be carried out at all times of the year with some work possibly required during night-time hours; these are summarised below and detailed further in the attached programme (5YML Application – Cromarty Bridge Rev 1).

- Scour repairs around abutments and piers
- Cyclic maintenance including resurfacing and under bridge access
- Concrete repairs
- Gully cleaning
- Parapet repairs
- Bird guano removal
- Pre-stressed beam treatment
- Cathodic protection
- Inspections

While we would always aim to plan works to avoid sensitive times of the year for any features of Natura sites; due to the fluid nature of the programme and the element of uncertainty our assessment is based on the possibility that works will not avoid sensitive times of the year.

Designated Sites

The following sites have all been considered as part of our LSE screening:

- Conon Islands SAC
- Cromarty Firth Ramsar and SPA
- Dornoch Firth and Loch fleet Ramsar and SPA
- Dornoch Firth and Morrich More SAC
- Inner Moray Firth Ramsar and SPA
- Moray and Nairn Coast Ramsar and SPA
- Moray Firth SAC and pSPA

Transport Scotland
Trunk Road and Bus Operations

Document:

Please find attached a spreadsheet to show the screening stage for 'likely significant effect' for the above qualifying interests. I would appreciate it if you could confirm whether SNH are in agreement with our assumptions, in some instances we seek SNH's view for the potential of LSE on some of the features of the designated sites.

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.

As you will be aware my colleagues [Redacted] and [Redacted] have recently submitted pre-application HRA consultation for Dornoch and Kessock Bridges 5yr Marine Licences. We are happy to receive communication for these as a package and we can, from now on, create a co-ordinated response from BEAR on any queries.

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,
[Red

[Redacted]
Environmental Specialist
BEAR Scotland | North West Unit
[Redacted] **Email:** srauch-lynch@bearscotland.co.uk

Transport Scotland
Trunk Road and Bus Operations

Document:

Consultation with MS-Lot:
From: MS.MarineLicensing@gov.scot <MS.MarineLicensing@gov.scot>
Sent: 29 March 2018 09:18
To: [Redacted]
Subject: RE: Marine Licence Applications for 5 year maintenance programme_BEAR Scotland

Hi [Red

I have reviewed the documentation and suggest that a separate marine licence application for each of the bridges is submitted.

From the information provided, I do not anticipate that these works would require PAC.

Kind Regards
[Reda

From [Redacted]
Sent: 22 March 2018 09:42
To: MS Marine Licensing
Subject: Marine Licence Applications for 5 year maintenance programme_BEAR Scotland

Dear Sir/Madam,

Please find attached covering letter and relevant supplementary documentation.

Should you have any queries, please feel free to contact either myself or any of my colleagues included in the covering letter.

Kind regards,
[Re

[Redacted]
Environmental Manager
BEAR Scotland | North West Unit
[Redacted]
Dear Sir/Madam

As part of a proposed bridge maintenance programme, BEAR Scotland, on behalf of Transport Scotland, intend to carry out maintenance and repair work at a number of bridges across Scotland. BEAR Scotland have been commissioned to prepare and manage the marine licence applications for three bridges:

- A9 Kessock Bridge
- A9 Cromarty Bridge
- A9 Dornoch Bridge

It is intended that the proposed maintenance programmes for each of the three bridges are covered under separate 5-year Marine Licences. This will allow maintenance works to be carried out, when required, during this 5-year period. Therefore, in due course we will be submitting separate Marine Licence

Document:

Applications, under the Marine Scotland (Act) 2010 Part 4, to cover the proposed maintenance programmes for each of the bridges listed above. A summary of the maintenance works for each bridge is provided within the table below. A detailed description of all the proposed maintenance works for each bridge, including mitigation measures, is provided in the attached documents.

The proposed maintenance activities are broken down to 'scheme' and 'cyclic maintenance' works. Scheme represents those works that **will** be required over the next 5 years, whilst cyclic represents those works which **may** be required over the same timeframe.

Two of the three bridge maintenance programmes require a limited degree of works to be carried out within the intertidal (between MHWS and MLWS) and/or underneath the bridge. Of the three bridge maintenance programmes, only the proposed Fender replacement, superstructure painting and scour repairs at Kessock Bridge; and scour and concrete repairs at the Cromarty Bridge will require work below MLWS, in the sub-tidal environment.

We would welcome any comments from MS-LOT on the intended approach. To assist MS-LOT in this regard, we have provided detail on the works and designated sites in the vicinity of each bridge.

BEAR Scotland will be carrying out a site walkover and otter survey at each bridge. These activities will assist in understanding whether EPS licences will be required at each site, with further consultation being sought in the near future once more information is available.

Natura Designated Sites: Likely Significant Effect Screening

To fulfil the requirements of Regulation 48 of The Conservation (Natural Habitats, & c.) Regulations 1994 (The Habitats Regulations) BEAR Scotland have carried out Likely Significant Effect screening to inform the Habitat Regulations Appraisal. Consultation with SNH has been initiated in relation to the Likely Significant Effects (LSE) screening of these projects on designated sites and SNH have been contacted to confirm if they are in agreement with our LSE screening opinion for each bridge (these are summarised for each bridge as follows).

As Transport Scotland (TS) are the competent authority for roads projects, if it is deemed that there would be a 'likely significant effect' on any of the qualifying interests at the bridges then TS will carry out their own Appropriate Assessment.

<u>Kessock Bridge</u>

There is potential for the proposal to have significant effects on one or more of the qualifying features of the Moray Firth SAC, Inner Moray Firth SPA and Ramsar, River Moriston SAC.

It is unlikely that the proposal will have any significant effects (direct or indirect) on any of the qualifying interests of the Dornoch Firth and Morrich More SAC.

<u>Cromarty Bridge</u>

There is potential for the proposal to have significant effects on one or more of the qualifying features of the Moray Firth SAC, Inner Moray Firth SPA, Dornoch Firth and Morrich More SAC, Cromarty Firth SPA and Ramsar site; and Dornoch Firth and Loch Fleet Ramsar Site.

It is unlikely that the proposal will have any significant effects (direct or indirect) on any of the qualifying interests of the Conon Islands SAC, Inner Moray Firth Ramsar Site, Moray and Nairn Coast Ramsar and SPA; and Moray Firth marine pSPA.

Dornoch Bridge

There is potential for the proposal to have significant effects on one or more of the qualifying features of the Dornoch Firth and Loch Fleet SPA, Dornoch Firth and Morrich More SAC, Dornoch Firth and Loch Fleet Ramsar and Moray Firth marine pSPA.

It is unlikely that the proposal will have any significant effects (direct or indirect) on any of the qualifying interests of the Moray Firth SAC, River Evelix SAC and River Oykel SAC.

Pre-application consultation procedure

Cognisant of regulation 4 of The Marine Licensing (Pre-application Consultation) (Scotland) Regulations 2013, it is our understanding that none of the marine licensable activities proposed for the bridges would require a public pre-application consultation procedure.

In the past, we also understand that due to the scope and scale of proposed bridge maintenance works, BEAR have been informed that no pre-application consultation procedure would be required.

However, acknowledging the scope of the maintenance works contained within the attached documents, we would be very grateful if MS-LOT could advise whether a pre-application consultation statement should be sought for the marine licensable activities at any of the three bridges i.e. if there is any uncertainty that any of the activities may be of a class, or description, prescribed in regulation 4.

We look forward to discussing the above clarifications with MS-LOT in the near future. Given the project programme constraints, we would be grateful if you could acknowledge receipt of this email and the supporting attachments.

If you have any queries then please don't hesitate to contact either myself [Redacted]
(details below).

Kind regards,

[Redacted]

[Redacted]
Environmental Specialist
BEAR Scotland | North West Unit
[Redacted]
[Redacted]

Transport Scotland
Trunk Road and Bus Operations

Document:

Consultation with CDSFB

From: [Redacted]
Sent: 15 June 2018 15:55
To: 'cromartyfish@hotmail.co.uk' <cromartyfish@hotmail.co.uk>
Cc: [Redacted]
Subject: A9 Cromarty Bridge 5 Year Maintenance Programme and Marine Licence Application

Good afternoon [Reda

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 Cromarty Bridge.

Location of the Site

Description of Works

Various maintenance activities will take place over the next 5 years with potential to be carried out at all times of the year with some work possibly required during night-time hours. Different activities will take place above and below MHWS with some required to be carried out in the sub-tidal zone, specifically scour repair. The specific activities are as follows:

- Scour repairs around abutments and piers below (***works below MHWS***)
- Cyclic maintenance including resurfacing and under bridge access
- Concrete repairs (***some works below MHWS***)
- Gully cleaning
- Parapet repairs
- Bird guano removal
- Pre-stressed beam treatment
- Cathodic protection (***some works below MHWS***)
- Inspections

Scour repair works will entail excavating and side-casting sea bed material around the piers and placing rock in these locations to maintain the bed integrity. BEAR are applying for a 5 year Marine Licence to authorise these works and we are also in consultation with SNH regarding a Habitats Regulations Appraisal.

Programme details for the scour works are not currently known, but every effort will be made to programme these works to avoid the main salmon smolt run period. We understand that the salmon smoult run will vary regionally, could you please advise on when the most sensitive period is in the Cromarty Firth so that we can try to programme in-stream works outwith this period.

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.

Many thanks
[Red

[Redacted]
Environmental Specialist
BEAR Scotland | North West Unit
[Redacted]

APPENDIX F: OTTER LICENCE DOCUMENTATION

Scottish Natural Heritage
Dualchas Nàdair na h-Alba
All of nature for all of Scotland
Nàdar air fad airson Alba air fad

Scottish Natural Heritage
Species Licensing
Great Glen House
Leachkin Road
Inverness
IV3 8NW
01463 725364
e-mail: licensing@snh.gov.uk

Animal Licence		
Licence Number: 118944	**Valid from :10-APR-18**	**Valid to :31-DEC-19**
This Licence has been amended from Licence Number : 92624		
Licence Holder : [Redacted]		
Address:	**Inveralmond Road** **Inveralmond Industrial Estate** **Perth** **PH1 3TW**	
Additional Persons		
Name	**Role**	**Additional Conditions**
BEAR Scotland North West Unit Staff	Agent	
This Licence is Granted under the following Legislation:		
The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended): Regulation 44 (2) (e)		
Project Details		
This licence permits the disturbance of otter for the purpose of preserving public health and safety in North West Scotland in areas covered by the North West Unit of BEAR Scotland. All works must be carried out in accordance with the document entitled: "BEAR Scotland NW Trunk Roads Operations and Otters: An Otter Species Protection Plan" by Julie Bhatti and subsequent correspondence agreed in writing between SNH Licensing Team and the licence holder, but subject to modifications or amendments imposed by the conditions of this licence.		
Activities, species and locations covered by this licence are listed in Annex 1		
Conditions		
1	All working methods, mitigation and compensation measures must be carried out in accordance with those set out in the licence application and supporting documents as listed in the project details of this licence, and any subsequent correspondence agreed in writing between SNH Licensing Team and the licence holder, but subject to any modifications or amendments imposed by this licence.	
2	All workers must be briefed about the likelihood of otters being found on site, the terms of this licence, and what to do if otter are	

	found at any time.
3	This licence does not permit damage or destruction or obstruction of access to any otter shelter.
4	If evidence of breeding or young is found within 200m of the development site at any time, no further works must be carried out until all cubs can be shown to be sufficiently mobile to make use of alternative holts, unless agreed by an SNH licensing officer. (The SNH website provides more guidance under Otters and Development - Click Here).
5	Protection zones as defined in the licence application and supporting documents listed in the project details of this licence, must be clearly marked out on the ground prior to any works commencing on site.
6	All vegetation clearance and/or tree felling works within protection zones must be carried out by hand (including the use of chainsaws and hand-held power tools), or if harvesting machines are being used they must be operated from outside protection zones. All trees must be felled away from holt entrances, and all timber must be lifted out, processed and stacked, outwith protection zones.
7	The licence holder may employ agents or assistants to work under the terms of this licence.
8	While engaged in work authorised by this licence, the licence holder and agents must be able to produce a copy of this licence to any Police Officer, authorised person, or official of SNH on demand.
9	The licence holder must provide SNH licensing team with annual licence returns due one year from the start date of the licence and detailing any action carried out under this licence. The final return must be submitted within one month of the expiry of this licence. Please send this information by email (including your licence number in the subject line of the email) to: licensing@snh.gov.uk. using the form found here: Click Here.
Notes	
Licence holders or any other persons covered by this licence should note the following;	
1	This licence is granted subject to compliance with the conditions as specified. Anything done otherwise than in accordance with the terms of the licence may constitute an offence.
2	Agents may work independently of the licence holder. It is the responsibility of the licence holder to ensure that agents have the appropriate training and experience and that they understand the terms and conditions of this licence.
3	Assistants must work under the personal supervision of the licence holder or agents. The number of assistants that can be appropriately supervised is at the discretion of the licence holder or agent.
4	Nothing in this licence shall confer any right of entry on to land or property.
5	This licence may be modified or revoked at any time by SNH.

6	This licence only exempts any legal provision contained in the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended).

This licence is granted subject to compliance with the terms and conditions specified

Licence no:118944

Authorised on behalf of Scottish Natural Heritage by: [Redacted] **Date: 10-APR-2018**

Licence no:118944

Annex 1: Permitted activites

Action	Purpose	Species	Location	Grid Reference	Method
Disturb	Preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment.	Otter	North West Scotland in areas covered by the North West Unit of BEAR Scotland	-	N/A

This licence is granted subject to compliance with the terms and conditions specified

Licence no:118944

Authorised on behalf of Scottish Natural Heritage by: [Redacted] **Date: 10-APR-2018**

Document:

BEAR	Transport Scotland North West Unit Otter Species Protection Plan	TRANSPORT SCOTLAND

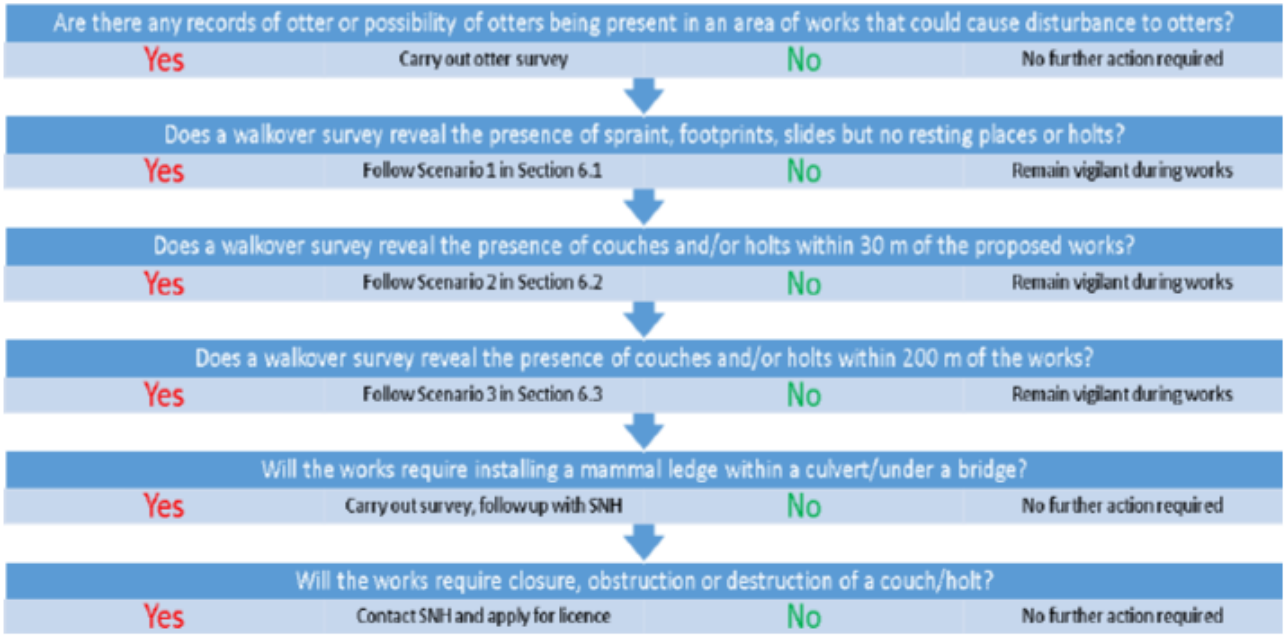
BEAR Scotland NW Trunk Roads Operations and Otters:

An Otter Species Protection Plan

Contents

Document:

Flow Diagram Showing Decision Process



BEAR Scotland NW Trunk Roads Operations and Otters: An Otter Species Protection Plan 4

1 Introduction

This species protection plan has been prepared by BEAR Scotland and SNH. It is intended to support an application for an organisational otter licence to cover those trunk road operations which have the potential to affect Eurasian otter (*Lutra lutra*).

1.1 Otters in Scotland

Scotland has an internationally important population of otters and they are also listed on the Scottish Biodiversity List as a species of importance for the purpose of conservation of biodiversity in Scotland[1].

Almost any watercourse or water body is likely to be used by otters at some point in time. The Scottish population makes use of two distinct types of habitat: freshwater habitats, including lochs and rivers, and coastal habitats mainly along the west and north coast of Scotland and the Western Isles and Shetland. There is considerable variation amongst populations in both habitat types and like any animal, otters change their range and habitat use in response to changing environmental conditions.

In the freshwater environment, otters are largely nocturnal and occur at very low population densities. For a female, the typical home range is around 20 km of river, stream and loch-shore with males covering up to 39 km (Kruuk, 2006). The sexes tend to live apart for most of the time but in both types of environment, the otter is territorial and ranges may overlap, especially those of females (SNH, Kruuk, 2006).

A high proportion of the Scottish otter population, 50% or more, are coastal-dwelling. This has often led to them being incorrectly referred to as 'sea otters', a North American species of otter. They are exactly the same species as those found further inland, but take advantage of the productive coastal waters to feed on bottom-dwelling fish and crustaceans (SNH). The productive waters are also key to allowing a higher density of otters to be sustained. Coastal otters are more active during daylight hours than their freshwater counterparts. Home ranges also tend to be smaller in the coastal environment often being as small as 4 to 5 km of coastline. As in the freshwater environment, sexes tend to live apart but male territories can overlap those of several females in coastal areas.

1.2 Otters and the Law

The otter is a European protected species, listed in Annexes II and IV of the EC Habitats Directive. It is fully protected in the UK under the Conservation (Natural Habitats, &c.) Regulations 1994, as amended. Where otters are qualifying features of a Special Area of Conservation, designated under the EC Habitats Directive, their habitats are also protected. They are also legally protected under Appendix II of the Bern Convention 1979.

In summary, under this legislation, it is illegal to:

- Deliberately or recklessly capture, kill or injure otters;

---

[1] The UK Biodiversity Action Plan was succeeded by the UK Post-2010 Biodiversity Framework in July 2012.

- Deliberately or recklessly harass or, in certain circumstances, disturb otters;
- Damage or destroy a breeding site or resting place for otters.

A person is not guilty of the above offences if they are carried out in accordance with a derogation licence, which can only be issued under strict conditions.

1.3 BEAR Scotland

BEAR Scotland Ltd. is appointed as the Agent to Transport Scotland for the Term Contract for Management and Maintenance of the Scottish Trunk Road Network for the North West Unit. The North West 4G contract between BEAR Scotland and Transport Scotland commenced in April 2013 and currently extends to 2020. The vast majority of maintenance operations and construction undertaken by BEAR Scotland falls under Permitted Development under the Roads (Scotland) Act 1984.

Under the contract, BEAR Scotland are responsible for:

- Planned maintenance/design (e.g. resurfacing, earthworks, traffic signs, safety barriers, bridge maintenance and replacements);
- Network management (e.g. community and local authority liaison, 24/7 365 days/year control room);
- Emergency and incident response (e.g. specially trained operatives available 24/7, remove hazards from carriageway, reduce congestion caused by incidents);
- Routine and cyclic operations (e.g. gully cleaning and drainage repairs, grass cutting and weed spraying, inspection);
- Winter service (e.g. salting of trunk roads, snow ploughs).

2 Context

BEAR Scotland is a regular holder of otter derogation licences, with more than 20 applications granted in 2016. SNH Species Licensing have agreed with BEAR Scotland that a more appropriate approach would be to secure an otter derogation licence that covers activities on the NW Unit.

2.1 What the organisational licence will cover

This licence will cover all works on the **BEAR Scotland North West Unit** that are likely to:

- Disturb otters whilst they are using resting/breeding sites.

The licence will **not** cover the obstruction or destruction of otter resting places, holts or natal holts. Where obstruction or destruction of otter resting places is required, SNH will be consulted and a separate derogation licence will be applied for.

2.2 Trunk road operations that may disturb otters or resting sites

Various trunk road operations have the potential to disturb otters using breeding/resting sites along the NW network. Disturbance of otter resting places or breeding sites is the most frequent risk to be considered by the BEAR Scotland Environment Team. These structures are still protected even when otters are not present.

The main types of trunk road operations that may disturb otters using resting/breeding sites are listed as follows (not exhaustive):

- Road resurfacing;
- Installation of vehicle restraint systems and barriers;
- Repair of carriageway defects, including retaining walls;
- Road drainage repairs;
- Bridge/culvert replacement;
- Bridge/culvert scour repairs;
- Bridge expansion joint replacement;
- Bridge parapet replacement.

3 Environment Team Capabilities and Survey Licences

The NW BEAR Scotland Environment Team have qualified and appropriately licensed ecologists who carry out otter surveys, as well as agents named on specific survey licences who are allowed to work independently. They are:

Staff member	Qualifications	Survey licence number
[Redacted]		

This list of licensed members of staff will be subject to change over time. The list is correct as of April 4th 2018.

4 Survey and Site Assessment

4.1 Desk-based Assessment

Before any trunk road project can go ahead, an Environmental Assessment Request detailing the proposed works is submitted to the Environment Team by the BEAR Scotland Design Engineer. This is then subject to a screening process, including a desk-based assessment. Based on information gained from this assessment, the Environment Team determine carry out surveys to establish whether otters are present in habitat surrounding the proposed working area. This is necessary to assess the potential impacts of the proposed works on the otter population in the area and to develop mitigation measures.

Where the proposed works are within, or have connectivity with, a Special Area of Conservation where otters are a qualifying feature of the site, the Environment Team will consult SNH.

4.2 Survey Methods

Field surveys are undertaken by experienced ecologists based on methodology contained in Volume 10, Section 4 of the Design Manual for Roads and Bridges (DMRB) and in '*Monitoring the Otter Lutra lutra*' (Chanin, 2003). Surveys involve searching a minimum of 200 m beyond the working area for signs of otter, including the presence of holts, lying-up sites or couches, spraint and footprints. The locations of all otter signs found within the study area are recorded using a hand-held GPS.

Where possible, surveys are not undertaken during or following periods of heavy rainfall.

4.3 Survey Results

Signs normally encountered in the field on the North West trunk road network, include:

- Field signs, including spraint, footprints and feeding remains;
- Otter slides;
- Sightings;
- Couches (un-covered resting places above ground);
- Non-breeding holts (underground resting places with at least one chamber);
- Natal holts.

Figure 4.1 Spraint on rock near Onich

Figure 4.2 Otter footprints in wet sand

Figure 4.3 Active otter couch/holt near Skye Bridge

If a holt is identified, a wildlife camera may be set-up by a licensed otter surveyor to monitor use of the holt. Suspected natal holts will also be monitored using a wildlife camera to determine usage. If evidence of breeding or young is found within 200 m of the construction site, SNH will be consulted prior to any works being carried out.

Figure 4.4 Otter leaving holt on Skye, camera trapped under licence 62278

5 Evaluating Impacts on Otters

The main potential impact on the otter population in the vicinity of works will arise from the visual and noise disturbance due to increased human activity and the presence of machinery and vehicles. Generally, the affected resting places are adjacent to the trunk roads which have a high level of disturbance and background noise all year round. Therefore it is likely that the level of impact will be less than that which would occur at an isolated site.

Any pollution from, for example, silt, fuel or oil could have an impact on water quality, potentially having an effect on otters and their prey.

Resting places will not be damaged or obstructed by the works, however, otters making use of these areas may be disturbed as a result of construction. With mitigation in place, the level of impact arising from these works will be reduced and it is considered unlikely that a significant effect at a national or international level will occur.

6 Management Approaches

In relation to otters and trunk road operations, there are a number of different scenarios that are commonly encountered during maintenance works across the NW network. They range from finding signs (i.e. spraint and footprints) to actual sightings of otters. The appropriate management approach must be identified for each type of scenario. These scenarios are set out in the following section, along with mitigation measures to minimise the risk to otters in each case.

6.1 Scenario 1: Spraint, footprints and/or feeding remains identified but no resting places/holts found

- 'Working with Otters' Toolbox Talk to be provided to all site personnel prior to commencement of construction. This will be included in a Site Environmental Management Plan to be kept on site;
- The work area will be checked at the start of each shift for the presence of resting otters. In addition, before being used, machinery will be checked at the start of each shift for the presence of resting otters;
- Should otters or fresh signs of otters be discovered during works, work will be immediately stopped in the vicinity and the supervisor informed. Advice will be sought from the BEAR Scotland Environment Team;
- Pollution prevention measures will be strictly enforced on site and the Scottish Environment Protection Agency (SEPA) Pollution Prevention Guidelines (PPGs), and Guidance for Pollution Prevention (GPPs) in particular GPP 5 "Works and maintenance in or near water" will be strictly adhered to;
- Suitable emergency spill kit(s) will be provided on site, staff trained in their use and a contingency plan will be put in place to deal with environmental incidents;
- Refuelling and material storage areas, where required, must be fully bunded and secure and be located, if space is available, at least 10 m from watercourses, lochs, canals and drainage entry points, in order to comply with SEPA GPP 5 and minimise pollution risk;
- No wash water (or any other substance) to be discharged into watercourses, lochs, canals, transitional waters, coastal waters or road drainage system;
- Any excavations created will be covered over at the end of each shift and following completion of the works to avoid otters falling into them and becoming trapped;
- Any entrances to pipes/drains that are in the process of being constructed will be suitably protected to prevent otter access;
- All waste will be removed from site either for re-use, recycling or disposal in accordance with waste management regulations.

6.2 Scenario 2: Couches and/or holts identified within 30 m of the works

In addition to the measures in 6.1, the following mitigation will be adhered to where resting places and/or holts are found within 30 m of the works:

- Black infra-red camera trapping will be carried out under licence to determine the status of the holt i.e. if non-breeding or breeding. The use of infra-red minimises disturbance to otters;
- If a breeding holt is identified, SNH will be consulted as soon as practicably possible for further advice on how to proceed;

- No works will be carried out until the status of the holt has been established and it has been determined that all young, if present, are independently able to move to another holt;
- All conditions/advice given by Species Licensing will be complied with during the course of the works;
- If the structure is found to be used for non-breeding purposes, all conditions of the organisational otter licence will be complied with during the course of the works and a copy of the licence will be kept on site for inspection at any time;
- The site supervisor will brief all persons on site as part of the induction process to ensure that everyone is aware of the presence of otter, the mitigation measures, their legal obligations and the licensing conditions imposed on them;
- Where work on bridges is required, the thoroughfare for otters passing underneath the bridge will be maintained at all times;
- An exclusion zone will be marked out around the shelter prior to work commencing consisting of orange semi-rigid barrier fencing or high visibility tape. This will be 30m where possible but if the works are closer than this distance, the exclusion zone will be as near as possible to a minumum of 30 m. The fencing will be fixed in place allowing for as large a buffer as possible between the works and the resting places. This 'red zone' will be clearly marked as out of bounds to personnel throughout the course of the works and will be removed on completion of the works;
- A copy of the Site Environmental Management Plan, detailing mitigation measures required will be kept on site;
- Works will be carried out mainly during daylight hours but there may be cases where night-time working is required due to safety reasons;
- If night-time working is required, any lighting required will be directed away from water bodies and resting places as far as reasonably practicable;
- In such cases, works may be carried out under the direct supervision of an experienced ecologist if necessary;
- Staff to remain vigilant for sightings of otter during the course of the works;
- If otter are encountered during night-time working, works will cease in the immediate vicinity until the Environment Team can give advice;
- If the works are expected to take place over a prolonged period of time, repeat otter surveys will be carried out every 3 months.

6.3 Scenario 3: Couches/holts identified within 200 m of the works

In addition to the measures in 6.1, the following measures will be adhered to where resting places and/or holts are found within 200 m but more than 30 m from the works:

- Black infra-red camera trapping will be carried out under licence to determine the status of the holt i.e. if non-breeding or breeding. The use of infra-red minimises disturbance to otters;
- If a breeding holt is identified, SNH will be consulted as soon as practicably possible for further advice on how to proceed;
- No works will be carried out until the status of the holt has been established and it has been determined that all young, if present, are independently able to move to another holt;
- All conditions/advice given by Species Licensing will be complied with during the course of the works;
- A copy of the Site Environmental Management Plan, detailing mitigation measures required will be kept on site;
- Works will be carried out mainly during daylight hours but there may be cases where night-time working is required due to safety reasons;
- If night-time working is required, any lighting required will be directed away from water bodies and resting places as far as reasonably practicable;
- In such cases, works may be carried out under the direct supervision of an experienced ecologist if necessary;
- Staff to remain vigilant for sightings of otter during the course of the works;
- If otter are encountered during night-time working, works will cease in the immediate vicinity until the Environment Team can give advice;
- If the works are expected to take place over a prolonged period of time, repeat otter surveys will be carried out every 3 months.

7 General enhancement measures for otters

Roads can pose a particular problem for otters and can lead to significant numbers of casualties and mortalities. Road deaths are more likely when rivers are in spate and instead of being able to safely follow the watercourse through culverts or under bridges, otters cross over roads. BEAR Scotland collect data on otter road deaths to identify hotspots where further measures could prevent/reduce road mortalities. There are a couple of simple measures that BEAR Scotland use to do this.

Mammal ledges have also been installed at culverts and bridges where otter deaths had been previously recorded and where it was possible to do so. Where possible, these ledges should be fitted in conjunction with a dry otter tunnel so that otters have safe access across the road when watercourses are in spate.

Before these measures can be installed, the BEAR Scotland Environment Team carry out thorough otter surveys and in the case of installing mammal ledges at culverts, liaise with SEPA regarding Controlled Activities Regulations (CAR) requirements. Installation of mammal ledges is usually classed as an environmental service under CAR.

These activities may be covered under the organisational otter licence but if the main scope of works do not fall within the scenarios in section 6, SNH will be consulted for advice before any works are carried out.

8 What the licence will not cover

The organisational licence will only cover the scenarios set out in section 6. The licence will not cover incidences where:

- Couches/holts are obstructed;
- Couches/resting places need to be closed to enable works to go ahead;
- A holt needs to be destroyed to enable works to go ahead.

In these exceptional cases, SNH Species Licensing will be contacted and an application for a specific otter derogation licence will be made.

The organisational licence will only cover activities and operations on the NW Unit. **It does not extend to the BEAR Scotland North East Unit.**

9 Annual licence returns

Annual licence returns for the NW Unit will be made to SNH as a condition of the organisational otter licence. The submission date will be agreed with SNH.

APPENDIX G: Likely significant effect screening matrix

Natura Site	Distance from site	Feature Category	Feature	Feature potentially impacted	Nature of impact	LSE?	Screen in?	Comments	Potential in-combination effects from future projects/plans
Moray Firth SAC	15km (straight line distance)	Marine (including marine mammals)	Bottlenose dolphin (*Tursiops truncatus*)	Bottlenose dolphin (*Tursiops truncatus*)	Disturbance from underwater noise as a result of scour and concrete repairs to bridge piers and presence of barges and other vessels. Possible pollution issues from debris and concrete wash out.	Uncertain	Yes	The prescence of dolphins around the Cromarty Bridge is not well understood however there is anecdotal evidence that dolphins access the Cromarty Firth on occasion. Unlikely to have LSE but screened in as a precaution. Potential pollution of the marine environment during grit-blasting, pressure washing and painting the bridge and disturbance due to underwater noise and marine vessels however mitigation will be put in place to reduce the likelihood of incidents.	Dornoch Bridge (minor works potential for slightly elevated background disturbance) and Kessock Bridge (underwater works and piling) therefore potential for in-combination effects.
		Marine (including marine mammals)	Subtidal sandbanks		Pollution.	No	No	No LSE due to distance from the SAC site and the non-motile nature of the features and dilution factor of any pollution events.	None known
Inner Moray Firth SPA	10km (straight line distance)	Birds, non-breeding	Bar-tailed godwit (*Limosa lapponica*), Cormorant (*Phalacrocorax carbo*), Curlew (*Numenius arquata*), Goldenye (*Bucephala clangula*), Goosander (*Mergus merganser*), Greylag goose (*Anser anser*), Oystercatcher (*Haematopus ostralegus*), Red-breasted merganser (*Mergus serrator*), Redshank (*Tringa totanus*),Scaup (*Aythya marila*), Teal (*Anas crecca*), Wigeon (*Anas penelope*), Waterfowl assemblage	Bar-tailed godwit (*Limosa lapponica*), Cormorant (*Phalacrocorax carbo*), Curlew (*Numenius arquata*), Goldenye (*Bucephala clangula*), Goosander (*Mergus merganser*), Greylag goose (*Anser anser*), Oystercatcher (*Haematopus ostralegus*), Red-breasted merganser (*Mergus serrator*), Redshank (*Tringa totanus*),Scaup (*Aythya marila*), Teal (*Anas crecca*), Wigeon (*Anas penelope*), Waterfowl assemblage	Disturbance from noise and proximity of people, machinery, vessels. Pollution.	No	No	Maintenance programme will include painting, grit-blasting and pressure-washing the bridge. Containment measures will be used to prevent pollution reaching the aquatic environment and sediments. Likelihood that birds will be accustomed to existing level of disturbance from traffic on the trunk road and they won't be displaced from the extensive foraging areas. We would seek SNH's view on the potential for LSE on birds, non-breeding features of SPA's distant from the Cromary Bridge.	None Known
		Birds, breeding	Common tern (*Sterna hirundo*), Osprey (*Pandion haliaetus*)	Common tern (*Sterna hirundo*),	Disturbance from noise, proximity of people, machinery, vessels. Pollution.	Uncertain	Yes	Maintenance programme will potentially take place at all times of year for 5 years. Ospreys are unlikely to be breeding in the immediate surroundings of the Firth, more likely to be in locations on the Black Isle but they have been observed feeding in the Firth previously. Likelihood that birds will be accustomed to existing level of disturbance from traffic on the trunk road however potential for distrubance of breeding tern associated with the Inner Moray Firth SPA.	Unlikely to be any in-combination effect from the Dornoch or Kessock Bridges due to the distance of these bridges to the SPA and the lack of suitable habiats at Kessock Bridge.

Inner Moray Firth Ramsar Site	10km (straight line distance)	Birds, non-breeding	Bar-tailed godwit (*Limosa lapponica*), Greylag goose (*Anser anser*), Red-breasted merganser (*Mergus serrator*), Redshank (*Tringa totanus*), Waterfowl assemblage	Bar-tailed godwit (*Limosa lapponica*), Greylag goose (*Anser anser*), Red-breasted merganser (*Mergus serrator*), Redshank (*Tringa totanus*), Waterfowl assemblage	Pollution.	No	No	Maintenance programme will include painting, grit-blasting and pressure-washing the bridge. Containment measures will be used to prevent pollution reaching the aquatic environment and sediments. Likelihood that birds will be accustomed to existing level of disturbance from traffic on the trunk road and they won't be displaced from the extensive foraging areas. We would seek SNH's view on the potential for LSE on birds, non-breeding features of SPA's distant from the Cromary Bridge.	None known.
		Marine (including marine mammals)	Intertidal mudflats and sandflats	Intertidal mudflats and sandflats	Pollution.	No	No	No LSE due to distance from the Ramsar site and the non-motile nature of the features and dilution factor of any pollution events.	None known.
		Coast	Saltmarsh, sand dune, shingle	Saltmarsh, sand dune, shingle	Pollution.	No	No	No LSE due to distance from the Ramsar site and the motile nature of the features and dilution factor of any pollution events	None known.
Dornoch Firth and Morrich More SAC	30km (straight line distance)	Marine (including marine mammals)	Common (Harbour) seal (*Phoca vitulina*)	Common (Harbour) seal (*Phoca vitulina*)	Disturbance from underwater noise, disturbance at haul out site, presence of barges and other vessels. Pollution.	Yes	Yes	The seals using the Cromarty Firth are within 50km of the Dornoch Firth and Morrich More SAC there is considered to be connectivity. There is a designated haul out site for seals in the Cromarty Firth and the Cromarty Bridge lies within this site.	Dornoch Bridge (minor works potential for slightly elevated background disturbance) and Kessock Bridge (underwater works and piling) therefore potential for in-combination effects.
		Habitats	Atlantic salt meadows, subtidal sandbanks, reefs		Pollution.	No	No	No LSE due to distance from the SAC site and the non-motile nature of the features and dilution factor of any pollution events	None known.
Cromarty Firth SPA	Partly within	Birds, non-breeding	Bar-tailed godwit (*Limosa lapponica*), Curlew (*Numenius arquata*), Dunlin (*Calidris alpina alpina*), Greylag goose (*Anser anser*), Knot (*Calidris canutus*), Oystercatcher (*Haematopus ostralegus*), Pintail (*Anas acuta*), Red-breasted merganser (*Mergus serrator*), Redshank (*Tringa totanus*), Scaup (A*ythya marila*), waterfowl assemblage, Wigeon (*Anas penelope*)	Bar-tailed godwit (*Limosa lapponica*), Curlew (*Numenius arquata*), Dunlin (*Calidris alpina alpina*), Greylag goose (*Anser anser*), Knot (*Calidris canutus*), Oystercatcher (*Haematopus ostralegus*), Pintail (*Anas acuta*), Red-breasted merganser (*Mergus serrator*), Redshank (*Tringa totanus*), Scaup (A*ythya marila*), waterfowl assemblage, Wigeon (*Anas penelope*)	Disturbance from noise, proximity of people, machinery. Pollution.	Uncertain	Yes	Maintenance programme will include painting, grit-blasting and pressure-washing the bridge. Containment measures will be used to prevent pollution reaching the aquatic environment and sediments. Likelihood that birds will be accustomed to existing level of disturbance from traffic on the trunk road. We would seek SNH's view on whether they consider there to be potential of LSE on the non-breeding bird intrests of the SPA.	No in-combination effects anticipated from Kessock and Dornoch Bridges due to distance from the SPA.
		Birds, breeding	Common tern (*Sterna hirundo*), Osprey (*Pandion haliaetus*)	Common tern (*Sterna hirundo*)	Disturbance from noise, proximity of people, machinery. Pollution.	Yes	Yes	Maintenance programme will potentially take place at all times of year for 5 years. Ospreys are unlikely to be breeding in the immediate surroundings of the Firth, more likely to be in locations on the Black Isle but they have been observed feeding in the Firth previously. Likelihood that birds will be accustomed to existing level of disturbance from traffic on the	No in-combination effects anticipated from Kessock and Dornoch Bridges due to distance from the SPA.

								trunk road however potential for distrubance of breeding tern.	
Connon Islands SAC	5km	Woodland	Alder woodland on floodplains		Pollution.	No	No	No likely significant effect due to the nature and scale of the works and distance from the SAC.	None Known
Cromarty Firth Ramsar	Partly within	Birds, non-breeding	Bar-tailed godwit (*Limosa lapponica*), Greylag goose (*Anser anser*), Waterfowl assemblage	Bar-tailed godwit (*Limosa lapponica*), Greylag goose (*Anser anser*), Waterfowl assemblage	Disturbance from noise and proximity of people, machinery, vehicles or barges	Uncertain	Yes	Maintenance programme will include painting, grit-blasting and pressure-washing the bridge. Containment measures will be used to prevent pollution reaching the aquatic environment and sediments. Likelihood that birds will be accustomed to existing level of disturbance from traffic on the trunk road.We would seek SNH's view on whether they consider there to be potential of LSE on the non-breeding bird intrests of the SPA.	No in-combination effects anticipated from Kessock and Dornoch Bridges due to distance from the Ramsar Site.
		Marine (including marine mammals)	Intertidal mudflats and sandflats	Intertidal mudflats and sandflats	Sedimentation and pollution.	Uncertain	Yes	Some potential due to the proximity of these habitats to the work location.	No in-combination effects anticipated from Kessock and Dornoch Bridges due to distance from the Ramsar Site.
Moray and Nairn Coast Ramsar	30km (straight line distance)	Birds, non-breeding	Greylag goose (*Anser anser*), Pink-footed goose (*Anser brachyrhynchus*), Redshank (*Tringa totanus*), Waterfowl assemblage	Greylag goose (*Anser anser*), Pink-footed goose (*Anser brachyrhynchus*), Redshank (*Tringa totanus*), Waterfowl assemblage	Disturbance from noise and proximity of people, machinery, vehicles or barges	No	No	Maintenance programme will include painting, grit-blasting and pressure-washing the bridge. Containment measures will be used to prevent pollution reaching the aquatic environment and sediments. Likelihood that birds will be accustomed to existing level of disturbance from traffic on the trunk road and they won't be displaced from the extensive foraging areas. We would seek SNH's view on the potential for LSE on birds, non-breeding features of SPA's distant from the Cromary Bridge.	None known
		Marine (including marine mammals)	Intertidal mudflats and sandflats		Pollution.	No	No	No impacts predicted as these are non-motile features >30km distant from the Cromarty Bridge. Pollution of these habitats is not considered likely due to distance and dilution.	None known
		Coast	Saltmarsh, sand dune, shingle		Pollution.	No	No	No impacts predicted as these are non-motile features >30km distant from the Cromarty Bridge. Pollution of these habitats is not considered likely due to distance and dilution.	None known
		Woodland	Wet woodland		Pollution.	No	No	No impacts predicted as these are non-motile features >30km distant from the Cromarty Bridge. Pollution of these habitats is not considered likely due to distance and dilution.	None known

Dornoch Firth and Loch Fleet Ramsar	30km (straight line distance)	Birds, non-breeding	Bar-tailed godwit (*Limosa lapponica*), Greylag goose (*Anser anser*), Waterfowl assemblage, Wigeon (*Anas penelope*)	Bar-tailed godwit (Limosa lapponica), Greylag goose (Anser anser), Waterfowl assemblage, Wigeon (Anas penelope)	Disturbance from noise, proximity of people, machinery. Pollution.	No	No	Maintenance programme will include painting, grit-blasting and pressure-washing the bridge. Containment measures will be used to prevent pollution reaching the aquatic environment and sediments. Likelihood that birds will be accustomed to existing level of disturbance from traffic on the trunk road and they won't be displaced from the extensive foraging areas. We would seek SNH's view on the potential for LSE on birds, non-breeding features of SPA's distant from the Cromary Bridge.	None known
		Marine (including marine mammals)	Harbour seal (*Phoca vitulina*), Intertidal mudflats and sandflats, Reefs	Harbour seal (*Phoca vitulina*)	Disturbance from noise, proximity of people, machinery. Pollution.	Yes	Yes	The seals using the Cromarty Firth are within 50km of the Dornoch Firth and Morrich More SAC there is considered to be connectivity. There is a designated haul out site for seals in the Cromarty Firth and the Cromarty Bridge lies within this site.	Dornoch Bridge (minor works potential for slightly elevated background disturbance) and Kessock Bridge (underwater works and piling) therefore potential for in-combination effects.
		Invertebrates	Invertebrate assemblange		Pollution.	No	No	No impacts predicted as these are non-motile features >30km distant from the Cromarty Bridge. Pollution of these habitats is not considered likely due to distance and dilution	None known
		Mammals (except marine)	Otter (*Lutra lutra*)		Disturbance from noise, proximity of people, machinery. Pollution.	No	No	Unlikely to be same population of otter due to distance	None known
		Coast	saltmarsh and sand dune		Pollution.	No	No	No impacts predicted as these are non-motile features >30km distant from the Cromarty Bridge. Pollution of these habitats is not considered likely due to distance and dilution	None known
		Vascular plants	Vascular plant assemblage		Pollution.	No	No	No impacts predicted as these are non-motile features >30km distant from the Cromarty Bridge. Pollution of these habitats is not considered likely due to distance and dilution	None known
		Woodland	Wet woodland		Pollution.	No	No	No impacts predicted as these are non-motile features >30km distant from the Cromarty Bridge. Pollution of these habitats is not considered likely due to distance and dilution	None known
Moray Firth pSPA	10km (straight line distance)	Birds, non-breeding	Common scoter (*Melanitta nigra*), Eider (*Somateria mollissima*), Goldeneye (*Bucephala clangula*), Great northern diver (*Gavia immer*), Long-tailed duck (*Clangula hyemalis*), Red-breasted merganser (*Mergus serrator*), Red-throated diver (*Gavia stellata*), Scaup (*Aythya marila*), Shag (*Phalacrocorax aristotelis*),	Common scoter (*Melanitta nigra*), Eider (*Somateria mollissima*), Goldeneye (*Bucephala clangula*), Great northern diver (*Gavia immer*), Long-tailed duck (*Clangula hyemalis*), Red-breasted merganser (*Mergus serrator*), Red-throated diver (*Gavia stellata*), Scaup (*Aythya marila*), Shag (*Phalacrocorax aristotelis*),	Disturbance from noise, proximity of people, machinery. Pollution.	No	No	Maintenance programme will include painting, grit-blasting and pressure-washing the bridge. Containment measures will be used to prevent pollution reaching the aquatic environment and sediments. Likelihood that birds will be accustomed to existing level of disturbance from traffic on the trunk road and they won't be displaced from the extensive foraging areas. We would seek SNH's view on the potential for LSE on birds, non-breeding features of SPA's distant from the Cromary Bridge.	None known

			Slavonian grebe (*Podiceps auritus*), Velvet scoter (*Melanitta fusca*)	Slavonian grebe (*Podiceps auritus*), Velvet scoter (*Melanitta fusca*)					
		Birds, breeding	Shag (*Phalacrocorax aristotelis*)	Shag (*Phalacrocorax aristotelis*)	Disturbance from noise, proximity of people, machinery. Pollution.	No	No	Maintenance programme will potentially take place at all times of year for 5 years. Likelihood that birds will be accustomed to existing level of disturbance from traffic on the trunk road while foraging, with an abundance of suitable foraging habit away from the Bridge.	None known
Moray and Nairn Coast SPA	30km (straight line distance)	Birds, breeding	Osprey (*Pandion haliaetus*),		Disturbance from noise, proximity of people, machinery. Pollution.	No	No	Maintenance programme will potentially take place at all times of year for 5 years. Ospreys are unlikely to be breeding in the immediate surroundings of the Firth, more likely to be in locations on the Black Isle but they have been observed feeding in the Firth previously. Likelihood that birds will be accustomed to existing level of disturbance from traffic on the trunk road.	None known
		Birds, non-breeding	Bar-tailed godwit (*Limosa lapponica*), Common scoter (*Melanitta nigra*), Dunlin (*Calidris alpina alpina*), Greylag goose (*Anser anser*), Long-tailed duck (*Clangula hyemalis*), Oystercatcher (*Haematopus ostralegus*), Pink-footed goose (*Anser brachyrhynchus*), Red-breasted merganser (*Mergus serrator*), Redshank (*Tringa totanus*), Velvet scoter (*Melanitta fusca*), Waterfowl assemblage, Wigeon (*Anas penelope*)	Bar-tailed godwit (*Limosa lapponica*), Common scoter (*Melanitta nigra*), Dunlin (*Calidris alpina alpina*), Greylag goose (*Anser anser*), Long-tailed duck (*Clangula hyemalis*), Oystercatcher (*Haematopus ostralegus*), Pink-footed goose (*Anser brachyrhynchus*), Red-breasted merganser (*Mergus serrator*), Redshank (*Tringa totanus*), Velvet scoter (*Melanitta fusca*), Waterfowl assemblage, Wigeon (*Anas penelope*)	Disturbance from noise, proximity of people, machinery. Pollution.	No	No	Maintenance programme will include painting, grit-blasting and pressure-washing the bridge. Containment measures will be used to prevent pollution reaching the aquatic environment and sediments. Likelihood that birds will be accustomed to existing level of disturbance from traffic on the trunk road and they won't be displaced from the extensive foraging areas. We would seek SNH's view on the potential for LSE on birds, non-breeding features of SPA's distant from the Cromary Bridge.	None known
Dornoch Firth and Loch Fleet SPA	30km (straight line distance)	Birds, breeding	Osprey (*Pandion haliaetus*)		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 Cromarty Firth. 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 Cromarty Firth which offers ample foraging opportunities away from the bridge.	None known

		Birds, non-breeding	Bar-tailed godwit (*Limosa lapponica*), Curlew (*Numenius arquata*), Dunlin (*Calidris alpina alpina*), Greylag goose (*Anser anser*), Oystercatcher (*Haematopus ostralegus*), Teal (*Anas crecca*), Waterfowl assemblage, Wigeon (*Anas penelope*)	Bar-tailed godwit (*Limosa lapponica*), Curlew (*Numenius arquata*), Dunlin (*Calidris alpina alpina*), Greylag goose (*Anser anser*), Oystercatcher (*Haematopus ostralegus*), Teal (*Anas crecca*), Waterfowl assemblage, Wigeon (*Anas penelope*)	Disturbance from noise, proximity of people, machinery. Pollution.	No	No	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. Likelihood that birds will be accustomed to existing level of disturbance from traffic on the trunk road. We would seek SNH's view on the potential for LSE on birds, non-breeding features of SPA's distant from the Cromary Bridge.	None known