A9 Dornoch Bridge 5 year Maintenance Programme

Record of Determination

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Distribution		
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Document:

EC DIRECTIVE 97/11 (as amended)
ROADS (SCOTLAND) ACT 1984 (as amended)

RECORD OF DETERMINATION

Name of Project:	**Location:**
A9 Dornoch Bridge 5 year Maintenance Programme	**A9 Dornoch Bridge which crosses the Dornoch Firth between Tain and Dornoch**

Description of Project:

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

The activities will include:

Scheme

- Bridge levelling.

Cyclic maintenance

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

Inspection

- Principal inspections;
- Bridge level survey.

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

An underbridge access unit is required to complete maintenance or inspections underneath the bridge; this is to allow access to the soffit of the bridge deck or piers. The underbridge platforms will either be lorry-mounted underbridge platforms or fixed platforms suspended from the bridge. In line with health and safety requirements any work being carried out beneath the bridge will require an adequate working platform and railing to prevent any workers from falling. In line with good practice, around this platform and railing, containment will be achieved by the attachment of either debris netting or thickened sheets to prevent materials falling from the platform.

With the exception of the activities 'bird guano removal', 'minor concrete repairs', and 'bearing renewal', all maintenance works will be carried out from the upper surface of the bridge (deck). Of these activities, only minor concrete repairs could require work to be carried out between mean high water and mean low water. None of the activities require work to be carried out within the subtidal environment.

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

- The site supervisor will give toolbox talks prior to work commencing. These talks will highlight any sensitive features, including the designated sites and their qualifying features.
- In line with good practice, the contractor will follow the updated and relevant Guidance for Pollution Prevention (GPPs) including GPP 5 (Works and maintenance in or near water). Pollution Prevention Guidance (PPGs) will be followed if no corresponding GPP is available.
- Oils, fuels and chemicals will be stored in fully bunded areas.
- Spill kits will be available on site and workers trained in their use.
- The contractor will produce a contingency plan for dealing with spills or environmental incidents.
- Any waste generated will be removed from site and either recycled or disposed of in compliance with Waste Management Regulations.

Bridge Levelling

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

Summary methodology:

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

The following good practice measure will also be adopted:

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

Resurfacing

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

Summary methodology:

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

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

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

Minor concrete repairs

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

Where works are required beneath the bridge they will be facilitated by an underbridge unit. In line with health and safety requirements, any work being carried out beneath the bridge will require an adequate working platform and railing to prevent any workers from falling. In line with good practice, around this platform and railing, containment will be achieved by the attachment of either debris netting (if small repairs only) or thickened sheets (if hydro demolition). If hydro demolition is being carried out, then the floor of the platform will be layered with materials to fully contain the water and debris e.g. Terram and Visquine layers. Therefore, there will be no pathway for debris or work water to inadvertently enter the marine environment.

Concrete fragments that land on the access system floor, during large or small repair works will be cleaned up, taken to the surface of the bridge and removed from site by licensed waste carriers. The water generated during the hydro demolition will either be pumped back up to the bridge deck, where it will then be collected and removed from site by licensed waste carriers; or, the water will be filtered and pH reduced before discharging in to the marine environment. The contractor will ensure that the conditions of a SEPA CAR licence are adhered to, should one be required for the discharge.

As noted above, there may be a requirement to access areas of the bridge that lie between mean high water springs and mean low water springs, 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 and management measures will be adopted:

Large repair
- Thickened sheets will be installed around the area being broken out.
- Hydro demolition will be contained using protective sheeting and a sump pit to catch run off water.
- If working from a platform beneath the bridge the floor will be layered with materials to fully contain the water
- Debris material and work water will be pumped back up to the bridge deck, where it will then be collected and removed from site by licensed waste carriers; or, the water

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

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.

Drainage Cleaning

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

Summary methodology:
- Establish traffic management as required.
- Open kerb gully.
- Clean debris from 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 has recently been replaced, however, accidental vehicle damage or defects to the parapet may require repair. These works will take place from the surface of the bridge. These works are likely to take around 2-3 weeks.

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

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

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

Bird Guano Removal

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

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

The following good practice measure will also be adopted:

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

Bearing Renewal

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

Summary methodology

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

The following good practice measures will also be adopted:

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

Expansion joint renewal

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

Summary methodology

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

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

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

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**.

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Description of Local Environment:

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. There are no sensitive receptors within 300m of the bridge.

Dornoch's climate is classified as warm and temperate with prevailing winds mainly travelling in a south-westerly direction towards the Great Glen.

CULTURAL HERITAGE AND MATERIAL ASSETS:
There are no Scheduled Monuments or Listed Buildings within 300 m of the scheme. There are a small number Canmore and Historic Environment Record (HER) sites of cultural heritage interest within 300m of the scheme, including the Dornoch Firth Bridge itself which is recorded on Canmore and the HER.

BIODIVERSITY:
Designated Sites

Following consultation with SNH Redacted 6th April 2018), regarding the proposed maintenance activities at Dornoch Bridge, SNH were in general agreement with initial conclusions of the HRA screening (see Appendix E for consulation and Appendix G for Likely significant effect screening matrix).

Since April 2018, further detail has been provided on the good practice and management measures that will be adopted during construction, specifically to prevent the loss of materials and/or pollution in the marine environment. These measures are acknowledged and detailed further within the SIAA.

SNH Redacted 6th April 2018) agreed that the proposal could lead to a potential Likely Significant Effect (LSE) on a number of qualifying features of the designated conservation sites (see Appendix E)

Following consultation with SNH and futher detail provided on scope of works and good practice and management measures it has been determined that there is potential for likely significant effect to one or more of the features of interest:

- Dornoch Firth & Morrich More Special Area of Conservation (SAC);
- Dornoch Firth and Loch Fleet Special Protection Area (SPA);
- Dornoch Firth and Loch Fleet Ramsar.

Acknowledging the consultation with SNH (Appendix E) and the greater detail that has since been provided on the scope of works,good practice and management measures; it is now concluded that there is no potential for a likely significant effect on the qualifying interests of these sites:

- Moray Firth pSPA;
- Moray Firth Special Area of Conservation (SAC);
- River Evelix Special Area of Conservation (SAC);
- River Oykel Special Area of Conservation (SAC).

Habitats
The Dornoch Firth has an important, wide selection of habitats which include mudflats, sandflats, sanddunes, dense eelgrass (*Zostera spp.)* beds and extensive saltmarsh habitats, all of which support a diverse range of wintering wildfowl and waders.

Birds
The Dornoch Firth is a nationally and internationally important area for both wintering and breeding birds. The firth regularly supports over 20,000 waterfowl and is also home to high numbers of Bar-tailed godwit, greylag goose, Whooper swans and wigeons, which have all been recorded on the site. The firth also has a diverse assemblage of wintering waders including nationally important populations of teal, scaup, curlew and redshank. It also provides foraging grounds for nationally important numbers of osprey.

Otters
A site survey undertaken on 6th July 2016 recorded numerous signs of otter in the form of spraint and resting places within rock armour at both north and south abutme of the bridge. A total of two holts and 18 couches were found with some couches located very close together. The two holts were located in rock armour near the northern end of the bridge. Four couches were located in rock armour near the northern end of the bridge and 14 were in rock armour near the southern end.

Surveys undertaken in October 2017 and April 2018 found evidence to suggest high otter activity at both the north and south ends of the bridge. This was identified in the form of the numerous fresh and old spraint found adjacent to known resting places and holts at the north and south ends of the bridge. Further pre-construction surveys will be carried prior to maintenance activities programmed over the next 5 years.

Marine mammals
There are no known seal haul outs within the Dornoch Firth. The nearest recorded haul out on a sandbank is located approximately 10km north-east of the Dornoch bridge at Loch Fleet and another located 18km north-east of the Dornoch Bridge (approximately 2km east of Golspie).

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*). Dornoch 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 inputs from the River Carron, River Cassley, River Oykel, River Shin and the River Evelix.

LANDSCAPE:
The scheme is located within the Dornoch Firth National Scenic Area (NSA). The Special Qualities of the NSA are:

- The contrast between the enclosed west and the expansive east;
- Inhabited surrounds within a wilder backdrop of hills and moors;
- A wide diversity of woodland cover;
- A rich variety of alluvial lands, dunes and links;
- The ever-changing firth;
- The tranquillity of an undeveloped coastline;
- Migdale, a microcosm of the wider Dornoch Firth.

The surrounding landscape is characterised by expansive views over the firth to the east and views of surrounding low hills to the north, south and west.

LAND:
The Dornoch Firth water body surrounds the road bridge. Surrounding land predominately comprises agricultural land with rough grazing, some woodland and plantation forestry.

NOISE:
No information is available for the scheme location on the Scottish Noise Mapping website. Existing noise levels in the vicinity will predominately be influenced by traffic using the A9 trunk road.

POPULATION AND HUMAN HEALTH:
There is a footway on each side of the bridge. There is no designated footpaths cycleways along the northern and southern causeway approaches to the bridge

Cyclists are likely to use the carriageway to cross the Dornoch Firth. Pedestrians may use the bridge to cross the Dornoch Firth. It is unlikely that equestrians use the bridge due to the volume and speed of traffic.
The Sustrans website shows an on-road cycle route, i.e. National Cycle Network (NCN) Route 1 approximately 1 km south of the scheme. It runs along the A9 and A836 and does not go over the Dornoch Firth Bridge (refer to Figure F1 in Appendix F).

The A9 is carried over the bridge and is a major road which runs for 269 miles from Polmont, Falkirk to Scrabster. It is used by local residents, commuters, commercial and tourist traffic. A National speed limit applies across the Dornoch Bridge

WATER:

The Dornoch Firth Road Bridge carries the A9 over the Dornoch Firth (ID: 200165) transitional water body. This was classified by the Scottish Environment Protection Agency (SEPA) in 2016 as being at Good status.

The bridge crosses three groundwater bodies; land to the immediate south of the bridge overlies the Tain Coastal groundwater body (ID: 150787) which was classified by SEPA in 2016 as being at Poor status. This poor status exists from an impact on water quality due to diffuse inputs from rural sources. Public bodies and land managers are working together to find a solution to this issue. Further south the bridge overlies the Invergordon (ID: 150679) groundwater body, classified by SEPA as having good overall status as of 2016.The land immediately north of the bridge overlies the Dornoch Coastal groundwater body (ID: 150778) classified by SEPA in 2016 as being at Good status.
The Firth receives its principal river inputs from the River Carron, River Cassley, River Oykel, River Shin and the River Evelix. The rivers Evelix and Oykel were classified by SEPA in 2017 as having good overall condition. The rivers Carron, Shin and Cassley were classified by SEPA in 2017 as having good ecological condition.

Road drainage on the north and south causeway approaches to the bridge is via filter drains. There are side-entry gullies at the layby on the southern causeway approach to the bridge whilst the layby along the northern causeway is drained by filter drains. Drainage on the bridge is via side-entry gullies.

The SEPA Flood Map does not show a risk of fluvial or surface water flooding in the immediate vicinity of the scheme. In the general vicinity, the risk of coastal flooding tends to be restricted to the immediate vicinity of the coastline with some localised risk of flooding above the usual high water levels.

SOILS AND GEOLOGY:

The Dornoch Bridge does not sit within or in close proximity to any site statutorily designated for geological interests.

Bedrock geology at the north and southern sides of the bridge is recorded as Middle Old Red Sandstone, comprising conglomerate, sandstone, siltstone and mudstone. This is sedimentary bedrock formed approximately 385 to 398 million years ago in the Devonian Period. It indicates a local environment that was previously dominated by rivers and alluvial fans. **Source: British Geological Survey.**

Superficial geology is not recorded at this location.
(http://mapapps.bgs.ac.uk/geologyofbritain/home.html).

Soil type at the southern end of the bridge consists of Mineral podzols; Undifferentiated raised beach deposits. At the northern end of the bridge, this consist of Immature soils; Regosols. **Source: Scotland's Soils**.

WASTE, MATERIALS AND USE OF NATURAL RESOURCES:

Waste generated as a result of each activity will range from grit to bird guano and is described below.

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

Bird guano removal

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

Cleaning and pressure washing superstructure

Cleaning of superstructure is required to remove marine salts from the structure so will not require removal from site. Water required for pressure washing the bridge will be taken from an existing watermain running the length of the underside of the bridge. Volumes will amount to approximately 15,000 litres a day.

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.

Parapet repairs

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

Bearing renewal

Some waste material in the form of debris may result from the replacement of the bearings.

Expansion joint renewal

Waste materials from the replacement will include the old expansion joints themselves as well as debris from the works.

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).

Description of the main environmental impacts of the project and good practice and environmental management measures:

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 of 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 (see below **pages:21-28**).

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, small scale and localised 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.

CULTURAL HERITAGE AND MATERIAL ASSETS:

The 5 year maintenance programme is ultimately designed to maintain the structural and cultural integrity of the Dornoch Bridge.

The concrete repairs, expansion joint renewal, parapet replacement and bearing renewal schemes will protect the structural integrity of the bridge and are likely to result in a minor significant positive impact through maintaining the cultural heritage and structural integrity of the bridge.

The following best practice measures will be implemented thoughout the works:

- Confine work related activities to the existing footprint of the bridge.
- The site will be left clean and tidy following all scheme and cyclic maintenance activities.

BIODIVERSITY:

Designated Sites

Following consultation with SNH Redacted 6th April 2018), regarding the proposed maintenance activities at Dornoch Bridge, SNH advised that the proposal could lead to a potential Likely Significant Effect (LSE) on a number of qualifying features of the designated conservation sites (see Appendix E).

Since the intial consultation further detail has since 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:

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- 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.

Acknowledging the initial consultation with SNH and then the further detail provided in relation to good practice and management measures adopted, it was concluded within the SIAA that there was no potential for LSE on a number of qualifying features from the designated sites:

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

As a potential for LSE could not be initially screened out for several other qualifying features (see Table 1), these were taken to the next step within the SIAA.

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

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

The SIAA then determined that with the application of specific additional mitigation, beyond the good practice and management measures already adopted there would be no potential for LSE against each of the features identified in Table 1. Hence, it was concluded that all conservation objectives of the designated sites would be maintained and the qualifying features would not be adversely affected by the proposed maintenance work at Dornoch Bridge.

The specific additional mitigation which will be adopted for the broad qualifying features 'wintering birds' and 'otter' is provided below, with further detail on the assessment given in the Dornoch SIAA.

Wintering birds (*Dornoch Firth and Loch Fleet SPA 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 for wintering birds:

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

Otter (*Dornoch Firth & Loch Fleet Ramsar and Dornoch Firth & Morrich More SAC*)

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

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

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 adhered to by the contractor(s).

Prior to works commencing, the BEAR environment team will determine whether pre-construction otter surveys will be required to establish if otters are present in habitat surrounding the proposed working area.

The survey work would encompass camera deploymentfor a period of 14 days to monitor potential otter actvity, specifically at the identified couches and holts.

- The following additional work practices are proposed:Following the pre-construction monitoring surveys, SNH will be provided with the survey data and consulted on the need for a site-specific licence and the requirement for mitigation;

Depending on the findings of the surveys a management approach will be adopted according to the scenario (see Appendix F: Otter Species Protection Plan). Measures might include:

- 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

Habitats

No direct or indirect impacts on habitats are envisaged from the maintenance work actvities. There is some potential for pollution of habitats in the absence of good practice measures 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.

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 for 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 the specific mitigation provided for wintering birds and otter (seeoutlined above), 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 the effects on fish populations (including migratory species) would not be significant.

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 compound will likely take place entirely on the trunk road with a land closure and layby use;
- 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:

There will be no change in land use as a result of the schemes, cyclic maintenance and inspections included in the 5 year maintenance programme. No significant impacts are anticipated on land use during the construction, maintenance periods or operation phase.

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.;
- hydro-demolition;
- 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 Dornoch 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 Dornoch 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 Dornoch 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 A9. 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 Dornoch 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, SNH, 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. Visqueen sheeting and debris netting will be installed during fresh concrete pouring and 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.

SOILS AND GEOLOGY:

It is unlikely that there will be any significant impacts on soils and geology during cyclic maintenance or investigation activities since the works will take place on an existing structure in the marine environment. 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:

Waste generated as a result of each activity will range from grit to bird guano and is described below.

<u>Bridge levelling</u>
No waste materials are anticipated.

<u>Drainage cleaning</u>
Waste from the drainage system will be removed by a gully vacuum truck and disposed of at licenced waste disposal facility.

<u>Bird guano removal</u>

Bird guano will be double bagged to prevent spillage and removed off site for disposal to landfill.

Concrete repairs
After mortar works, any residual concrete washwater must be collected and removed from site as special contaminated water.

Parapet repairs
Waste materials from the replacement will include the old parapets themselves as well as debris from the works. Protection will be provided in the form of edge and debris netting to limit waste entering the marine environment.

Bearing renewal
Some waste material in the form of debris may result from the replacement of the bearings. Debris netting will be used to minimise waste material from entering the marine environment.

Expansion joint renewal
Waste materials from the replacement will include the old expansion joints themselves as well as debris from the works. Protection will be provided in the form of edge and debris netting and visqueen sheeting to limit waste entering the marine environment.

Resurfacing
Road planings will be re-used or recycled under a SEPA Paragraph 13(a) waste exemption.

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 SEPA 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. Sufficient time will be required prior to the works commencing to allow for the 4 month consultation period for a CAR 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 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 Dornoch Bridge; these will take place at Kessock Bridge and Cromarty Bridge. No significant adverse effects were predicted at Kessock or Cromarty as outlined in the respective RoDs, and hence there would be no in-combination effect from these proposals with Dornoch.

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 Biodiversity parameters which could be affected during the works. SEPA and local planning authority will be contacted prior the works taking place.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 Dornoch Firth and Morrich More SAC, Moray Firth SAC, Dornoch Firth and Loch Fleet SPA and Ramsar and
- Has connectivity with the Moray Firth pSPA; River Evelix Special Area of Conservation (SAC); River Oykel Special Area of Conservation (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:

- Bridge levelling works along with cyclic maintenance activities which will include drainage cleaning, bird guano removal, bearing renewal, expansion joint renewal, resurfacing operations, parapet repairs and minor concrete repairs;
- All works will be confined to Dornoch 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, ENVIRONMENTAL MANAGEMENT AND MITIGATION MEASURES: SUMMARY

Issue	Baseline Conditions	Impact	Good practice, environmental management and mitigation measures
General: activity specific good practice and management measures	N/A	N/A	All activities: • The site supervisor will give toolbox talks prior to work commencing. These talks will highlight any sensitive features, including the designated sites and their qualifying features. • In line with good practice, the contractor will follow the updated and relevant Guidance for Pollution Prevention (GPPs) including GPP 5 (Works and maintenance in or near water). Pollution Prevention Guidance (PPGs) will be followed if no corresponding GPP is available. • Oils, fuels and chemicals will be stored in fully bunded areas. • Spill kits will be available on site and workers trained in their use. • The contractor will produce a contingency plan for dealing with spills or environmental incidents. • Any waste generated will be removed from site and either recycled or disposed of in compliance with Waste Management Regulations. **Bridge Levelling** • Debris netting to be installed around the bearing to ensure that no materials fall into the estuary during bridge levelling. **Resurfacing** • Ensure that all milling works are carried out during suitable periods of weather to ensure that waste material is not blown or washed into the water. • Gullies and drainage points will be blocked with heavy duty plastic during spraying of surface binder to prevent entry into the water environment. They will be removed as waste on completion of works. • Debris netting is to be installed around the area being milled. **Minor concrete repairs** Large repair • Thickened sheets will be installed around the area being broken out. • Hydro demolition will be contained using protective sheeting and a sump pit to catch run off water. • If working from a platform beneath the bridge the floor will be layered with materials to fully contain the water • Debris material and work water will be pumped back up to the bridge deck, where it will then be collected and removed from site by licensed waste carriers; or, the water will be filtered and pH reduced before discharging in to the marine environment. • Fresh concrete will be poured in such a manner that no concrete is lost or can enter the marine environment. • All waste concrete will be removed from site by licenced waste carriers. Small repair • Debris netting will be installed around the area being broken out. • Containment of the working platform using the debris netting and flooring layers. • All waste concrete will be removed from site by licensed waste carriers. • Fresh concrete will be poured in such a manner that no concrete is lost or can enter the marine environment. **Drainage Cleaning** • Vacuum trucks will be emptied at licensed facilities. **Parapet Repairs** • Edge protection to be installed to ensure materials can't be knocked over the edge of the bridge. • Debris netting or 'Envirowrap' to be used to stop waste and small items falling into the aquatic environment. **Bird Guano Removal** • Bird guano will need to be double-bagged to prevent spillage. • Guano will be taken to a licensed facility for disposal.

			Bearing Renewal • Debris netting or 'Envirowrap' to be installed around the bearing to ensure no materials enter the aquatic environment. **Expansion joint renewal** • Hydro demolition will require containment and a sump pit to catch run-off water. • Thickened sheets will be installed around the area being broken out. • Debris material will be collected and removed from site by licensed waste carriers • All water will be pumped in to a 'silt buster' where it will be filtered and pH reduced. Water will then either be pumped into a storage tank and disposed of under licence or discharged into the marine environment. The contractor will ensure that the conditions of a SEPA CAR licence are adopted, should one be required. • Fresh concrete will be poured in such a manner that no concrete is lost or can enter the marine environment. • All waste concrete will be removed from site by licenced waste carriers.
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. There are no sensitive receptors within 300m of the bridge. Dornoch's climate is classified as warm and temperate with prevailing winds mainly travelling in a south-westerly direction towards the Great Glen.	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.	• 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.
Biodiversity	Designated Sites Following consultation with SNH (Ben Leyshon,16th April 2018), regarding the proposed maintenance activities at Dornoch Bridge, SNH were in general agreement with initial conclusions of the HRA screening (see Appendix E). Since April 2018, further detail has been provided on the good practice and management measures that will be adopted during construction, specifically to prevent the loss of materials and/or pollution in the marine environment. These measures are acknowledged and detailed further within the SIAA. SNH (Ben Leyshon,16th April 2018) agreed that the proposal could lead to a potential Likely Significant Effect (LSE) on a number of qualifying features of the designated conservation sites (see Appendix E) Following consultation with SNH and further detail provided on scope of works and good practice and management measures it has been determined that there is potential for likely significant effect to one or more of the features of interest: • Dornoch Firth & Morrich More Special Area of Conservation (SAC); • Dornoch Firth and Loch Fleet Special Protection Area (SPA); • Dornoch Firth and Loch Fleet Ramsar. Acknowledging the consultation with SNH (Appendix E) and the greater detail that has since been provided on the scope of works,good practice and management measures; it is now	Following consultation with SNH (Ben Leyshon,16th April 2018), regarding the proposed maintenance activities at Dornoch Bridge, SNH advised that the proposal could lead to a potential Likely Significant Effect (LSE) on a number of qualifying features of the designated conservation sites (see Appendix E and Table 1). Since the intial consultation, 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.	Designated sites • 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. **Wintering birds** (*Dornoch Firth and Loch Fleet SPA and Dornoch Firth and Loch Fleet Ramsar*) • During the overwintering period (October to March) flood lighting will be directed away from the Firth and intertidal areas at all times • During the overwintering period (October to March) lighting will kept to a minimum • Should hydro-demolition work be required during the overwintering period (October to March) then it will only be carried out between the hours of 08:00 to 18:00. • Should hydro-demolition work be required during the overwintering period (October to March) then it will be preceded by a 'soft start' in general activities, thus allowing a 'ramping-up' of noise levels. • During the overwintering period (October to March), normal working operations will be constrained to the hours of 07:00 to 19:00 unless there is an urgent need to extend operations. • If works are required to be carried out overnight the most disruptive activities will be scheduled for the earlier part of the evening. • Where reasonably practicable, workers will avoid accessing the intertidal shores around the bridge at all times of the year. **Otter** (*Dornoch Firth & Loch Fleet Ramsar and Dornoch Firth & Morrich More SAC*) • Flood lighting will be directed away from the Firth and intertidal areas at all times

	concluded that there is no potential for a likely significant effect on the qualifying interests of these sites: • Moray Firth pSPA; • Moray Firth Special Area of Conservation (SAC); • River Evelix Special Area of Conservation (SAC); • River Oykel Special Area of Conservation (SAC). <u>Habitats</u> The Dornoch Firth has an important, wide selection of habitats which include mudflats, sandflats, sanddunes, dense eelgrass (Zostera spp.) beds and extensive saltmarsh habitats, all of which support a diverse range of wintering wildfowl and waders. <u>Birds</u> The Dornoch Firth is a nationally and internationally important area for both wintering and breeding birds. The firth regularly supports over 20,000 waterfowl and is also home to high numbers of Bar-tailed godwit, greylag goose, Whooper swans and wigeons, which have all been recorded on the site. The firth also has a diverse assemblage of wintering waders including nationally important populations of teal, scaup, curlew and redshank. It also provides foraging grounds for nationally important numbers of osprey. <u>Otters</u> A site survey undertaken on 6th July 2016 recorded numerous signs of otter in the form of spraint and resting places within rock armour at both north and south abutments. A total of two holts and 18 couches were found with some couches located very close together (refer to Figures D6 to D10 in Appendix D). The two holts were located in rock armour near the northern end of the bridge and are likely to be submerged below higher tides. Four couches were located in rock armour near the northern end of the bridge and 14 were in rock armour near the southern end. Surveys undertaken in October 2017 and April 2018 found evidence to suggest high otter activity at both the north and south ends of the bridge. This was identified in the form of the numerous fresh and old spraint found adjacent to known resting places and holts at the north and south ends of the bridge. A single pre-construction survey will be carried prior to maintenance activities programmed over the next 5 years. <u>Marine mammals</u> There are no known seal haul outs within the Dornoch Firth. The nearest recorded haul out on a sandbank is located approximately 10km north-east of the Dornoch bridge at Loch Fleet and another located 18km north-east of the Dornoch Bridge (approximately 2km east of Golspie). <u>Fish</u> 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). Dornoch 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		• Between October to March lighting will kept to a minimum • Should hydro-demolition work be required between October to March then it will only be carried out between the hours of 08:00 to 18:00. • Should hydro-demolition work be required between October to March then it will be preceded by a ‘soft start’ in general activities, thus allowing a ‘ramping-up’ of noise levels. • Where reasonably practicable, workers will avoid accessing the intertidal shores around the bridge at all times of the year. • If works are required to be carried out overnight the most disruptive activities will be scheduled for the earlier part of the evening. • Site personnel will be required to be vigilant for the presence of otters on site and should they be seen, work will be immediately stopped in the vicinity and the supervisor informed who will then seek specialist advice. • Where machinery is left on site overnight, it will be checked at the start of each shift for the presence of otter. Should they be seen, work will be immediately stopped in the vicinity of the machinery and the supervisor informed who will then seek specialist advice. The following mitigation is also proposed to protect otters within the vicinity of the Dornich bridge, but not necessarily to protect the integrity of the Dornoch Firth and Morrich More SAC & Dornoch Firth and Loch Fleet Ramsar: • 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.

	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 inputs from the River Carron, River Cassley, River Oykel, River Shin and the River Evelix.		
Cultural Heritage and Material Assets	There are no Scheduled Monuments or Listed Buildings within 300 m of the scheme. There are a few Canmore and Historic Environment Record (HER) sites of cultural heritage interest within 300m of the scheme, including the Dornoch Firth Bridge itself which is recorded on Canmore and the HER.	The 5 year maintenance programme is ultimately designed to maintain the structural and cultural integrity of the Dornoch Bridge. The concrete repairs, expansion joint renewal, parapet replacement and bearing renewal schemes will protect the structural integrity of the bridge and is likely to result in a minor significant positive impact through maintaining the cultural heritage of the bridge. A minor positive significant impact is anticipated on cultural heritage and material assets during the operation phase. This will be agreed with the local heritage officer prior to each phase of work.	• Confine work related activities to the existing footprint of the scheme. • The site will be left clean and tidy following all schemes and cyclic maintenance activities.
Landscape	The scheme is located within the Dornoch Firth National Scenic Area (NSA). The Special Qualities of the NSA are: ▪ The contrast between the enclosed west and the expansive east; ▪ Inhabited surrounds within a wilder backdrop of hills and moors; ▪ A wide diversity of woodland cover; ▪ A rich variety of alluvial lands, dunes and links; ▪ The ever-changing firth; ▪ The tranquillity of an undeveloped coastline; ▪ Migdale, a microcosm of the wider Dornoch Firth. The surrounding landscape is characterised by expansive views over the firth to the east and views of surrounding low hills to the north, south and 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. Due to the nature of the works and location of the site there is minimal vegetation removal expected as a result of the works.	• 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 compound will likely take place entirely on the trunk road with a land closure and layby use; • 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 use	The Dornoch Firth water body surrounds the road bridge. Surrounding land predominately comprises agricultural land with rough grazing, some woodland and plantation forestry.	There will be no change in land use as a result of the schemes, cyclic maintenance and inspections included in the 5 year maintenance programme. No significant impacts are anticipated on land use during the construction, maintenance periods or operation phase.	None required.
Noise	No information is available for the scheme location on the Scottish Noise Mapping website. 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. Fighter planes regularly fly over the Dornoch Firth for training purposes generating intermittent high noise levels. There are a few sensitive receptors within 500m of the bridge, including residential properties and businesses.	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 Dornoch 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.
Population and Human Health	There is a footway on each side of the bridge. There is no designated footpaths cycleways along the northern and southern causeway approaches to the bridge Cyclists are likely to use the carriageway to cross the Dornoch Firth. Pedestrians may use the bridge to cross the Dornoch Firth. It is unlikely that equestrians use the bridge due to the volume and speed of traffic. The Sustrans website shows an on-road cycle route, i.e. National Cycle Network (NCN) Route 1 approximately 1 km south of the scheme. It runs along the A9 and A836 and does not go over the Dornoch Firth Bridge (refer to Figure F1 in Appendix F). The A9 is a major road which runs for 269 miles from Polmont, Falkirk to Scrabster. It is used by local, commuters, commercial and tourist traffic. National speed limit applies at scheme extents.	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 Dornoch 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. 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 A9. Emergency vehicles will have access through the works at all times.	• The needs of NMU traffic will be considered within the design of the Traffic Management Plan; and • NMU access over the Dornoch 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 travellers; • Traffic will be controlled by temporary traffic lights, allowing vehicles to continue to use one lane of Dornoch 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 Dornoch Firth Road Bridge carries the A9 over the Dornoch Firth (ID: 200165) transitional water body. This was classified by the Scottish Environment Protection Agency (SEPA) in 2016 as being at Good status. The bridge crosses three groundwater bodies; land to the immediate south of the bridge overlies the Tain Coastal groundwater (ID: 150787) which was classified by SEPA in 2016 as being at Poor status. This poor status exists from an impact on water quality due to a diffuse source by rural sources. Public bodies and land managers are working together to find a solution. Further south the bridge overlies the Invergordon (ID: 150679) groundwater body, classified by SEPA as having good overall status as of 2016.The land immediately north of the bridge overlies the Dornoch Coastal groundwater north (ID: 150778) classified by SEPA in 2016 as being at Good status. Road drainage on the north and south causeway approaches to the bridge is via filter drains. There are side-entry gullies at the layby on the southern causeway approach to the bridge whilst the layby along the northern causeway is drained by filter drains. Drainage on the bridge is via side-entry gullies. The SEPA Flood Map does not show a risk of fluvial or surface water flooding in the immediate vicinity of the scheme. In the general vicinity, the risk of coastal flooding tends to be restricted to the immediate vicinity of the coastline with some localised risk of flooding above the usual high water levels.	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: Pollution incident response planning; • In the event of a pollution incident occurring, SNH, 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.
Soils and Geology	The Dornoch Bridge does not sit within or in close proximity to any site statutorily designated for geological interests. Bedrock geology at the north and southern sides of the bridge is recorded as Middle Old Red Sandstone, comprising conglomerate, sandstone, siltstone and mudstone. This is sedimentary bedrock formed approximately 385 to 398 million years ago in the Devonian Period. It indicates a local environment that was previously dominated by rivers and alluvial fans. Source: British Geological Survey. Superficial geology is not recorded at this location. (http://mapapps.bgs.ac.uk/geologyofbritain/home.html) .	It is unlikely that there will be any significant impacts on soils and geology during cyclic maintenance or investigation activities since the works will take place on an existing structure in the marine environment. Mitigation detailed within the Water section will minimise the risk of potential contamination of soils and geology through spillages.	• None required
Waste, Materials and Use of Natural Resources	Drainage cleaning Waste from the drainage system will be removed by a gully vacuum truck and disposed of at licenced waste disposal facility. Bird guano removal	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;

	Bird guano will be double bagged to prevent spillage and removed off site for disposal to landfill. Cleaning and pressure washing superstructure Cleaning of superstructure is required to remove marine salts from the structure so will not require removal from site. Water required for pressure washing the bridge will be taken from an existing watermain running the length of the underside of the bridge. Volumes will amount to approximately 15,000 litres a day. Concrete repairs After mortar works, any residual concrete washwater must be collected and removed from site as special contaminated water. Parapet repairs Waste materials from the replacement will include the old parapets themselves as well as debris from the works. Protection will be provided in the form of edge and debris netting to limit waste entering the marine environment. Bearing renewal Some waste material in the form of debris may result from the replacement of the bearings. Debris netting will be used to minimise waste material from entering the marine environment. Expansion joint renewal Waste materials from the replacement will include the old expansion joints themselves as well as debris from the works. Protection will be provided in the form of edge and debris netting to limit waste entering the marine environment. Resurfacing Road planings will be re-used or recycled under a SEPA Paragraph 13(a) waste exemption.		• 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.
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		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 A9 Dornoch Bridge

APPENDIX B: AIR AND CLIMATE

Figure B1: Area to the north of the bridge showing nearest property - Cuthill

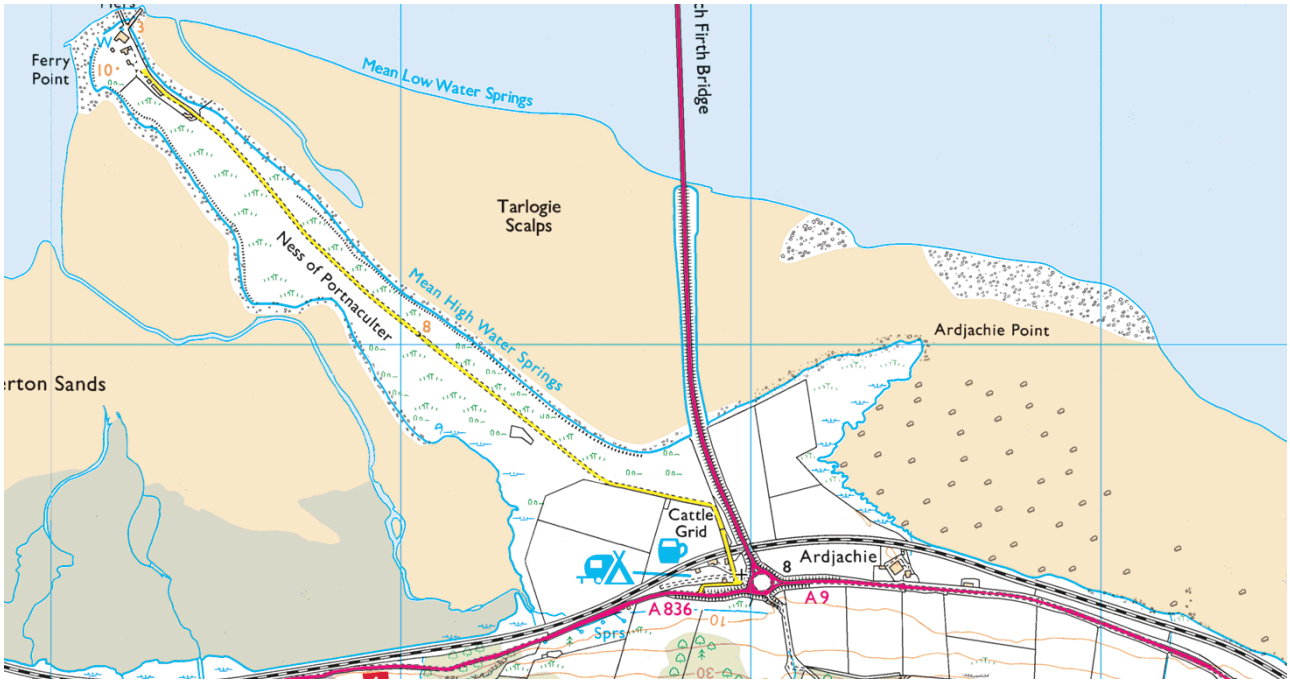

Figure B2: Area to south of the bridge showing nearest properties including Ardjachie

APPENDIX C: CULTURAL HERITAGE AND MATERIAL ASSETS

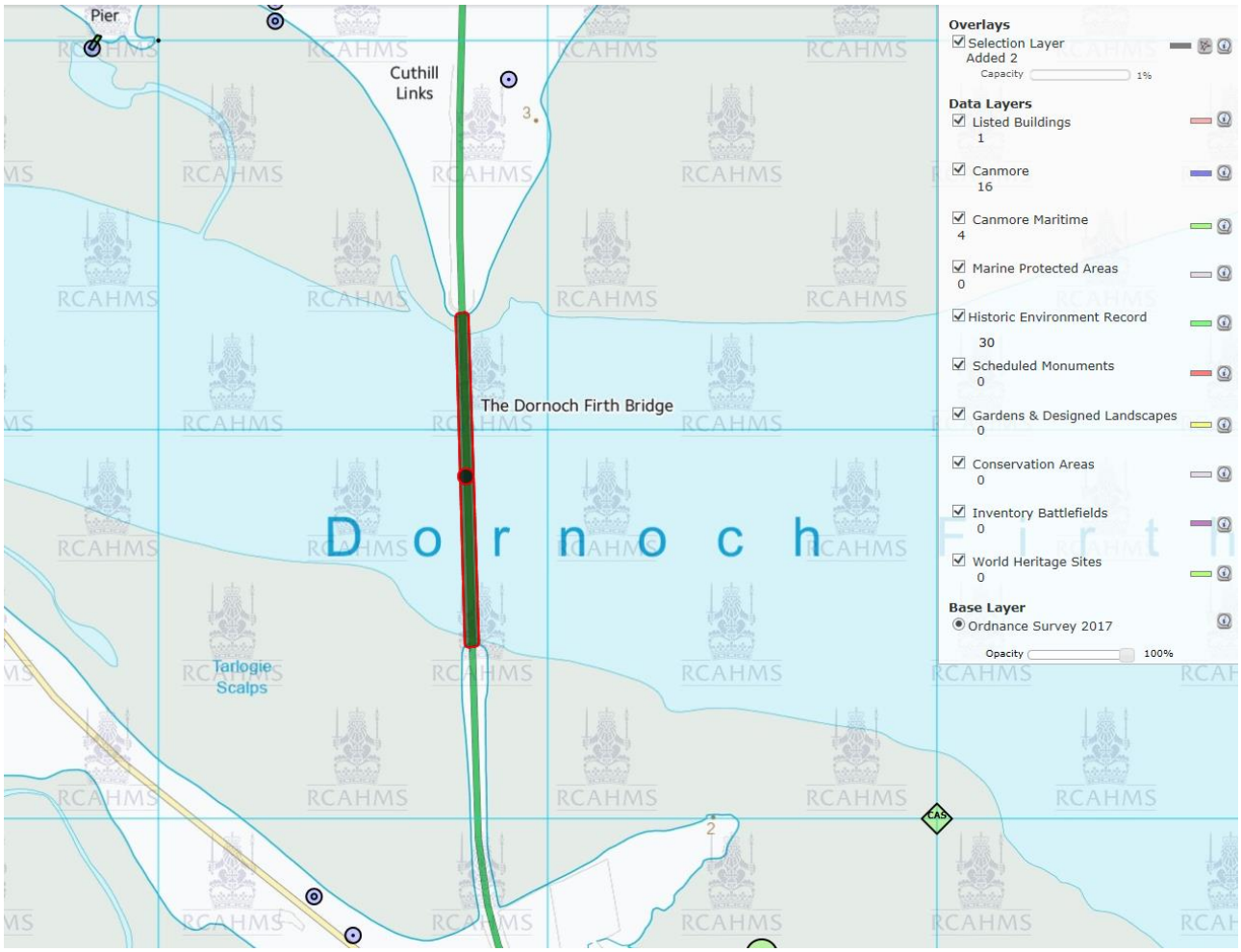

Figure C1: Sites of cultural heritage interest recorded on PastMap within 300 m of scheme

Table C1: Sites of cultural heritage interest recorded on PastMap within 300 m of scheme

Dataset	Dataset UID	Name	OS NGR	Classification
HERHIGHL	MHG11616	Dornoch Firth Bridge	Not given	BRIDGE
RCAHMS	76115	DORNOCH, FIRTH BRIDGE	NH 74790 85880	ROAD BRIDGE (20TH CENTURY). ALTNAME = DORNOCH FIRTH BRIDGE

APPENDIX D: BIODIVERSITY

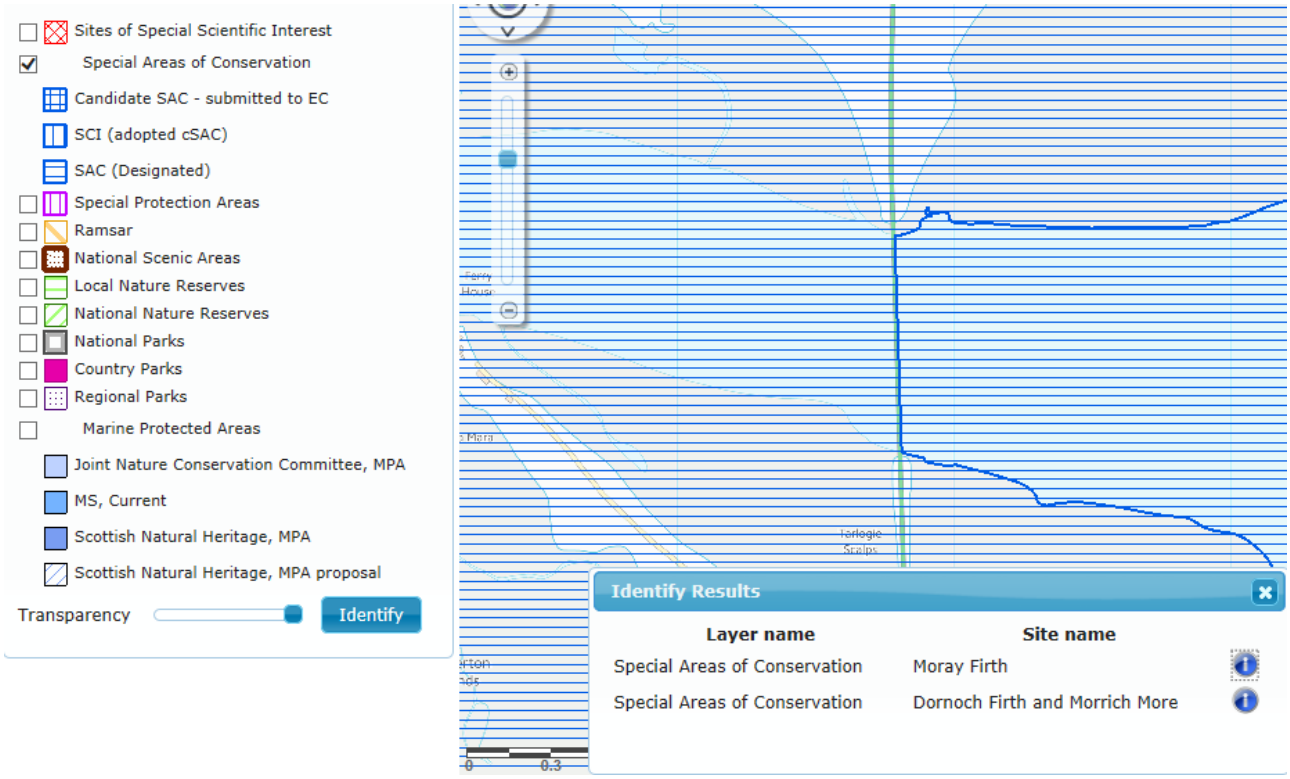

Figure D1: Dornoch Firth and Morrich More SAC and Moray Firth SAC as shown on SNH Sitelink website

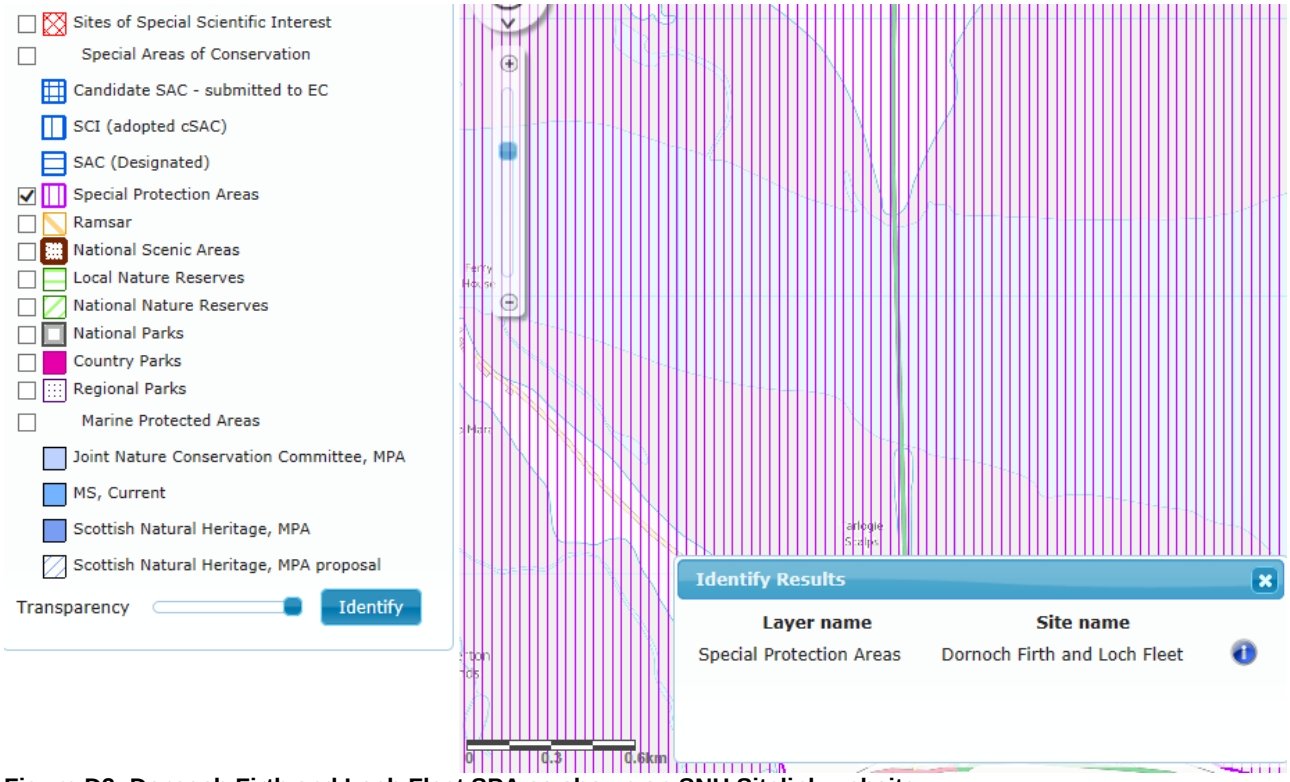

Figure D2: Dornoch Firth and Loch Fleet SPA as shown on SNH Sitelink website

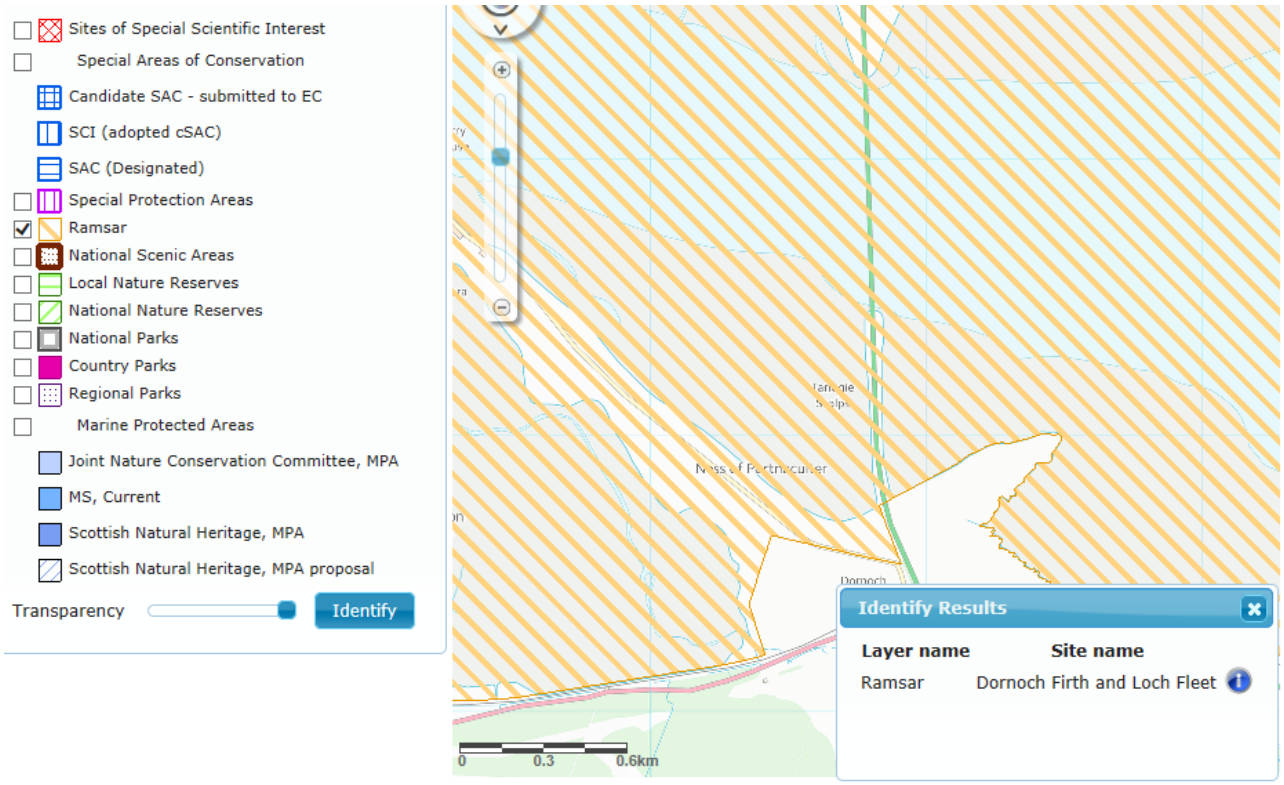

Figure D3: Dornoch Firth and Loch Fleet Ramsar as shown on SNH Sitelink website

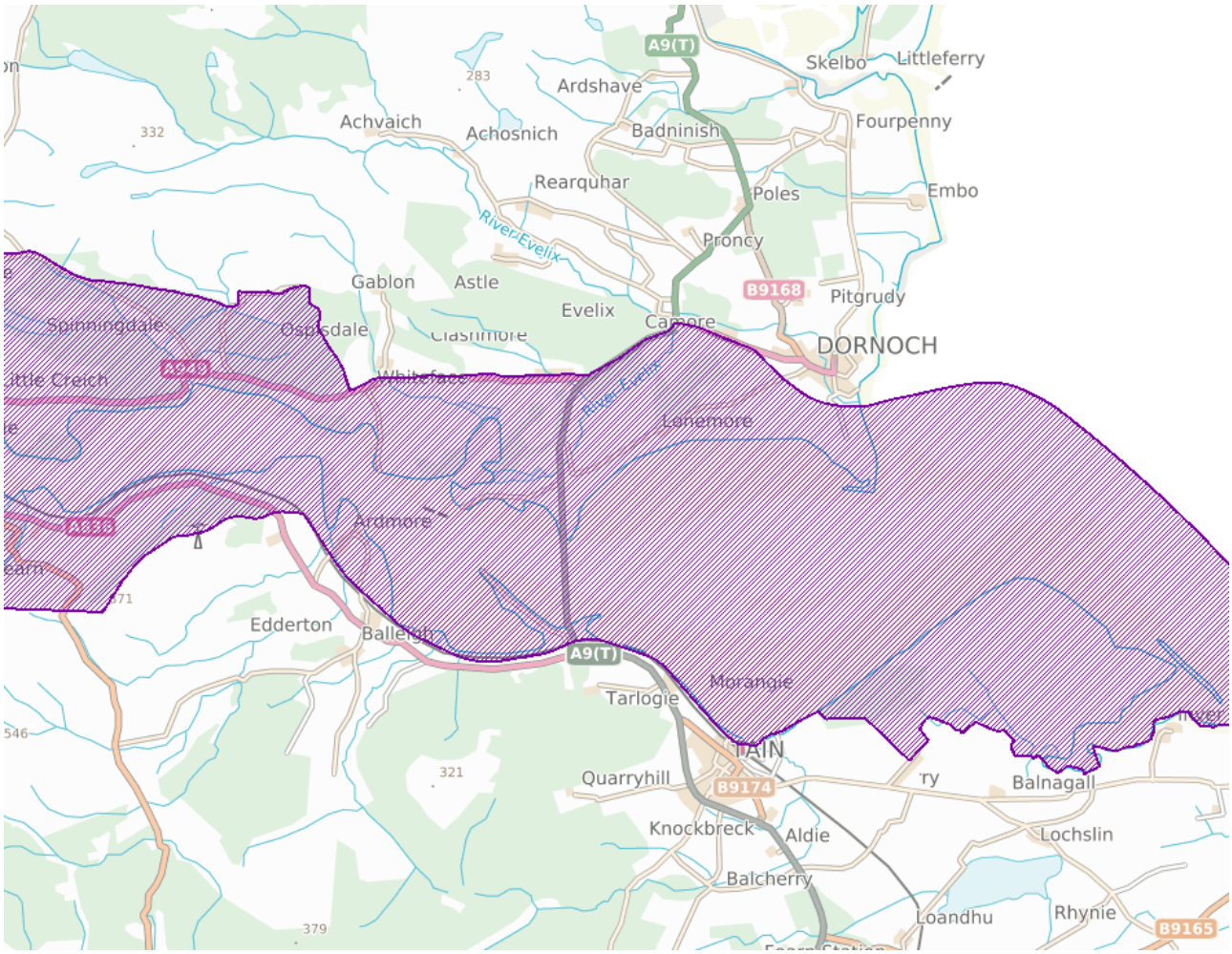

Figure D4: Location of the Dornoch Firth National Scenic Area (NSA). Source: Scotland's Environment

Table D1: Several species of conservation interest are recorded on the National Biodiversity Network (NBN) Atlas. The following listed data has licences labelled as CC0 or CC-BY and the data provider for each species. The search results display a 5 km radius of the scheme, including:

Taxon Name	Common Name	Taxon Group	Licence	Data provider
Anguilla anguilla	European eel	Fish	CC-BY	Highland Biological Recording Group
Salmo salar	Atlantic salmon	Fish	CC-BY	Biological Records Centre
Salmo trutta	Brown/sea trout	Fish	CC-BY	Biological Records Centre
Halichoerus grypus	Grey seal	Marine mammal	CC-BY	Highland Biological Recording Group
Phoca vitulina	Harbour seal	Marine mammal	CC-BY	Highland Biological Recording Group
Vipera berus	Adder	Reptile	CC-BY	Highland Biological Recording Group
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	Bat Conservation Trust
Pipistrellus pipistrellus	Common pipistrelle	Terrestrial mammal	CC-BY	Bat Conservation Trust

Pipistrellus pygmaeus	Soprano pipistrelle	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	Scottish Wildlife Trust

Table D2: Invasive non-native species recorded on the NBN Atlas within 5 km of the centre of the scheme

Taxon Name	Common Name	Taxon Group	Licence	Data provider
Neovison vison	American mink	Terrestrial mammal	CC-BY	Highland Biological Recording Group

APPENDIX E: CONSULTATION

Summary of Consultation

Consultee	Consultee Response	Addressing Concerns
Scottish Natural Heritage (SNH)	Generally agree with our conclusions of potential LSE. Highlighted that the main potential impact broadly on overwintering birds and otter.	Any significant change to the scope of the works will be communicated to SNH.
Marine Scotland Licensing Operations Team (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.
Kyle of Sutherland District Salmon Fisheries Board (KoSDSFB)	No further response after initial consultation.	Robust good practice and management measures have been put in place to protect the water environment.

Copy of correspondence with Redacted **, SNH, 07/03/2018**

From: Redacted
Sent: 15 March 2018 17:18
To: SOUTH_HIGHLAND
Cc: Redacted
Subject: A9 Dornoch Bridge 5 year Marine Licence - pre-application HRA consultation

Good afternoon,

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

Description of Works

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

Designated sites

1. Moray Firth Special Area of Conservation (SAC) – qualifying interests of:
    - Subtidal sandbanks,
    - Bottlenose dolphin (Tursiops truncatus)

2. Moray Firth proposed marine (SPA) – qualifying interests of:
    - European shag (*Phalacrocorax aristotelis*), breeding & non-breeding;
    - Common eider (*Somateria mollissima*), non-breeding;
    - Common goldeneye (*Bucephala clangula*), non-breeding;
    - Common scoter (*Melanitta nigra*), non-breeding;
    - Great northern diver (*Gavia immer*), non-breeding;
    - Greater scaup (*Aythya marila*), non-breeding;
    - Long-tailed duck (*Clangula hyemalis*), non-breeding;
    - Red-breasted merganser (*Mergus serrator*), non-breeding;
    - Red-throated diver (*Gavia stellata*), non-breeding;
    - Slovonian grebe (*Podiceps auritus*), non-breeding;
    - Velvet scoter (*Melanitta fusca*) , non-breeding.

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

4. Dornoch Firth and Loch Fleet SPA – qualifying interests of:
    - Bar-tailed godwit (*Limosa lapponica*), non-breeding (favourable maintained);
    - Curlew (*Numenius arquata*), non-breeding (favourable maintained);
    - Dunlin (*Calidris alpina alpina*), non-breeding (favourable declining);
    - Greylag goose (*Anser anser*) non-breeding (favourable maintained);
    - Osprey (*Pandion haliaetus*), breeding (favourable maintained);
    - Oystercatcher (*Haematopus ostralegus*), non-breeding (favourable maintained);
    - Teal (*Anas crecca*), non-breeding (favourable maintained);
    - Waterfowl assemblage, non-breeding (favourable maintained); and
    - Wigeon (*Anas penelope*) (favourable maintained).

5. Dornoch Firth and Loch Fleet Ramsar – qualifying interests of:
    - Bar-tailed godwit (*Limosa lapponica*), non-breeding (Favourable Maintained);
    - Greylag goose (*Anser anser*), non-breeding (Favourable Maintained);
    - Harbour seal (*Phoca vitulina*);
    - Intertidal mudflats and Sandflats (Favourable Maintained);
    - Invertebrate assemblage;
    - Otter (*Lutra lutra*);
    - Reefs (Favourable Maintained);
    - Saltmarsh (Favourable Maintained);
    - Sand dune (Unfavourable Declining);
    - Vascular plant assemblage;
    - Waterfowl assemblage, non-breeding (Favourable Maintained);
    - Wet woodland (Unfavourable Declining);
    - Wigeon (*Anas penelope*), non-breeding Favourable Maintained).

6. River Evelix SAC – qualifying interests of:
    - Freshwater pearl mussel (*Margaritifera margaritifera*)

7. River Oykel SAC – qualifying interests of:
    - Freshwater pearl mussel (*Margaritifera margaritifera*) (Unfavourable No change);
    - Atlantic salmon (*Salmo salar*) (Favourable Recovered).

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

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

Kind regards,

Reda

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

From: Redacted
Sent: 16 April 2018 12:46
To: Redacted
Cc: Redacted
Subject: RE: A9 Dornoch Bridge 5 year Marine Licence - pre-application HRA consultation

Dear Reda

Many thanks for your e-mail below.

We offer the following advice:

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

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

Best regards,

Re

Redacted **Operations Officer**
Scottish Natural Heritage | Dingwall | Fodderty Way | Dingwall Business Park | Dingwall | IV15 9XB | Redacted
Inbhir Pheofharain | Slighe Fhodhraitidh | Pàirc Gnothachais | Inbhir Pheofharain | Inbhir Pheofharain | IV15 9XB
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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 Redacted 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

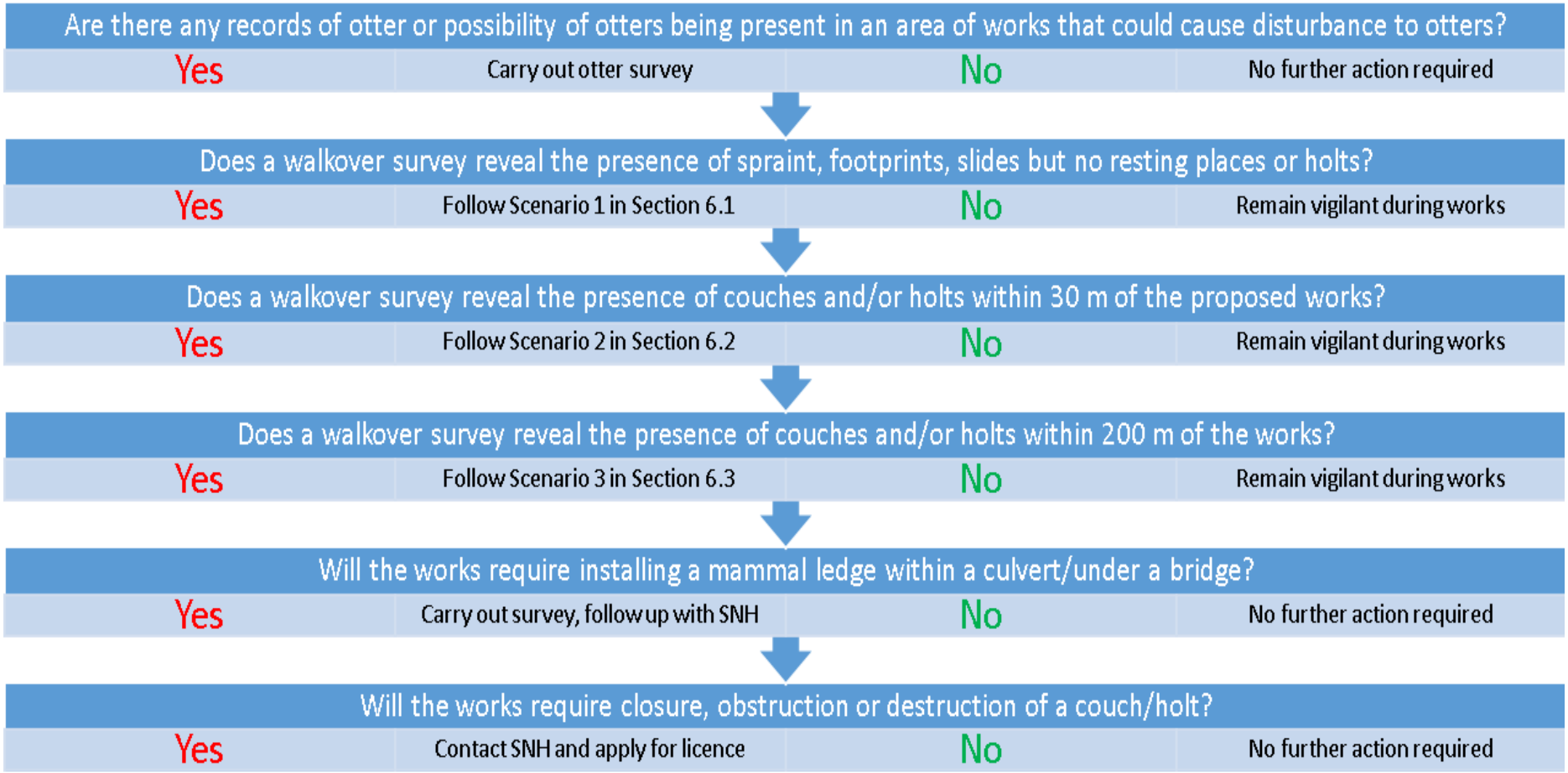
Authorised on behalf of Scottish Natural Heritage by: Redacted **Date: 10-APR-2018**

BEAR Scotland NW Trunk Roads Operations and Otters:

An Otter Species Protection Plan

Contents

Flow Diagram Showing Decision Process



• 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*).

○ 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.

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

○ 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).

• 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.

○ 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.

○ 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.

• 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 Environmental Manager	BSc.(Hons) MSc. MCIEEM, CEnv	62278
Redacted	BSc. (Hons), HND with Distinction	57786
Redacted	BSc. (Hons) MRes, Associate Member IFM, Pending Associate Member CIEEM	Agent on 62278
Redacted	BSc. (Hons) MSc. Pending Graduate Member CIEEM	Agent on 62278

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

• Survey and Site Assessment

○ 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.

○ 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.

○ 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 0.1 Spraint on rock near Onich

Figure 0.2 Otter footprints in wet sand

Figure 0.3 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 0.4 Otter leaving holt on Skye, camera trapped under licence 62278

• 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.

• 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.

- **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.

- **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.

- **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.

• 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.

• 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.**

• 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.

References

Chanin P. (2003). *Monitoring the Otter Lutra lutra.* Conserving Natura 2000 Rivers Monitoring Series No. 10, English Nature, Peterborough.

http://www.snh.org.uk/publications/on-line/wildlife/otters/law.asp

JNCC and Defra (on behalf of the Four Countries' Biodiversity Group). 2012. *UK Post-2010 Biodiversity Framework.* July 2012. Available from: http://jncc.defra.gov.uk/page-6189.

Kruuk, H. (2006). *Otters: Ecology, behaviour and conservation*. Oxford University Press.

The Highways Agency (2001a) *Nature Conservation Advice in relation to otters.* DMRB, Volume 10 Environmental Design and Management, Section 4 Nature Conservation, Part 4 HA 81/99. The Highways Agency .

APPENDIX G: Likely significant effect screening matrix

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

Dornoch Firth and Loch Fleet SPA	Birds - aggregations of breeding birds	Osprey (*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 Firth, According to SNH the nearest known nest site is over 2km away. Likelihood that birds will be accustomed to existing level of disturbance from traffic on the trunk road. Any effects on foraging are not likely to be significant because of the large expanse of the Dornoch Firth which offers ample foraging opportunities away from the bridge. LSE unlikely.	None known.
	Birds - aggregations of non- breeding birds	Bar-tailed godwit (*Limosa lapponica*), Curlew (*Numenius arquata*), Dunlin (*Calidris alpina alpina*),Greylag goose (*Anser anser*), Oystercatcher (*Haematopus ostralegus*), Teal (*Anas crecca*), Wigeon (*Anas penelope*) Waterfowl assemblage.	Disturbance from noise, proximity of people, machinery. Pollution.	Uncertain	Yes	Maintenance programme will include parapet repairs, hydrodemolition and pressure-washing the bridge. Containment measures will be used to prevent pollution reaching the aquatic environment and sediments.Main roost sites for waders is 800m away but some smaller sites are located closer. LSE on wading birds unlikely, but screened in as a precaution. Likelihood that birds will be accustomed to existing level of disturbance from traffic on the trunk road. LSE unlikely but screened in as a precaution.	None known.
Dornoch Firth and Loch Fleet Ramsar	Habitats	Intertidal mudflats and sandflats, Reefs, Saltmarsh, Sand dune, wet woodland.	Pollution.	No	No	Concrete, parapet and bearing renewals are planned as part of the 5 year maintenance programme. These activities will be confined to bridge itself. Theses activities are likely to be small scale and unlikely to cause LSE on the habitats due to distance from works.	None known.

	Birds - aggregations of breeding birds	Osprey (*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 Firth, According to SNH the nearest known nest site is over 2km away. Likelihood that birds will be accustomed to existing level of disturbance from traffic on the trunk road. Any effects on foraging are not likely to be significant because of the large expanse of the Dornoch Firth which offers ample foraging opportunities away from the bridge. LSE unlikely.	
	Birds - aggregations of non- breeding birds	Bar-tailed godwit (*Limosa lapponica*), Curlew (*Numenius arquata*), Dunlin (*Calidris alpina alpina*), Greylag goose (*Anser anser*), Oystercatcher (*Haematopus ostralegus*), Redshank (*Tringa totanus*), Scaup (*Aythya marila*), Teal (*Anas crecca*), Waterfowl assemblage, Wigeon (*Anas penelope*).	Disturbance from noise, proximity of people, machinery, vessels. Pollution.	Uncertain	Yes	Maintenance programme will include parapet repairs, hydrodemolition and pressure-washing the bridge. Containment measures will be used to prevent pollution reaching the aquatic environment and sediments.Main roost sites for waders is 800m away but some smaller sites are located closer. LSE on wading birds unlikely, but screened in as a precaution. Likelihood that birds will be accustomed to existing level of disturbance from traffic on the trunk road. LSE unlikely but screened in as a precaution.	None known.
	Invertebrate assemblage	Invertebrate assemblage	Pollution	No	No	Works are considered to have little effect on invertebrates. With the implementation of pollution prevention measures as described above, there is low potential for LSE on invertebrate assemblage.	None known.
	Marine mammals	Harbour seal (*Phoca vitulina*)	Little distrubance anticipated as all maintenance works will be on the bridge itself, with no requirement for working underwater. Possible pollution issues from debris and concrete wash out.	No	No	Based on information from SNH, the nearest known seal haul out is over 2 km from the works location. This is sufficiently distant from the works for seals using the haul out not to be affected by the works activities. The works do not entail working underwater so noise transmission through the water will be low.	None known.

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

River Oykel	Invertebrates	Freshwater pearl mussel (*Margaritifera margaritifera*)	Indirect effects as a result of numbers of salmon potentially not returning to River Oykel SAC.	Uncertain	Yes	Freshwater pearl mussels require the presence of salmon (and trout) for the early stages of their lifecycle. There is connectivity in this case since salmon migrate through the Dornoch Firth to return to their natal river to spawn. Mitigation measures to prevent pollution are proposed, including implementing debris netting, combi safe and edge protection installed, CAR licence will be in place for hydrodemolition. With these measures in place, LSE on FWPM is unlikely.	None known.
	Fish	Atlantic salmon (*Salmo salar*)	Pollution. Disturbance during salmon migration.	Uncertain	Yes	Freshwater pearl mussels require the presence of salmon (and trout) for the early stages of their lifecycle. There is connectivity in this case since salmon migrate through the Dornoch Firth to return to their natal river to spawn. Mitigation measures to prevent pollution are proposed, including implementing debris netting, combi safe and edge protection installed, CAR licence will be in place for hydrodemolition. With these measures in place, LSE on Atlantic salmon is unlikely.	None known.
Moray Firth proposed marine SPA	Birds	European shag (*Phalacrocorax aristotelis*), breeding & non-breeding; Common eider (*Somateria mollissima*), non-breeding; Common goldeneye (*Bucephala clangula*), non-breeding; Common scoter (*Melanitta nigra*), non-breeding; Great northern diver (*Gavia immer*), non-breeding; Greater scaup (*Aythya marila*), non-breeding; Long-tailed duck (*Clangula hyemalis*), non-breeding; Red-breasted merganser (*Mergus serrator*), non-breeding; Red-throated diver (*Gavia*	Disturbance from noise and proximity of people, machinery. Pollution.	No	Yes	Maintenance programme will include parapet repairs, hydrodemolition and pressure-washing the bridge. Containment measures will be used to prevent pollution reaching the aquatic environment and sediments.Main roost sites for waders is 800m away but some smaller sites are located closer. LSE on wading birds unlikely, but screened in as a precaution. Likelihood that birds will be accustomed to existing level of disturbance from traffic on the trunk road. LSE unlikely but screened in as a precaution.	None known.

		stellata), non-breeding; Slovonian grebe (*Podiceps auritus*), non-breeding; Velvet scoter (*Melanitta fusca*) , non-breeding.					