



Appendix C

Supporting Information

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1.0 Introduction

A82 870 Ballachulish Bridge crosses the entrance to the tidal Loch Leven on the A82, located 13 miles South of Fort William as shown in Figure 1. It was designed by W.A. Fairhurst & Partners and built by Cleveland Bridge Engineering. Opened in 1975, the Pratt truss full-through bridge is 294m long and comprises three continuous spans from the Downlink / South end of 29m, 183m and 82m.

Span 1 at the South end of the bridge crosses the A828 trunk road to Connel and span 3 crosses an agricultural field and a private access road. The structure carries a 7.3m wide single carriageway with a 1.55m footpath on both sides of the bridge. The navigation channel has a 16m vertical clearance above MHWS.

A typical view above the bridge is shown in Figure 2 and an aerial elevation of the bridge is shown in Figure 3.



Figure 1, A82 Ballachulish Bridge Location



Figure 2, Typical View of Footpaths, Carriageway and Bridge Truss (Facing South)



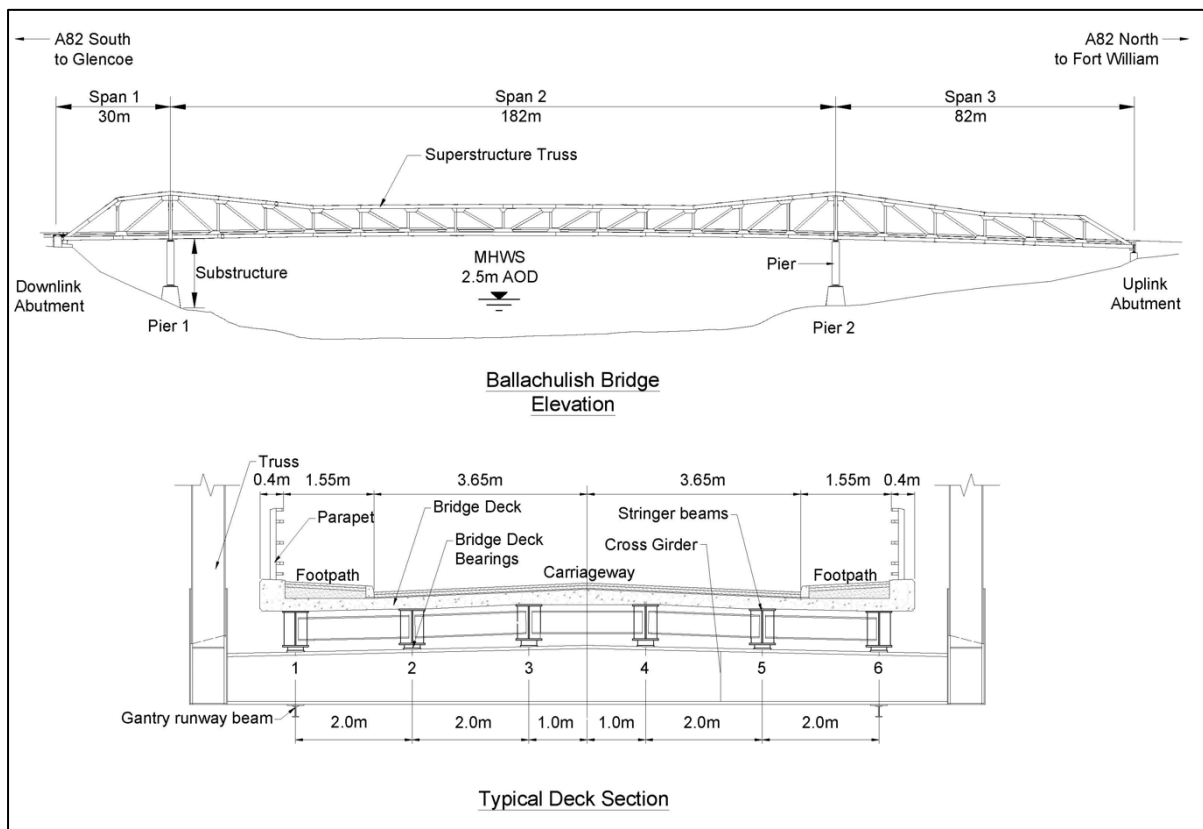
Figure 3, A82 Ballachulish Bridge Elevation

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 A82 Ballachulish Bridge. All engineering works detail; the estimated construction period/duration, estimated construction value, location, works description, an outline method statement and proposed mitigation measures related to the protection of the Marine Environment.

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 required, and these will be confirmed with the contractor prior to works commencing.

Where access platforms are noted, any dimensional constraints caused to the Highway, private land or over the marine environment will be considered and consultation completed with stakeholders where required. On occasion the navigation channel with 16m vertical clearance above MHWS will need to be temporarily reduced for some schemes. When temporary changes to the Navigation Channel are required, consultation will be completed with vessel operators and the Coast Guard on an individual scheme basis.



1.1. Scheme Programme of Works

Below is a breakdown of the schemes currently identified in the 10-year programme of works for A82 Ballachulish Bridge.

Bridge Deck Bearing Replacement	
Included in Previous Marine Licence:	Yes.
Estimated Construction Period and working times.	2024 to 2034. 7 days per week. 24hrs. Construction is estimated to take 12 -18 months to complete.
Estimated Construction Value:	£4M
Location on Structure:	All bridge spans, underneath the bridge deck.
Description of the Works:	<p>The existing bridge deck bearings (138 No.) are to be replaced with new bridge bearings. The bridge deck bearings may be replaced in single or multiple schemes. The bridge deck bearings will be accessed from underneath the bridge with a temporary access/working platform (with full containment at grit blasting locations) which will be progressively installed prior to the works commencing.</p> <p>Permanent bridge strengthening and jacking platforms need to be installed at each cross girder prior to replacing the bearings. This will comprise of steel sections welded/bolted to the existing bridge cross girder. The surface of the new steel sections and adjacent steelwork on the cross girder will be prepared for painting using grit blasting, mechanical or chemical means. Once installed, the new steel sections and adjacent steelwork (on the cross girder) will be painted.</p> <p>Temporary jacking equipment will be installed at the new bridge jacking locations and the bridge deck temporarily lifted (by up to 10mm) to allow the existing bridge deck bearings and base plates to be removed and replaced. Hot works (grinding, welding, thermal gouging) will be required to remove and install the new bearings and base plates. An additional protective paint system may be required where the paint system has been damaged during the bridge jacking and bearing removal works.</p> <p>The temporary bridge jacking equipment and temporary working/access platform will be removed from site once all works complete.</p>
Construction Plant and Equipment:	Temporary working/access platform, temporary bridge jacking equipment, grit blasting equipment, hand tools, welding/thermal gouging equipment.
Outline Method Statement:	<ul style="list-style-type: none"> • Progressively install temporary access/working platform with full containment (at grit blasting locations). • Weld new steel members to bridge cross girders. • Prepare steel surfaces on cross girder for painting by chemical, grit blasting or mechanical paint removal • Apply new paint system to cross girder and new steel members as per manufacturers guidelines. • Install temporary bridge jacking equipment and temporarily lift bridge deck using proprietary bridge jacks. • Remove existing bearings and base plates by unbolting, grinding or thermal gouging. • Weld new base plates onto the • Install new bridge deck bearings. • Apply additional protective paint system as required. • Install bearing monitoring equipment. • Remove temporary bridge jacking equipment. • Remove temporary access/working platform. • Repeat as required on other cross girders.

Materials/Waste	<p>The scheme has not yet been designed and the quantities of materials/waste to be added/removed from the structure is unknown.</p> <p>Material to be added to the bridge include new steel deck bearings, steel base plates, steel sections, steel welding material, paint.</p> <p>Waste construction materials include spent grit, existing paint, unused paint, steel waste and existing bearings. These will be removed from site by licenced waste carriers and landfilled. Waste steel will be recycled by a licenced carrier.</p>
Proposed Mitigations:	<p>The worksite will be fully encapsulated for all grit blasting works to prevent any loss of materials or tools.</p> <p>High noise activities will be completed during daytime hours due to the proximity of residential housing.</p>
Superstructure Bearing Replacement	
Included in Previous Marine Licence:	Yes.
Estimated Construction Period and working times.	2024 – 2034. 7 days per week. 24hrs. Construction is estimated to take 1 year to complete.
Estimated Construction Value:	The works have not been conceptualised or designed. A high-level estimate is £3M.
Location on Structure:	The superstructure bearings are located at the base and at the top of Piers 1 and 2.
Description of the Works:	The existing superstructure bearings located on piers 1 and 2 may require replacing. An access/working platform with full containment will be established at each pier. Temporary works to support the bridge will be installed to allow the existing bearings are removed and replaced. The existing bearings will be removed using hydro-demolition to excavate the concrete surrounds. New bearings will be cast into the concrete piers. The temporary works to support the pier and temporary working/access platform will be removed from site.
Construction Plant and Equipment:	Temporary working/access platforms with full containment, temporary support structure equipment, hydro-demolition equipment, Siltbuster (or similar to treat wastewater from hydro-demolition) and hand tools.
Outline Method Statement:	<ul style="list-style-type: none"> • Establish temporary working/access platform with full containment. • Install temporary support structure to allow existing bearing(s) to be removed. • Excavate concrete pier with hydro-demolition to remove existing bearings. • Install bearings and cast new bearings into pier. • Remove the temporary support structure. • Remove the temporary access/working platform. • Repeat as required for other bearings.
Materials/Waste	<p>The scheme has not yet been designed and the quantities of materials/waste to be added/removed from the structure is unknown.</p> <p>Material to be added to the bridge include new bridge bearings (8 No.) and steel reinforcement.</p> <p>Waste construction materials include concrete, existing steel bearings and steel reinforcement. Wastewater from the hydro-demolition process will either be treated on site and discharged into the water course (with CAR Licence consent from SEPA) or removed from site for treatment at a licenced facility.</p>
Proposed Mitigations:	<p>The worksite will be fully encapsulated to contain the hydro-demolition works and prevent wastewater entering the watercourse.</p> <p>High noise activities will be completed during daytime hours due to the proximity of residential housing.</p>

Bridge Strengthening	
Included in Previous Marine Licence:	No.
Estimated Construction Period and working times.	2024 – 2034. 7 days per week. 24hrs. Construction is estimated to take 1 year to complete.
Estimated Construction Value:	£2M
Location on Structure:	Superstructure/truss and bridge deck. All bridge spans.
Description of the Works:	<p>The bridge truss and bridge deck may require strengthening to increase the bridge capacity. The strengthening is still to be designed and may include installation of additional steel members or other structural materials (such as carbon fibre) to the bridge superstructure and/or bridge deck. To inform the design of the strengthening, cores and other small scale destructive testing into the bridge deck may be required. These would be completed from an underbridge vehicle or temporary access/working platform.</p> <p>For the permanent strengthening, a temporary working/access platform with full containment will be required to access all areas of the bridge deck and truss on all spans. It is assumed the works will progress as soon as a section of temporary access/ working platform is installed.</p> <p>The existing paint system on the Truss will be removed using grit blasting, mechanical or chemical means prior to permanent strengthening being installed. The permanent strengthening will be installed by bolting, welding or bonding to steelwork using structural adhesive (i.e. for fixing carbon fibre or similar).</p> <p>Once the strengthening has been installed, steel sections will require a protective coating applying such as a paint system. The surface of the new steel sections and adjacent steelwork on the truss will be prepared for painting using grit blasting, mechanical or chemical means. The paint system will then be applied as per the manufacturer's instructions.</p> <p>The temporary working/access platform will be removed from site once all works in a section of the bridge is complete. The above process will be repeated as necessary.</p>
Construction Plant and Equipment	Scaffolding or similar temporary working/access platform with full containment, grit blasting equipment, hand tools, welding equipment, painting equipment.
Outline Method Statement:	<ul style="list-style-type: none"> • Establish temporary working/access platform to complete destructive testing and inspection of the bridge deck as required to inform the bridge strengthening design. • Provision of temporary working access platform with full containment. • Install new bridge strengthening to the bridge truss and/or bridge deck by bolting, welding or bonding. • Removal of paint system and surface preparation of steel members by a method to be chosen through further investigation (chemical, grit blasting or mechanical). • Application of protective paint system or similar as per manufacturers guidelines. • Remove encapsulation and suspended work platform. • Repeat as required on other areas of the bridge deck/truss.

Materials/Waste	The scheme has not yet been designed. The types and quantities of materials to be added/removed from the structure are unknown. Materials to be added to the structure include steel, carbon fibre or similar. Waste construction materials include spent grit, existing paint, unused paint and steel waste. These will be disposed off-site by licenced waste carriers. Waste steel will be recycled by a licenced carrier.
Proposed Mitigations:	The worksite will be fully encapsulated for all grit blasting works to prevent any loss of materials or tools. High noise activities will be completed during daytime hours due to the proximity of residential housing.
Bridge Painting	
Included in Previous Marine Licence:	Yes.
Estimated Construction Period and working times.	2024 - 2034. 7 days per week. 24hrs. Construction is estimated to take 2 years to complete.
Estimated Construction Value:	£8M
Location on Structure:	All elements of the steel truss, throughout the whole bridge.
Description of the Works:	<p>The paint system on the bridge truss is to be removed and the protective steel coating reinstated in single or multiple schemes. If completed as a single scheme the painting works will be phased so that only sections of the bridge will have temporary access/working platforms.</p> <p>A temporary access/working platform with full containment will be progressively established throughout the bridge truss on all spans. The temporary platform may infringe the navigation channel height/width. Consultation with vessel operators and the Coast Guard will be completed during the design phase of the works to ensure the phasing of the works does not impede vessels underneath the bridge.</p> <p>The existing paint system will be removed by a combination of grit blasting, chemical application or mechanical means. The exposed steelwork and welds will be inspected for defects and weld/steel repairs completed (if deemed necessary). The steelwork will then be painted with multiple coats. Once all works are complete the temporary access/working platform will be removed from the bridge.</p>
Construction Plant and Equipment:	Scaffolding or similar temporary working platform, grit blasting equipment, painting equipment, welding equipment and hand tools.
Outline Method Statement:	<ul style="list-style-type: none"> • Provision of temporary working/access platform with to provide full containment. • Removal of the existing paint system and surface preparation of steel members by either chemical, grit blasting or mechanical means. • Inspect welds and steelwork for defects. Complete weld/steel repairs as required. • Application of paint system as per manufacturers guidelines. • Remove encapsulation and suspended work platform.
Materials/Waste	The scheme has not yet been designed and the quantities of materials/waste to be added/removed from the structure is unknown.

	<p>Material to be added/removed from the bridge is the old/new paint system. Small steel sections may be added to the bridge to repair defects when required.</p> <p>Waste construction materials include spent grit, existing paint, unused paint and steel waste. These will be disposed off site by licenced waste carriers to landfill. Waste steel will be recycled by a licenced carrier.</p>
Proposed Mitigations:	<p>The worksite will be fully encapsulated for all grit blasting works to prevent any loss of materials or tools.</p> <p>High noise activities will be completed during daytime hours due to the proximity of residential housing.</p>
Parapet Replacement	
Included in Previous Marine Licence:	Yes
Estimated Construction Period and working times.	2024 to 2034. 7 days per week. 24hrs.
Estimated Construction Value:	£400k
Location on Structure:	On bridge deck. All spans.
Description of the Works:	<p>The existing aluminium parapet is to be replaced with a steel parapet on both sides of the carriageway (728m total length).</p> <p>Temporary traffic management will be installed across the full length of the bridge prior to the works commencing. A temporary vehicle restraint (Varioguard or similar approved) will be installed on the carriageway for the length of each parapet section being removed. The parapet mesh will be removed from one side of the bridge. Temporary edge protection will then be fixed with threaded anchor bolts drilled and fixed into the concrete edge beam with structural adhesive.</p> <p>The existing parapet beams and posts will be removed and the grout plinth (below the posts) mechanically excavated with small hand tools.</p> <p>Threaded anchor bolts for the new parapet will be drilled into the concrete edge beam and fixed with structural adhesive. New steel parapet posts and beams will be installed and the post plinths grouted. Parapet mesh will be installed to the new parapet beams. Once the parapet has been fully installed on one side of the carriageway the temporary vehicle restraint/traffic management will be moved to the opposing carriageway and the process for replacing the existing parapet repeated.</p>
Construction Plant and Equipment:	Temporary vehicle restraint barrier, temporary edge protection, mobile crane, hand tools.
Outline Method Statement:	<ul style="list-style-type: none"> • Install traffic management and temporary vehicle restraint system. • Remove parapet mesh. • Install anchors for temporary edge protection on concrete edge beam. Install temporary edge protection. • Remove existing parapet beams and posts. • Install new permanent anchors on the concrete edge beam. • Install new parapet posts and beams. • Install parapet mesh. • Remove traffic management and temporary vehicle restraint. <p>Repeat on opposing carriageway.</p>
Materials/Waste	The main waste will be existing aluminium parapet will be removed from a licenced waste carrier and recycled. A new steel parapet will be installed on both sides of the bridge.

Proposed Mitigations:	The worksite will have edge protection to prevent any materials falling into the marine environment.
Structural Health Monitoring System Installation or maintenance	
Included in Previous Marine Licence:	No
Estimated Construction Period and working times.	2024 to 2034. 7 days per week. 24hrs.
Estimated Construction Value:	The scope of these works has not been finalised. £500k
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.
Construction Plant and Equipment:	Access platforms, rope access, handheld drills, tools and shear wrenches.
Outline Method Statement:	<ul style="list-style-type: none"> • Establish Traffic Management and temporary access/working platforms. • Fix monitoring device to structure, • Install cabling and power/data connections, • 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 device connection to be attached to the structure. Any removed equipment will be reused or recycled where possible and disposed off site.
Repair/Removal of Existing Gantry Rails	
Included in Previous Marine Licence:	No
Construction Period and working times.	The scope of these works has not been finalised. 24hr working. 2024 to 2034. 7 days per week. 24hrs.
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.
Construction Plant and Equipment:	Access platforms, barge, hoist, handheld drills, tools and shear wrenches.
Outline Method Statement:	<ul style="list-style-type: none"> • Establish Traffic Management and temporary access/working platforms as required. • Cut steelwork, remove bolts or grind out welds to remove defective or redundant steelwork by hoist to road level or to barge at water level, • 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. Waste grit and paint removed from the bridge will be removed from site and landfilled by a licenced waste carrier. Steelwork removed from the bridge to be taken off site for recycling by a licenced waste carrier.
Scour Repairs	
Included in Previous Marine Licence:	No.
Construction Period and working times.	The scope of these works has not been finalised. 24hr working. 2024 to 2034. 7 days per week. 24hrs.
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 ten-year years. These works involve using jack up barges with excavators on them to place scour protection (rock armour, bagged rock armour or pre-cast concrete) around the pier bases. Geotextile will be placed beneath the scour protection.
Construction Plant and Equipment:	Barges, access platforms, excavators
Outline Method Statement:	<ul style="list-style-type: none"> • Install jack up barge to required pier locations. • Excavate around pier(s). • Dispose of material. • Install geotextile/ • Place rock armour around piers. • 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	Minor construction waste only. Scour protection will include rock armour, bagged rock armour and pre-cast concrete. Geotextile will be placed beneath the scour protection.

1.2. Routine Maintenance 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.

Steelwork Repairs	
Included in Previous Marine Licence:	No
Construction Period and working times.	This will be reactive maintenance and not currently planned. 24hr working.
Estimated Construction Value:	Value unknown.
Location on Structure:	Throughout the bridge truss. All spans.
Description of the Works:	Steelwork repairs as identified after future inspections or due to vehicle impact damage. This may include bolt replacement, heat straightening, and welding operations to the bridge steelwork. Components may require replacement including elements such as parapets.
Construction Plant and Equipment:	Access platforms, edge protection, hoist, handheld drills, grinders, welding equipment, tools and shear wrenches.
Outline Method Statement:	<ul style="list-style-type: none"> • Establish temporary access as required (traffic management, edge protection and temporary access/working platforms). • Remove paint locally where required by abrading or chemical agent. • Cut out steelwork to be repaired or grind out welds, remove bolted connections, • Carry out steelwork repair using bolted or welded connections. Replace damage components such as parapet units, • Carry out testing of welds using non-destructive techniques or test bolt torque strength. • Local reapplication of paint over steelwork where required. • 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	Small quantities of existing paintwork to be removed from site and landfilled by a licenced waste carrier. Steelwork removed to be taken off site for recycling and disposal by a licenced waste carrier.
Bridge Deck Repairs	
Included in Previous Marine Licence:	No
Construction Period and working times.	This will be reactive maintenance and not currently planned. 24hr working.
Estimated Construction Value:	Value unknown.
Location on Structure:	Above and below the bridge deck. All spans.
Description of the Works:	Carry out repairs to bridge deck surfacing, waterproofing, expansion joints or bridge deck concrete.
Construction Plant and Equipment:	Temporary access/working platforms, pneumatic or vehicle-mounted breakers, hand tools and shear wrenches.
Outline Method Statement:	<ul style="list-style-type: none"> • Establish temporary access/working platform and traffic management as required. • Remove defective surfacing, concrete, waterproofing material or deck joint components. • Complete concrete deck repairs as required. • Relay waterproofing, deck joint or surfacing. • Remove temporary access/working platform 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 and landfilled by a licenced waste carrier.
Bridge Lighting Repair/Maintenance	
Included in Previous Marine Licence:	No
Construction Period and working times.	This will be reactive and cyclic maintenance. 24hr working.
Estimated Location Construction Value:	Value unknown.
on Structure:	Throughout bridge deck
Description of the Works:	Carry out maintenance to lighting or electrical connections, cabinets and cabling.
Construction Plant and Equipment:	Mobile Elevated Working Platform (MEWP) (if required), handheld tools and shear wrenches.
Outline Method Statement:	<ul style="list-style-type: none"> • Establish Traffic Management where required, • Remove cabling, electrical equipment or lamp units, • Install new components, • Remove 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	WEEE waste will be disposed of in accordance with guidelines. Cabling and other materials will be transported off site for recycling where possible or landfilled.
Drainage Cleaning	
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.
Construction Plant and Equipment:	Gully cleaning vehicles, jet washing equipment, hand tools, rodding equipment.
Outline Method Statement:	<ul style="list-style-type: none"> • Establish Traffic Management as required, • Open kerb gully or chamber, • Clean debris from gulley or chamber using vacuum truck or hand tools. • Remove Traffic Management.
Proposed Mitigations:	Detritus, water and waste material will be collected and removed from site.
Materials/ Waste	Silt and detritus will be removed off site and landfilled by a licenced waste carrier.
Bird Guano Removal	
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:	Establish traffic management and temporary working/access platform to access underneath the bridge deck. Bird guano on the bearing shelves and other sheltered areas requires periodic cleaning and removal to prevent build up.
Construction Plant and Equipment:	Hand tools, washing equipment
Outline Method Statement:	<ul style="list-style-type: none"> • Establish Traffic Management and temporary working/access platform to access underneath the bridge deck. • Clean bearing shelves using hand tools, • Remove Traffic Management.

Proposed Mitigations:	In order to prevent the materials entering the marine environment, the following measures will be taken. <ul style="list-style-type: none"> • Bird Guano will need to be double-bagged to prevent spillage. • Guano will be taken to a licenced facility.
Materials/ Waste	Guano and detritus will be removed off site.
Resurfacing operations	
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.
Construction Plant and Equipment:	Hand tools, excavation hand tools, Generators, machine excavators, planers, trucks, rollers (hand and vehicle mounted).
Outline Method Statement:	<ul style="list-style-type: none"> • Establish Traffic Management • Plane/mill out existing surfacing • Lay and compact new surfacing • Remove any Traffic Management.
Proposed Mitigations:	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.
Materials/ Waste	Removed bituminous material and any other waste removed off site and re-used on other work sites (with SEPA Paragraph 13 Waste Management Licence).
Parapet Repair	
Construction Period and working times.	Routine Maintenance. 24hr working. Repairs usual take less than 3 days to complete.
Construction Value:	Unknown
Location on Structure:	Bridge footpaths, all spans.
Description of the Works:	The existing parapet will require periodic renewal or repair from vehicle damage. Establish traffic management, temporary vehicle restraint system (Varioguard or similar) and temporary edge protection. Remove defective parapet components and replace like-for-like.
Construction Plant and Equipment:	Hand tools, excavation hand tools, lorry mounted crane. Generators.
Outline Method Statement:	<ul style="list-style-type: none"> • Establish Traffic Management • Install temporary vehicle restraint and temporary edge protection. • Remove existing/defective parapet components • Install new parapet • Remove safety barrier and Traffic Management

Proposed Mitigations:	Edge protection to be installed to ensure materials can't spill over the edge of the bridge.
Materials/ Waste	Removed steelwork transported off site and recycled by a licenced waste carrier.
Concrete Repairs	
Construction Period and working times.	Routine Maintenance. 24hr working.
Construction Value:	Unknown
Location on Structure:	Bridge deck and piers. All spans.
Description of the Works:	<p>Concrete repairs to the bridge deck and piers may be required if defects are found during inspections.</p> <p>Establish traffic management. Temporary access/working platforms will be established at the required location(s) below the bridge deck or adjacent to the piers.</p> <p>Full containment on the temporary working platform will be used if hydro-demolition is required for excavating the existing concrete. Wastewater will either be either pumped into a storage tank and disposed of under licence or treated onsite prior to discharging to Loch Leven (with SEPA CAR Licence consent). If hand tools are to be used for the concrete excavation, localised debris netting and screens will be sufficient to contain debris.</p> <p>Hand tools will be used to prepare the steel reinforcement and repair the concrete defects with proprietary concrete repair mortar.</p> <p>Temporary access platforms will be removed from site following the concrete repairs.</p>
Construction Plant and Equipment:	Temporary working/access platforms, hand tools, excavation hand tools, Generators, hydro-demolition equipment.
Outline Method Statement:	<ul style="list-style-type: none"> • Establish Traffic Management • Establish Temporary working/access platforms • Excavate defective concrete (hydro-demolition for large, hand tools for small repairs). • Clean any steelwork or reinforcement and prepare surface with hand tools. • Install new concrete. • Remove temporary working/access platforms and traffic management.
Proposed Mitigations:	<p>Small Concrete Repair</p> <ul style="list-style-type: none"> • Debris netting is to be installed around the area being broken out. • Containment be installed to prevent concrete falling into the marine environment. • All waste concrete will be removed from site by licenced waste carriers. • Fresh concrete will be poured in such a manner that no concrete is lost or can enter the marine environment. <p>Large Concrete Rrepair</p> <ul style="list-style-type: none"> • Hydro-demolition will require full containment on the temporary working/access platform. • Wastewater will be either pumped into a storage tank and disposed of under licence, or treated on site prior to being discharged into

	<p>Loch Leven. A SEPA CAR licence will be obtained for all discharges.</p> <ul style="list-style-type: none"> • All waste concrete will be removed from site by licenced waste carrier to landfill. • The temporary working platform screens and flooring will be sufficient to prevent materials falling into Loch Leven.
Materials/ Waste	<p>Waste water and waste concrete will be removed off site and landfilled by a licenced waste carrier.</p> <p>Proprietary concrete mortar will be added to the structure.</p>
Ancillary Highway item repair	
Construction Period and working times.	Routine Maintenance. 24hr working.
Construction Value:	Unknown
Location on Structure:	Bridge deck throughout structure.
Description of the Works:	Repair and replacement of any traffic signs and any other trunk road apparatus.
Construction Plant and Equipment:	Access platforms and hand tools.
Outline Method Statement:	<ul style="list-style-type: none"> • Establish Traffic Management and MEWP. • Remove and replace ancillary highway equipment. • 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 to landfill.
Inspections and Surveys	
Construction Period and working times.	Routine Inspections. 24hr working.
Construction Value:	Unknown
Location on Structure:	Throughout Bridge. All spans.
Description of the Works:	<p>Intermittent inspections and surveys of the entire bridge will be required. Access required will include traffic management, temporary access/working platforms, underbridge vehicles and mobile elevated work platforms. Roped access teams will be used along with UAVs (drones) for inspections and surveys. All equipment used will be tethered to the individuals completing inspections and surveys.</p> <p>Barges and small vessels will also be used to survey the seabed of Loch Leven to complete bathymetric surveys.</p>
Construction Plant and Equipment:	Temporary access/working platforms, barges, small vessels, hand tools, survey equipment, hand tools and generators.

Outline Method Statement:	<ul style="list-style-type: none"> • Establish access which may include, traffic Management, temporary working/access platforms, underbridge vehicles, mobile elevated working platforms, barges and small vessels. • Complete inspection and/or survey. • Demobilise access.
Proposed Mitigations:	Inspections and surveys are generally non-intrusive and will not result in any breaking out of material. Loose material may be removed as part of the inspection (e.g. concrete).
Materials/ Waste	Unlikely to be any waste, however, any loose material (e.g. concrete) will be removed as part of inspections to be taken off the site and landfilled by a licenced waste carrier.

3.0 Early Screening Assumptions

3.1. Designated Sites

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

<u>Designated Sites</u>		
<u>Site Name</u>	<u>Qualifying Features</u>	<u>Distance from Ballachulish Bridge</u>
Glen Etive and Glen Fyne SPA	<ul style="list-style-type: none"> • Golden eagle (<i>Aquila chrysaetos</i>) (breeding) 	900m
Onich to North Ballachulish Woods SAC	<ul style="list-style-type: none"> • Base-rich fens • Mixed woodland on base-rich soils associated with rocky slopes • Western acidic oak woodland 	1km
Onich to North Ballachulish Woods and Shores SSSI	<ul style="list-style-type: none"> • Alkaline fen • Dalradian rocks • Upland mixed ash woodland; and • Upland oak woodland 	1km

3.2. 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).

3.3. 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.

Ballachulish 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 Glen Etive and Glen Fyne SPA is located approximately 900m south-east of the bridge. The SPA is designated for presence of breeding golden eagle, which is a 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 SPA, including the mobile feature golden eagle. Therefore, there would be no likely significant effect on the SPA.

The boundary of Onich to North Ballachulish Woods SAC is located approximately 1km north of the bridge. The SAC is designated for several qualifying features of habitat type (see above); of which non are mobile. The boundary of Onich to North Ballachulish Woods and Shores SSSI is located 1km north of the bridge. As per the related SAC, this SSSI is also designated for various non-mobile qualifying features of upland and woodland habitat types as listed above. 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 SAC or SSSI, and therefore no significant effect on the SAC or SSSI as a whole.