



Appendix C

Supporting Information

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1.0 Introduction

Connel Bridge is a 224m long riveted steel truss structure, consisting of two cantilever sections carried on raking 'A' frame main legs supporting a suspended through truss span. It carries the A828 over the mouth of Loch Etive and is located approximately 5 miles north east of Oban, Argyll. Completed in 1903, the bridge is a Category 'B' listed structure. Two 46m long 3-span masonry arch viaducts are located either side of the steel structure.



The bridge was completed in 1903 as a railway crossing and has since been subject to a number of alterations with the bridge currently being open to one lane of traffic on a composite steel and concrete deck. As part of the NMC NW contract with Transport Scotland for the management and maintenance of the Scottish trunk road network, BEAR Scotland (NW Unit) are responsible for maintenance and improvement schemes on the bridge.

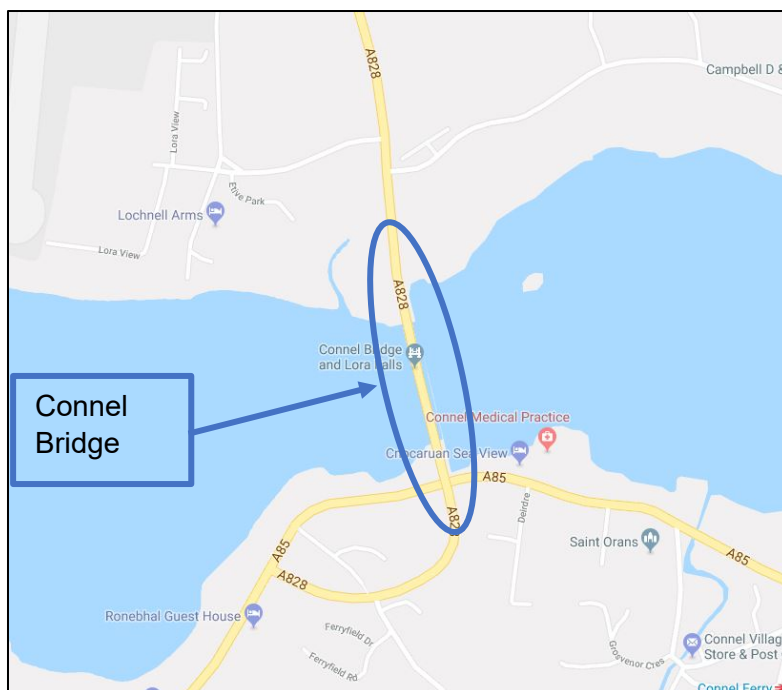


Figure 1: Connel Bridge Location

2.0 Programme of Works

Below are details of the engineering work to be included in the next Marine Licence submission. The proposed works are classified as a Scheme (one off engineering works) or Routine (regular maintenance works) and are currently identified in the 10-year programme of works for Connel Bridge. All engineering works have been provided with an estimate of the construction period, the value and location of the works to be carried out along with a brief outline description of the works, an outline method statement and proposed mitigation measures related to the protection of the Marine Environment.

In 2023, a steel cantilever walkway was installed to the external face of the East elevation of the bridge between spans 2, 3 and 4. This installation is to allow unhindered pedestrian use of the bridge during the proposed bridge deck replacement scheme and details of this work were included in the previous Marine Licence. Maintenance and repair of the cantilever walkway is to be included for in the list of maintenance and repair schemes listed below.

The works methodologies described below are designed to prevent any material or equipment entering the marine environment. It should be noted that additional measures may be needed and these will be confirmed with the contractor prior to works commencing. In the case of any dimensional constraints from access platforms to the highway/private land/over the marine environment - consideration/liaison will be carried out with stakeholders where required

Excerpts of engineering drawings of the structure referred to in the document below.

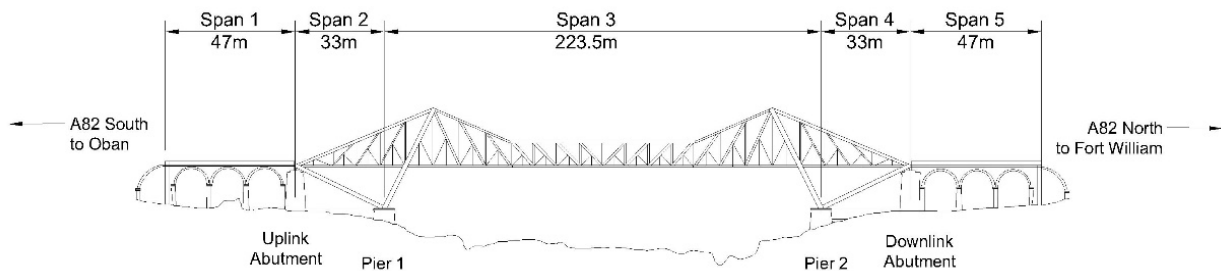


Figure 2: East Elevation of Structure

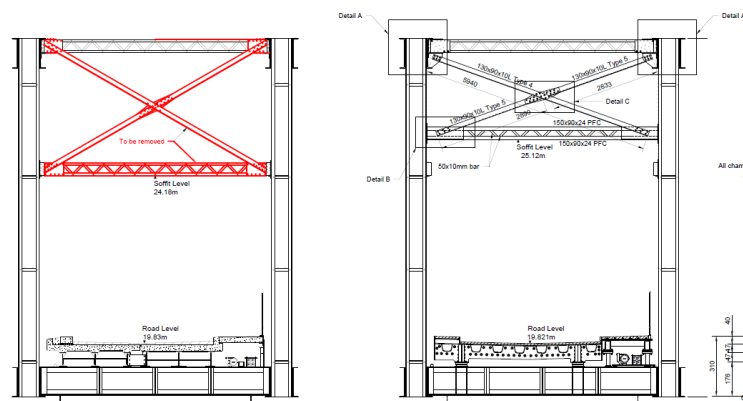


Figure 3: Existing and proposed Cross Section through the bridge deck showing the existing bridge deck /overhead cross girders and the proposed bridge deck /overhead cross girders.

3.0 Scheme Programme of Works

Deck Replacement Scheme	
Included in Previous Marine Licence:	Yes – Marine Licence Variation 2021
Construction Period and working times.	2024-2025. 24hr working.
Estimated Construction Value:	£5.5M
Location on Structure:	Bridge Deck at span 2, 3 and 4
Description of the Works:	Remove existing sub-standard bridge deck and replace with pre-assembled deck panels. Some preparation and painting may be required as part of this work.
Plant and Equipment:	Access platform, Generators, hose lines for grit and paint, handheld grit-blasting equipment, needle guns, handheld paint abrading tools, grit and grit recycling containers, paint spray guns, rollers, brushes., Self-Propelled Modular Trailer (SPMT), lifting jacks, steel erection tools, shear wrenches.
Outline Method Statement:	<ol style="list-style-type: none"> 1. Install access platform, 2. Divert existing utilities/services, 3. Prepare and lift out existing deck panels using SPMT. Where required, steelwork to be cut, welds ground out and bolts/rivets removed, 4. Lower new deck panels into place using SPMT and install using welded and bolted connections, 5. Carry out paint preparation and painting where required, 6. Connect utilities and services and any ancillary electrical equipment, 7. Install surfacing to deck, 8. Remove access platform.
Proposed Mitigations:	<ol style="list-style-type: none"> 1. All painting/grit-blasting will be carried out within fully encapsulated platforms, 2. Access platforms will be designed and all works methodologies ensured to prevent materials or equipment entering marine environment.
Materials/ Waste	Paint testing to be carried out prior to planning works to inform Risk Assessment and Method Statement for paint removal and disposal. All grit from blasting operations will be either re-used or disposed of off-site by licenced waste carriers. The existing bridge deck comprises concrete and steel and will be removed off site for recycling/disposal.

Overhead Bracing modification Scheme	
Included in Previous Marine Licence:	Yes – Marine Licence Variation 2021
Construction Period and working times.	2025-2026. 24hr working.
Estimated Construction Value:	£2M
Location on Structure:	Beams and bracing crossing the carriageway above the bridge deck on spans 2, 3 and 4.
Description of the Works:	Install steel beams and bracings above existing cross members. Remove existing beams and bracings which are classed to be within the low headroom envelope. Some preparation and repainting works will be required as part of this work.
Plant and Equipment:	Access Platform, Generators, hose lines for grit and paint, handheld grit-blasting equipment, needle guns, handheld paint abrading tools, grit and grit recycling containers, paint spray guns, rollers, brushes, lifting hoists, steel erection tools, shear wrenches.
Outline Method Statement:	<ol style="list-style-type: none"> 1. Install access platforms, 2. Divert any existing electrical or service cabling, 3. Install new bracing/steelwork in phased manner working across the structure. 4. Prepare and remove existing bracing/steelwork, 5. Carry out paint preparation and painting where required to new steelwork and surrounding connecting steelwork, 6. Connect utilities and services and any ancillary electrical equipment, 7. Remove access platform.
Proposed Mitigations:	All painting/grit-blasting will be carried out within fully encapsulated protective shelters, ensuring that all overspray is enclosed.
Materials/ Waste	Paint testing to be carried out prior to planning works to inform Risk Assessment and Method Statement for paint removal and disposal. All grit from blasting operations will be either re-used or disposed of off-site by licenced waste carriers. Removed steel and other construction elements will be transported off site for recycling/disposal.

Bridge Painting Scheme	
Included in Previous Marine Licence:	Yes - 2018
Construction Period and working times.	2026-2027. 24hr working.
Estimated Construction Value:	£5M
Location on Structure:	Steelwork throughout full structure
Description of the Works:	The paint on the bridge has reached the end of its working life and is no longer providing adequate protection to the steelwork. This is to be removed and replaced. The existing paint system will be removed by grit-blasting back to bare steel and a new paint system applied. Works will be carried out from access platforms which will be positioned across the structure in a phased manner.
Plant and Equipment:	Access platform, encapsulation sheeting and boarding, Generators, hose lines for grit and paint, handheld grit-blasting equipment, needle guns, handheld paint abrading tools, grit and grit recycling containers, paint spray guns, rollers, brushes.
Outline Method Statement:	<ol style="list-style-type: none"> 1. Install temporary access platform to the bridge, 2. Install full encapsulation to the platform, 3. Grit-blast the steelwork, 4. Remove grit and waste material, 5. Paint steelwork, 6. Move access platform to the next section and repeat steps 2 to 5.
Proposed Mitigations:	All painting/grit-blasting will be carried out within fully encapsulated access platforms, ensuring that all waste material and paint application is enclosed.
Materials/ Waste	Paint testing to be carried out prior to planning works to inform Risk Assessment and Method Statement for paint removal and disposal. All grit from blasting operations will be either re-used or disposed of off-site by licenced waste carriers.

Scour repair	
Included in Previous Marine Licence:	Yes - 2018
Construction Period and working times.	This work is not envisaged currently. 24hr working.
Estimated Construction Value:	This work is not envisaged currently
Location on Structure:	Pier bases
Description of the Works:	These works are not envisaged, though have been included in case of future deterioration where repairs are required. Depending on the results of surveys, scour protection may be required within the next couple of years. These works involve using Jack-up Barges with excavators on them to place scour protection (usually large rocks/rock armour loose or bagged) around the pier pile caps.
Plant and Equipment:	Barges, access platforms, excavators
Outline Method Statement:	<ol style="list-style-type: none"> 1. Install Jack-up Barge to required pier location, 2. Excavate around pier(s), 3. Dispose of material, 4. Install geotextile, 5. Place rock armour around piers, 6. Remove Barge.
Proposed Mitigations:	All armour rock will be washed and cleaned prior to installation to ensure that no contaminants are brought into contact with the marine environment.
Materials/ Waste	None envisaged at this stage.

Structural Health Monitoring System Installation or maintenance	
Included in Previous Marine Licence:	No
Construction Period and working times.	2024/2025. 24hr working.
Estimated Construction Value:	£50,000

Location on Structure:	Throughout full structure
Description of the Works:	Installation and maintenance of monitoring devices to provide real time monitoring of the structures condition, local water levels and climate conditions.
Plant and Equipment:	Access platforms, rope access, handheld drills, tools and shear wrenches.
Outline Method Statement:	<ol style="list-style-type: none"> 1. Set up Traffic Management and access platforms or Barges where required, 2. Fix monitoring device to structure, 3. Install cabling and power/data connections, 4. Remove any Traffic Management and access platforms.
Proposed Mitigations:	Work to be carried out will be planned to ensure that tools and materials are contained and not able to enter the marine environment.
Materials/ Waste	Electrical and network cabling required for devices connection to be attached to the structure. Any removed equipment will be reused or recycled (where possible)by a licensed facility.

Repair/removal of existing gantry or rails	
Included in Previous Marine Licence:	No
Construction Period and working times.	This work is not envisaged currently. 24hr working.
Estimated Construction Value:	This work is not envisaged currently
Location on Structure:	Beneath Bridge Deck
Description of the Works:	Structural inspection may require repair or removal of the existing gantry and gantry rails.
Plant and Equipment:	Access platforms, Barge, hoist, handheld drills, tools and shear wrenches.
Outline Method Statement:	<ol style="list-style-type: none"> 1. Set up Traffic Management and access platforms or Barges where required, 2. Cut defective/redundant steelwork by removing bolts or grinding out welds and lower by heat to road level/barge (water level).

	3. Carry out repair to steelwork using bolted or welded connections.
Proposed Mitigations:	Work to be carried out will be planned to ensure that tools and materials are contained and not able to enter the marine environment.
Materials/ Waste	Paint testing to be carried out prior to planning works to inform Risk Assessment and Method Statement for working on painted steelwork. Removed steelwork to be transported off site for recycling and disposal.

Volute spring repair/replacement	
Included in Previous Marine Licence:	No
Construction Period and working times.	This work is not envisaged currently. 24hr working.
Estimated Construction Value:	This work is not envisaged currently
Location on Structure:	At central span bridge deck bearings.
Description of the Works:	Refurbishment or replacement of the volute springs.
Plant and Equipment:	Access platforms, hoist, handheld drills, tools and shear wrenches.
Outline Method Statement:	<ol style="list-style-type: none"> 1. Set up Traffic Management and access platforms where required, 2. Remove defective or redundant steelwork by hoist to road level, 3. Carry out refurbishment or replacement to volute spring, 4. Remove Traffic Management and access platforms.
Proposed Mitigations:	Work to be carried out will be planned to ensure that tools and materials are contained and not able to enter the marine environment.
Materials/ Waste	Paint testing to be carried out prior to planning works to inform Risk Assessment and Method Statement for working on steel elements with painted surfaces. Removed steelwork to be transported off site for recycling and disposal.

4.0 Routine Scheme Programme of Works

In addition to the one off schemes listed above, there are a number of smaller routine maintenance activities which can be carried out on a regular basis. Some of these routine maintenance activities may also be encompassed within the one off schemes.

Below is a breakdown of the routine maintenance activities that may be carried out throughout the duration of the proposed licence period along with a description of the proposed works. The works can be both routine and reactive and vary in nature, therefore it is not possible to provide an estimated construction value. These works may also be required at any location of the structure. However environmental mitigation measures appropriate to the task and outlined in the method statements will be employed at all times.

This list is not exhaustive and there may be other low-risk routine maintenance activities carried out on the structure on a like-for-like basis. Any unidentified routine maintenance activities will be subject to the terms and conditions of the Marine Licence for this Structure.

Steel repairs	
Included in Previous Marine Licence:	No
Construction Period and working times.	This work is not envisaged currently. 24hr working.
Estimated Construction Value:	Value not known
Location on Structure:	Throughout.
Description of the Works:	Steelwork repairs as identified after future Structural Inspection or due to vehicle impact damage. This may include rivet or bolt replacement, heat straightening, and welding operations to the bridge steelwork. Components may require replacement including elements such as parapets.
Plant and Equipment:	Access platforms, hoist, handheld drills, grinders, welding equipment, tools and shear wrenches.
Outline Method Statement:	<ol style="list-style-type: none"> 1. Set up Traffic Management and access platforms where required, 2. Remove paint locally where required by abrading or chemical agent, 3. Cut out steelwork to be repaired or grind out welds, remove bolted connections, 4. Carry out steelwork repair using bolted, rivetted or welded connections or replace damage components such as parapet units,

	<p>5. Carry out testing of welds using non-destructive techniques or test bolt torque strength,</p> <p>6. Local reapplication of paint over steelwork where required.</p> <p>7. Remove Traffic Management and access platforms</p>
Proposed Mitigations:	Work to be carried out will be planned to ensure that tools and materials are contained and not able to enter the marine environment.
Materials/ Waste	Paint testing to be carried out prior to planning works to inform Risk Assessment and Method Statement for working on steel elements with painted surfaces. Removed steelwork to be transported off site for recycling and disposal.

Navigation Light repair/replacement	
Included in Previous Marine Licence:	No
Construction Period and working times.	This work is not envisaged currently. 24hr working.
Estimated Construction Value:	£2,000
Location on Structure:	At main span (3) over navigation channel.
Description of the Works:	Repair or replace navigation light unit or supporting steelwork.
Plant and Equipment:	Access platforms or rope access equipment, hoist, handheld drills, tools and shear wrenches.
Outline Method Statement:	<ol style="list-style-type: none"> 1. Set up Pedestrian Management or Traffic Management and access platforms where required, 2. Remove and replace navigation light or components, 3. Test and commission lights, 4. Remove Pedestrian Management or Traffic Management.
Proposed Mitigations:	Work to be carried out will be planned to ensure that tools and materials are contained and not able to enter the marine environment.
Materials/ Waste	Removed steelwork or lighting units to be transported off site for recycling and disposal.

Bridge deck repairs	
Included in Previous Marine Licence:	No
Construction Period and working times.	This work is not envisaged currently. 24hr working.
Estimated Construction Value:	Not known at this stage
Location on Structure:	Throughout bridge deck
Description of the Works:	Carry out repairs to bridge deck surfacing, joints or waterproofing.
Plant and Equipment:	Pneumatic or vehicle-mounted breakers, handheld drills, tools and shear wrenches.
Outline Method Statement:	<ol style="list-style-type: none"> 1. Set up Pedestrian Management or Traffic Management where required 2. Remove defective surfacing, waterproofing material or deck joint components. 3. Relay waterproofing, deck joint or surfacing. 4. Remove Pedestrian Management or Traffic Management.
Proposed Mitigations:	Work to be carried out will be planned to ensure that tools and materials are contained and not able to enter the marine environment.
Materials/ Waste	Bituminous material, concrete, resin or other materials removed will be transported off site for recycling or disposal.

Bridge lighting repair or maintenance	
Included in Previous Marine Licence:	No
Construction Period and working times.	This work is not envisaged currently. 24hr working.
Estimated Construction Value:	£2,000
Location on Structure:	Throughout bridge deck

Description of the Works:	Carry out maintenance to lighting or electrical connections, cabinets and cabling.
Plant and Equipment:	Mobile Elevated Working Platform (MEWP) (if required), handheld tools and shear wrenches.
Outline Method Statement:	<ol style="list-style-type: none"> 1. Set up Pedestrian Management or Traffic Management where required, 2. Remove cabling, electrical equipment or lamp units, 3. Install new components, 4. Remove Pedestrian Management or Traffic Management.
Proposed Mitigations:	Work to be carried out will be planned to ensure that tools and materials are contained and not able to enter the marine environment.
Materials/ Waste	Lighting units, cabling and bracketry will be transported off site for recycling or disposal.

Drainage Cleaning	
Included in Previous Marine Licence:	No
Construction Period and working times.	Routine Maintenance. 24hr working.
Construction Value:	Unknown
Location on Structure:	Deck drainage at gullies from road level, beneath deck, and in abutment chambers.
Description of the Works:	The drainage gullies and pipes on bridge require periodic maintenance to ensure they are effective for draining water from the carriageway.
Plant and Equipment:	Gully cleaning vehicles, hand tools, rodding equipment.
Outline Method Statement:	<ol style="list-style-type: none"> 1. Establish Traffic Management as required, 2. Open kerb gully or chamber, 3. Clean debris from gully or chamber using vacuum truck or hand tools, 4. Remove Traffic Management.
Proposed Mitigations:	Detritus, water and waste material will be collected and removed from site where possible.
Materials/ Waste	Silt and detritus will be removed off site where possible.

Bird Guano Removal	
Included in Previous Marine Licence:	No
Construction Period and working times.	Routine Maintenance. 24hr working.
Construction Value:	Unknown
Location on Structure:	Bearing shelves and other sheltered areas of structure.
Description of the Works:	Bird guano on the bearing shelves and other sheltered areas requires periodic cleaning and removal to prevent build up.
Plant and Equipment:	Hand tools, washing equipment
Outline Method Statement:	<ol style="list-style-type: none"> 1. Establish Traffic Management as required, 2. Establish underbridge access unit (lorry-mounted or fixed) 3. Clean bearing shelves using hand tools, 4. Remove Traffic Management.
Proposed Mitigations:	<p>In order to prevent the materials entering the marine environment, the following measures will be taken.</p> <ol style="list-style-type: none"> 1. Bird Guano will need to be double-bagged to prevent spillage. 2. Guano will be taken to a licenced facility.
Materials/ Waste	Guano and detritus will be removed off site.

Expansion joint maintenance or replacement	
Included in Previous Marine Licence:	Yes - 2018
Construction Period and working times.	Routine Maintenance. 24hr working.
Construction Value:	Unknown
Location on Structure:	Expansion joints at North and South of Bridge.
Description of the Works:	Carry out Inspection, maintenance or renewal of expansion joints to ensure serviceable and working.
Plant and Equipment:	If replacing, cutting discs, breaking out and lifting equipment. If maintaining, hand tools, washing equipment.

Outline Method Statement:	<p>Maintaining unit</p> <ol style="list-style-type: none"> 1. Establish Traffic Management as required 2. Remove panelling where required to obtain access to hidden components. 3. Clean/maintain using hand tools and brushes 4. Remove any Traffic Management. <p>Replacing unit</p> <ol style="list-style-type: none"> 1. Establish Traffic Management as required 2. Unit will be cut, broken out locally and lifted out, debris netting to be installed to capture any loose material. 3. New unit lifted into place 4. Resurface locally 5. Remove any Traffic Management.
Proposed Mitigations:	Detritus, water and waste material will be collected and removed from site.
Materials/ Waste	Waste material, silt and detritus will be removed off site.

Resurfacing operations	
Included in Previous Marine Licence:	No
Construction Period and working times.	Routine Maintenance. 24hr working.
Construction Value:	Unknown
Location on Structure:	On Bridge carriageway/footway and approaches
Description of the Works:	Footpath and road surfacing and lining requires periodic maintenance and renewal.
Plant and Equipment:	Hand tools, excavation hand tools, Generators, machine excavators, rollers (hand and vehicle mounted).
Outline Method Statement:	<ol style="list-style-type: none"> 1. Establish Traffic Management 2. Plane/mill out existing surfacing 3. Lay and compact new surfacing 4. Remove any Traffic Management.
Proposed Mitigations:	<ol style="list-style-type: none"> 1. Ensure that all milling works are carried out during suitable periods of weather to ensure that waste material is not blown or washed in the water. 2. Debris netting is to be installed around the area being milled.
Materials/ Waste	Removed bituminous material and any other waste removed off site and recycled where possible or disposed of.

Parapet Renewal or repair	
Included in Previous Marine Licence:	Yes - 2018
Construction Period and working times.	Routine Maintenance. 24hr working.
Construction Value:	Unknown
Location on Structure:	On Bridge and approaches
Description of the Works:	The metallic parapet will require periodic renewal or repair.
Plant and Equipment:	Hand tools, excavation hand tools, Generators.
Outline Method Statement:	<ol style="list-style-type: none"> 1. Establish Traffic Management 2. Install safety barrier 3. Remove existing parapet 4. Install new parapet 5. Remove safety barrier and Traffic Management
Proposed Mitigations:	<p>In order to prevent the materials entering the marine environment, the following measures will be taken.</p> <ol style="list-style-type: none"> 1. Edge protection to be installed to ensure materials can't be knocked over the edge of the bridge. 2. Debris netting to be used to stop waste and small items falling over the side.
Materials/ Waste	Removed steelwork transported off site and recycled where possible or disposed.

Minor Concrete Repairs	
Included in Previous Marine Licence:	Yes - 2018
Construction Period and working times.	Routine Maintenance. 24hr working.
Construction Value:	Unknown
Location on Structure:	Bridge deck
Description of the Works:	Minor concrete repairs to the structure may be required if defects are found during inspections. This could include works on bridge deck or the piers which has the potential to be done under the high

	tide level. Works will likely entail the use of hydro-demolition for large repairs and hand tools for smaller repairs.
Plant and Equipment:	Access platforms, Barges, hand tools, excavation hand tools, Generators, hydro demolition equipment.
Outline Method Statement:	<ol style="list-style-type: none"> 1. Establish Traffic Management (if required). 2. Hammer survey area 3. Break out damaged concrete (hydro-demolition for large areas). 4. Clean any steelwork or reinforcement and prepare surface. 5. Install new concrete.
Proposed Mitigations:	<p>Smaller repair</p> <ol style="list-style-type: none"> 1. Debris netting is to be installed around the area being broken out. 2. Containment be installed to prevent concrete falling into the marine environment. 3. All waste concrete will be removed from site by licenced waste carriers. 4. Fresh concrete will be poured in such a manner that no concrete is lost or can enter the marine environment. <p>Large repair (to pier)</p> <ol style="list-style-type: none"> 1. Hydro-demolition will require containment and a sump pit to catch off run water. 2. Water will either be pumped into a storage tank and disposed of under licence, or discharged into Loch Etive. A CAR licence will be obtained for all discharges. 3. All waste concrete will be removed from site by licenced waste carriers. <p>Fresh concrete will be poured in such a manner that no concrete is lost or can enter the marine environment.</p>
Materials/ Waste	Removed concrete and waste materials removed off site and recycled where possible or disposed.

Masonry Repairs	
Included in Previous Marine Licence:	No
Construction Period and working times.	Routine Maintenance. 24hr working.
Construction Value:	Unknown
Location on Structure:	Span 1 and 5 parapets, elevations or soffit.

Description of the Works:	Minor masonry repairs or repointing to the structure may be required if defects are found during inspections.
Plant and Equipment:	Access platforms, Barges, hand tools, excavation hand tools, Generators.
Outline Method Statement:	<ol style="list-style-type: none"> 1. Establish Traffic Management (if required). 2. Hammer survey area 3. Break/cut out damaged masonry, 4. repoint around repairs. 5. Install new concrete.
Proposed Mitigations:	<ol style="list-style-type: none"> 1. Debris netting and containment is to be installed around the area being removed. 2. All waste material will be removed from site by licenced waste carriers.
Materials/ Waste	Removed waste materials transported off site and recycled where possible or disposed.

Ancillary Highway item repair	
Included in Previous Marine Licence:	No
Construction Period and working times.	Routine Maintenance. 24hr working.
Construction Value:	Unknown
Location on Structure:	Bridge deck throughout structure and approach roads
Description of the Works:	Repair and replacement of any traffic signs, traffic lights, variable messaging signs and associated fixings and electric or network cable housing cabinets and connected ducting.
Plant and Equipment:	Access platforms, hand tools, shear wrenches.
Outline Method Statement:	<ol style="list-style-type: none"> 1. Establish Traffic Management (if required). 2. Access to be made using work platform if required 3. Take out and replace equipment 4. Remove access platform and Traffic Management
Proposed Mitigations:	Work to be carried out using protection and tethers for tools where required to prevent materials or tools entering watercourse.
Materials/ Waste	Removed equipment transported off site and recycled where possible or disposed.

Inspections	
Included in Previous Marine Licence:	Yes - 2018
Construction Period and working times.	Routine Inspections. 24hr working.
Construction Value:	Unknown
Location on Structure:	Throughout Bridge
Description of the Works:	Structural inspection of the condition of structural elements of the bridge and bridge foundations .
Plant and Equipment:	Access platforms, Barges, hand tools, excavation hand tools, Generators.
Outline Method Statement:	<p>Inspections General (visual) and Principal (tactile) inspections are completed periodically as part of the Bridge's management plan. These works will not create the potential for materials entering the marine environment. Inspections will be carried out from the bridge deck, via access platforms or by rope access.</p> <p>Point Cloud Survey A point cloud survey will be undertaken above and below mean high water springs over the entire bridge. These works will not create the potential for materials entering the marine environment.</p> <p>Bathymetric A radar/non-intrusive survey will be carried out from a boat of the riverbed.</p>
Proposed Mitigations:	Inspections and surveys are non-intrusive and will not result in any breaking out of material.
Materials/ Waste	Unlikely to be any waste, however, any loose material removed as part of inspections to be taken off the site and disposed of.

5.0 Early Screening Assumptions

1.1. Designated Sites

The table below provides details on European and nationally designated conservation sites in the vicinity (within 5km) of Connel Bridge.

<u>Designated Sites</u>		
<u>Site Name</u>	<u>Qualifying Features</u>	<u>Distance from Connel Bridge</u>
Clais Dhearg SSSI	<ul style="list-style-type: none"> • Dragonfly assemblage • Marsh fritillary (<i>Euphydryas aurinia</i>) • Oligotrophic loch • Open water transition fen • Upland oak woodland 	2.1km
Loch Etive Woods SAC	<ul style="list-style-type: none"> • Alder woodland on floodplains • Mixed woodland on base-rich soils associated with rocky slopes • Otter (<i>Lutra lutra</i>) • Western acidic oak woodland 	2.5km
Inner Hebrides and the Minches SAC	<ul style="list-style-type: none"> • Harbour porpoise (<i>Phocoena phocoena</i>) 	5.6km
Loch Sunart to the Sound of Jura NC MPA	<ul style="list-style-type: none"> • Flapper skate (<i>Dipturus intermedius</i>) • Quaternary of Scotland 	5.6km

1.2. Screening Assumptions

The proposed maintenance works, are highly localised and confined to the immediate vicinity of the bridge. Durations of the Scheme activities (see section 3) will be dependent on the contract programme and will be determined during the planning stages.

Likely durations of the Routine Scheme activities (see section 4) will in some cases be dependent on the results of the inspections, but in all cases activity duration would be less than 6 months and in many cases less than a few weeks. The proposed maintenance works are therefore considered temporary.

With the exception of the activities 'scour repair' and 'painting', all maintenance works will be carried out from above the Mean High Water Springs (MHWS).

1.3. Screening of all proposed maintenance activities

Where there is potential for a specific activity to result in material being released in to the wider environment, including the marine environment, compliance with the proposed mitigation

measures (as outlined in Section 3 and 4) will reduce the likelihood of any pollutants or debris from entering the environment. These measures include the incorporation of debris netting, protective shelters and containment.

Although the Site Environmental Management Plan (SEMP) has not been finalised for the proposed maintenance activities at this bridge, a number of good practice management measures will be incorporated which will contribute to reducing the potential for effects on the designated sites. These will include:

- The site supervisor will give toolbox talks prior to work commencing. These talks will highlight any sensitive features, including the designated sites, and the importance of adopting the relevant mitigation measures for each activity.
- In line with good practice, the contractor will, as much as is reasonably practicable, 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 acknowledged 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.

The scour activity will encompass work below MHWS. Exact working methods are yet to be confirmed, however will likely involve excavation/rock armour placement around the piers from a jack-up barge. To ensure no contaminants are brought into contact with the marine environment all rock armour and equipment will be washed and cleaned prior to installation and use.

Connel Bridge is not located within or immediately adjacent to any Natura 2000 sites, MPAs or SSSIs.

Consultation with NatureScot has been undertaken with regard to potential impact to nearby designated areas, and a summary of response received is outlined below. Please refer to the supporting standalone Habitats Regulations Appraisal (HRA) for further information.

The boundary of the Loch Etive Woods SAC is located approximately 2.5 km inland of the bridge. The SAC is designated for several qualifying features (see Section 4.1); of these, otter is the only mobile qualifying feature. Given the adoption of mitigation and good practice management measures (as outlined in Section 3), the highly localised nature of the works, the short duration of all activities, it is our conclusion that there would be no significant effect on the qualifying features of the SAC, including the mobile feature otter. Therefore, there would be no likely significant effect on the SAC.

The boundary of the Clais Dhearg SSSI is located approximately 2km inland of the bridge. The SSSI is designated for several qualifying features (see above); of these, dragonfly and the marsh fritillary are mobile. Given the adoption of mitigation and good practice management measures (as outlined in Section 3), the highly localised nature of the works, the short duration of all activities, it is our conclusion that there would be no significant effect on the protected

features of the SSSI, including the mobile features. Therefore, we have concluded that there would be no significant effect on the SSSI.

The boundary of Inner Hebrides and the Minches SAC is located 5.6km east of the bridge, within the Firth of Lorn coastal waterbody. This SAC is designated for the mobile qualifying feature harbour porpoise. The acoustic impacts of above-water hydro-demolition and/or underwater rock armour placement are not considered significant in the context of harbour porpoise disturbance. Any impacts are expected to be localised and time-limited if applicable. Given the adoption of mitigation and good practice management measures (as outlined in Section 3), the highly localised nature of the works, the short duration of all activities, it is our conclusion that it is unlikely the proposal will have a significant effect on the qualifying interest of the Inner Hebrides and the Minches SAC, either directly or indirectly. Therefore, there would be no likely significant effect on the SAC.

The boundary of Loch Sunart to the Sound of Jura NC MPA is also located 5.6km east of the bridge, within the Firth of Lorn coastal waterbody. This NC MPA is designated for flapper skate (a mobile feature), and the geological feature Quaternary of Scotland (non-mobile). Works such as placement of rock armour would take place at a shallow depth unlikely to conflict with habitat use by flapper skate. As such, no direct disturbance or significant sedimentation/pollution is anticipated which could impact the flapper skate population. Given sufficient distancing, no impact to geological designation features is anticipated. The works are assessed as not being capable of affecting the protected features of Loch Sunart to the Sound of Jura NC MPA either directly or indirectly. Therefore, there would be no likely significant effect on the NC MPA.