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Method statement

M90 9-10 25 Earn – Deck Refurbishment and Concrete Repairs

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1. Introduction

- 1.1.1 M90 9-10 25 Bridge of Earn is located to the south-east of Perth, Perth and Kinross. The Earn Bridge (M90 9-10 25) is a continuous three-span steel-concrete composite deck structure. The deck comprises a 230mm thick reinforced concrete (RC) slab in composite with two main steel box girders and transverse beams. Each box girder is trapezoidal in section and is 2.10m deep, and its width varies from 3.30m at deck slab interface to 3.00m at the bottom flange. Transverse beams are spaced at 3.1m apart and have a depth of 680mm, with cantilever beams tapering to 300mm at the deck edges.
- 1.1.2 The deck is 23.90m wide between the outside faces of the plinth upstands. It comprises two 7.30m carriageways separated by a 2.60m wide central reserve, two 0.70m hard strips, 2.63m wide northbound footway, 1.20m wide southbound footway and two 0.57m wide parapet plinths. The deck edges are protected by the BACO Type parapet system, and the central reserve has aluminium vehicle restraint system (VRS).
- 1.1.3 The deck is supported on bank seat RC abutments, two intermediate RC piers and wingwalls that are parallel to the carriageway. Each intermediate support comprises twin piers with a cutwater plinth. The substructure comprises pile caps and end-bearing RC hexagonal piles.
- 1.1.4 There have been several improvements to the bridge deck since construction including the Maurer multi-rail joint near the kerb line at the south end of the northbound carriageway. Additionally, repairs were made to the box girder and hatch, and intrusive investigative tests were conducted to establish the extent of contamination and damage to the reinforced concrete slab around the drainage downpipe.
- 1.1.5 Deck refurbishment works comprising re-waterproofing, parapets plinths strengthening VRS upgrade, and concrete repairs to the structure have been identified and recommended to Transport Scotland.

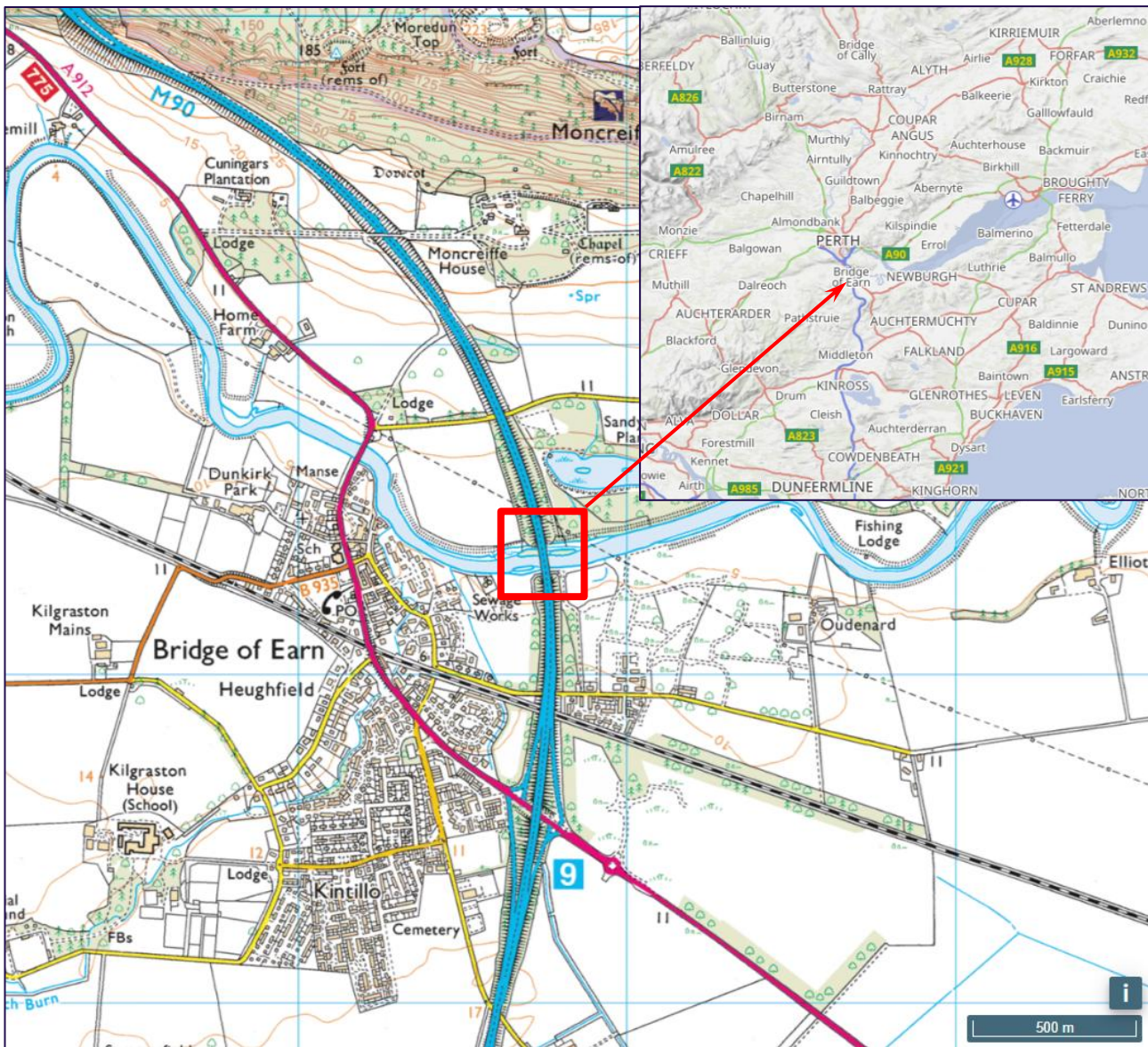


Figure 1. Scheme Location Map. © Crown copyright and database rights 2025. OS Licence number 100023385.

2. Method statement

- 2.1.1 The section sets out the method statement associated with the M90 9-10 25 Earn 10-Year Marine Licence Application for Construction Projects. The scope of works activities is detailed in Sections 2.2-2.10., including the construction methodologies, plant, vehicles, machinery and materials required, and measures to safeguard the marine environment.
- 2.1.2 Prior to commencement of each proposed works activity, an individual Environmental Scoping Assessment will be undertaken to identify site-specific environmental sensitivities and appropriate mitigation, and pollution prevention measures relevant to the construction activities. This will ensure that all activities are planned and delivered in a way that minimises potential impacts on the water environment and complies with best practice and regulatory requirements.
- 2.1.3 Given that the licence application covers a ten-year period, certain activities may require refinement and confirmation; these will be assessed individually once details are finalised. Where necessary, a variation or extension to the licence will be sought in accordance with regulatory requirements.
- 2.1.4 All proposed methodologies are designed to prevent the release of materials, debris or equipment into the marine environment. Where additional mitigation measures are identified, these will be agreed with the appointed Contractor(s) and implemented prior to the commencement of any works.

2.2. Trail Holes and Asbestos Test Patches

TRAIL HOLES, ASBESTOS TEST PATCHES, CONCRETE AND REINFORCEMENT INVESTIGATIONS	
Estimated Construction Period	2026 to 2027. 5 days per week, 24 hours. Construction is estimated to take 1 year to complete.
Estimated Construction Value	£38,000
Location of works	Carriageway level: Earn the bridge deck. Underside: Near south abutment.
Description of the works	<p>To support the successful delivery of the schemes outlined below, it is essential to understand the properties of the materials present within the existing structure. Accordingly, the following investigations will be undertaken:</p> <ul style="list-style-type: none"> • Trial pit investigations to identify and confirm the presence of any previously unrecorded underground services. • Asbestos test patch testing of the existing waterproofing to determine the presence of asbestos-containing materials. • Concrete core testing to assess the compressive strength of the structural concrete. • Reinforcement sampling to determine the yield strength of the existing reinforcement. • These investigations will inform the design and planning of the proposed works, ensuring that all materials are handled appropriately, and structural performance is maintained.
Plant	Excavator, Scanning Equipment, Cover meter, Hand tools for concrete breakage and excavation, Encapsulation equipment for asbestos patches.
Outline Method Statement	<p>Install temporary traffic management in accordance with approved traffic control plans.</p> <p>Close Lane 1 Northbound to all users and establish a safe working area.</p> <p>Mark the locations of asbestos test patches and install encapsulation measures, as carried out by a qualified specialist.</p>

TRAIL HOLES, ASBESTOS TEST PATCHES, CONCRETE AND REINFORCEMENT INVESTIGATIONS

	<p>Open any existing utility hatches and conduct CAT and Genny scans to identify buried services.</p> <p>Undertake the excavation of trial pits and asbestos test patches using hand tools, with all asbestos-related activities carried out by licensed specialists.</p> <p>Collect the required material samples and record relevant site information.</p> <p>Capture photographic records and reinstate the trial pits and asbestos test patches to their original condition.</p> <p>Proceed to the underside of the bridge near the south abutment wingwalls by carefully accessing the area via the embankment.</p> <p>Mark core and sample locations on the parapet plinth using a ferro scanner to avoid reinforcement. Inspect and sign off on all reinstated locations.</p> <p>Shift traffic management to the Southbound carriageway and repeat steps (a) to (g) for the corresponding investigation works.</p> <p>Submit all collected samples to a recognised, accredited laboratory for testing and analysis.</p> <p>Extract concrete core samples at designated locations and safely store them for laboratory testing.</p> <p>Reinstate all core holes using a concrete mix matching the surrounding structure in composition and appearance.</p> <p>Extract reinforcement samples from the wing walls by creating controlled concrete breakouts.</p> <p>Install new reinforcement to compensate for removed sections and reinstate the concrete using a suitable repair mortar to ensure proper cover and concealment.</p> <p>On completion of all works, thoroughly clean the site, sweep the carriageway, and take final photographic documentation.</p>
<p>Materials/Waste</p>	<p>Materials: Surfacing material, new reinforcement to replace the reinforcement samples, Concrete repair mortar, spray applied, waterproofing.</p> <p>Waste: Surfacing material and demolished concrete.</p>
<p>Proposed Mitigation for Environmental hazards</p>	<p>All the asbestos test patches must be conducted by a specialist contractor with suitable safety measures.</p> <p>All waste materials will be safely disposed of at a licensed facility.</p> <p>Additional mitigation measures to be detailed within works-specific Environmental Scoping Assessment, carried out prior to each works activity.</p>

2.3. N2W2 Parapet and N2W2 Safety Barrier Upgrades

N2W2 PARAPET AND N2W2 SAFETY BARRIER UPGRADES	
Estimated Construction Period	2026 to 2028. 5 days per week, 24 hours. Construction is estimated to take 1 year to complete.
Estimated Construction Value	£750,000
Location of works	Carriageway level: Earn bridge deck.
Description of the works	<p>The existing substandard aluminium P2(113) parapets are to be upgraded with galvanised steel parapets on both edges of the bridge deck, approx. 264m total length. To allow this upgrade to proceed, the existing parapet plinth (edge beam) will be replaced with a strengthened version to safely sustain impact loading to current standards. Temporary traffic management will be installed on the approaches to the structure to safely manage the interface with the live carriageway before works commence. A temporary VRS (Varioguards/similar approved) will be installed on the carriageway, and edge protection and temporary crash deck structure with debris netting on the free edge of the deck. These safety features will be inspected at regular intervals during the works to ensure they remain 'fit for purpose' and safe to be in use.</p> <p>The existing post and rail parapet and reinforced concrete parapet plinths will be taken down safely and lifted offsite to a recycling facility. The deck concrete slab locally within footprint of the existing parapet plinth will be hydro-demolished to expose sufficient length of existing main bars to facilitate stitching of a new cast in-situ parapet plinth to achieve compatibility between existing deck and new plinth. A new reinforcement cage and formwork will be installed, inspected and signed off. Time will be allowed for parapet suppliers to set out and install post anchors at their correct centres, followed by pouring C40/50 in-situ concrete and allowed to cure. A new galvanised H2W2 post and rail parapet with mesh will be installed on the new plinth. Once the parapet installation is completed on one half of the deck. The temporary and enabling works will be switched to the opposite carriageway, and the above removal and installation process will be repeated.</p>
Plant	Temporary vehicle restraint barrier, temporary edge protection, mobile crane, saw cutting tools, hydrodemolition equipment, and hand tools.
Outline Method Statement	<p>Install temporary traffic management and VRS.</p> <p>Install contraflow to the northbound to provide access and establish a working area.</p> <p>Install temporary edge protection, crash deck structure and debris netting</p> <p>Remove existing parapets.</p> <p>Measure and mark out and saw cut to disconnect existing plinth from deck slab and remove offsite.</p> <p>Hydrodemolition deck slab locally within footprint of existing plinth to expose sufficient length of main bars.</p> <p>Prepare newly exposed substrate and reinforcement to facilitate lapping with new mains bar from parapet plinth.</p> <p>Install reinforcement cage and formwork, inspect and sign off parapet plinth construction in-situ:</p> <p>Install new plinth reinforcement cage and formwork.</p> <p>Install cast in cradle at each post location.</p> <p>Cast C40/50 concrete and allow time to cure.</p> <p>Install new posts and rail parapets and mesh infill.</p> <p>Install a transition piece at interface with safety barrier.</p> <p>Remove traffic management and temporary vehicle restraints.</p> <p>Repeat the process on the opposite carriageway.</p>

N2W2 PARAPET AND N2W2 SAFETY BARRIER UPGRADES

<p>Materials/Waste</p>	<p>Materials: new galvanised steel parapets will be installed on both edges of the bridge deck, in-situ C40/50 concrete and reinforcement.</p> <p>Waste: aluminium parapet, concrete plinth and reinforcement will be taken to a recycling facility for reuse elsewhere in the construction industry. The wastewater arising from hydrodemolition will be captured, treated and disposed of in line with regulatory requirements.</p>
<p>Proposed Mitigation for Environmental hazards</p>	<p>Edge protection, crash deck structure and debris netting will be installed on the free edges of the deck to prevent materials from falling into the watercourse below. Hydrodemolition working areas will be fully encapsulated, for example with debris netting to ensure that high-velocity fragments, materials and wastes are contained and prevented from entering the watercourse and surrounding marine environment. Wastewater generated from construction activities will be managed in accordance with the Environmental Authorisations (Scotland) Regulations 2018, as amended by the 2025 Regulations, ensuring compliance with SEPA's integrated authorisation framework and protection of the water environment.</p> <p>Additional mitigation measures to be detailed within works-specific Environmental Scoping Assessment, carried out prior to each works activity.</p>

2.4. Bridge Deck Refurbishment

BRIDGE DECK REFURBISHMENT	
Estimated Const. Period	2026 to 2028. 5 days per week, 12 hours. Construction is estimated to take 2 years to complete.
Estimated Const. Value	£750,000
Location of works	On all spans of the M90 Bridge of Earn - bridge deck.
Description of the works	<p>This activity comprises complete removal of the existing carriageway surfacing, road edge gullies, kerbs, footway construction, soffit level pipes and waterproofing (which may contain asbestos) to the bare concrete deck surface. The newly exposed concrete surface will be inspected and, where necessary, repaired to achieve a U4 surface finish quality to allow re-waterproofing. A new spray applied BBA certified waterproofing system will be applied, followed by the installation of road edge gullies and their connection to soffit level carrier drain pipes, etc. Once the above installations are completed and signed off, kerbs, 3 No. ducts in each footway, footway and central reserve construction, carriageway surfacing, and lane marking will be reinstated to their original levels and finish quality using new materials. The waste material arising from removal of existing material will be taken to a licensed disposal facility.</p> <p>Specialist contractors will carry out these activities, including the proposed trial pits and asbestos test patches, intended to establish the presence of any lost or unrecorded public utilities that may be housed in the footway and to confirm if asbestos is present in the deck waterproofing. If asbestos is detected, partial milling of the carriageway and footway surfacing will be undertaken to allow specialists to safely remove the affected waterproofing during an isolated, standalone operation.</p> <p>The concrete around the existing edge gully downpipes will be locally hydro-demolished to remove perished and delaminated concrete to a sound substrate. It will include exposing sufficient length of reinforcement to allow concrete repairs locally around the downpipe opening in the deck slab. The newly exposed concrete substrate will be treated, repaired with proprietary concrete repair mortar before installing new drainage downpipes and gully. Once gullies are installed complete, soffit level carrier drain pipes will be installed to convey carriageway surface runoff through a system of filter drains to a discharge point into the River Earn.</p>
Plant	Milling machine, saw cutting tools, lifting tools, hydro-demolition equipment and sprayed waterproofing applicator.
Outline Method Statement	<p>Install Traffic management to close off a carriageway (North or Southbound).</p> <p>Milling of carriageway, footway and half of central reserve surfacing.</p> <p>Remove footway construction, kerbs, half of central reserve, and gullies.</p> <p>Remove the existing waterproofing to bare concrete surface.</p> <p>Remove gully downpipes and hydro-demolish the concrete around the opening to sound substrate.</p> <p>Prepare and treat the newly exposed substrate and reinforcement.</p> <p>Install formwork and void formers to allow reinstatement of downpipes.</p> <p>Pour C40/50 concrete partly on and partly against existing deck slab concrete.</p> <p>Allow time for the concrete to cure, install the gully downpipes and connect to the gully</p> <p>Apply spray applied waterproofing to deck surface and plinth upstand.</p> <p>Reinstate kerbs, road edge gullies, footway ducts, footway fill and central reserve.</p> <p>Install footway and central reserve surfacing.</p> <p>Install carriageway surfacing.</p> <p>Reinstate road markings and signboards.</p> <p>Sweep the carriageway, inspect and sign off.</p> <p>Switch over to the opposite carriageway and repeat the above process.</p>
Materials/Waste	Materials: Waterproofing (MIF Grip NT), Colbond 50 Bond Coat, Aggregate Industries, uPVC. Pipes and associated bends and securing clamps, sealing agents, and concrete.

BRIDGE DECK REFURBISHMENT

	<p>Wastes: Kerbs, gullies, drainage downpipes, footway and central reserve fill, surfacing material, existing waterproofing (Potential Asbestos), etc, will be taken to a waste recycling facility for reuse. The concrete wastewater arising from the hydro-demolition will be captured and disposed of in line with regulatory requirements.</p>
<p>Proposed Mitigation for Environmental hazards</p>	<p>Edge protection and debris netting will be installed to prevent materials from falling into the marine environment.</p> <p>Hydrodemolition working areas will be fully encapsulated, for example with debris netting to ensure that high-velocity fragments, materials and wastes are contained and prevented from entering the watercourse and surrounding marine environment. Wastewater generated from construction activities will be managed in accordance with the Environmental Authorisations (Scotland) Regulations 2018, as amended by the 2025 Regulations, ensuring compliance with SEPA’s integrated authorisation framework and protection of the water environment.</p> <p>Additional mitigation measures to be detailed within works-specific Environmental Scoping Assessment, carried out prior to each works activity.</p>

2.5. Filter Drain Installation

FILTER DRAIN INSTALLATION	
Estimated Const. Period	2028 to 2029. 5 days per week, 12 hours. Construction is estimated to take 1 year to complete.
Estimated Const. Value	£200,000
Location of works	On all spans of the M90 Bridge of Earn - bridge deck.
Description of the works	<p>This activity comprises the installation of filter drains near the south abutment to facilitate the discharge of runoff water from the bridge deck surface into the River Earn via a designated outlet. The drainage system is designed to ensure effective filtration and environmental protection.</p> <p>A trench measuring approximately 300mm wide by 350mm deep will be excavated from the termination point of the sub-deck drainage pipe at the south abutment, extending towards the edge of the River Earn. This trench will serve as the alignment for the new filter drain.</p> <p>Once excavated, the trench will be lined with a geotextile membrane. The geotextile will permit the infiltration of water while restricting the passage of oils, silts, and other contaminants, thereby supporting environmental compliance. The lined trench will then be filled with Type B filter media to complete the filter drain construction.</p> <p>All arisings from the trench excavation, including soil and other materials, will be removed from site and transported to a licensed waste disposal facility in accordance with relevant environmental regulations.</p>
Plant	Hand excavators, trench excavator, and lifting equipment
Outline Method Statement	<p>Install Traffic management to close off a Northbound carriageway.</p> <p>Set out and mark the location of the new filter drain.</p> <p>Undertake a CAT and Genny scan in the area of the filter drain excavation to identify the Scottish water foul line near the south abutment.</p> <p>Set up trench excavation equipment and excavate as per the design.</p> <p>Transport unwanted soil from excavation to a licensed waste disposal facility.</p> <p>Install the geotextile membrane into the trench and fit the bend fixing to the deck drainage to empty the surface run off into the filter drain.</p> <p>Fill the Type B filter material and compact the fill material.</p> <p>Cover the top surface with the geotextile.</p> <p>Cover the top of the filter drain with the surface soil and tidy up the workplace.</p> <p>Inspect and sign off.</p> <p>Remove temporary traffic management.</p>
Materials/Waste	<p>Materials: uPVC pipe and associated bends, Geo-textiles, and Type B filter filler material.</p> <p>Waste: Soil from excavation.</p>
Proposed Mitigation for Environmental hazards	<p>CAT and Genny scan are to be undertaken to identify the Scottish water foul line prior to commencement of trench operations.</p> <p>Unwanted excavated soil from the trench is to be disposed of offsite safely by a licensed carrier.</p> <p>Additional mitigation measures to be detailed within works-specific Environmental Scoping Assessment, carried out prior to each works activity.</p>

2.6. Provision of New Permanent Access and Maintenance of Existing Access Equipment

PROVISION OF NEW PERMANENT ACCESS AND MAINTENANCE OF EXISTING ACCESS	
Estimated Const. Period	2026 to 2036. 5 days per week, 12 hours. Construction is estimated to take 2 years to complete.
Estimated Const. Value	Unknown
Works Location	Underside of the structure
Description of the works	<p>The proposed works involve the inspection, assessment, and maintenance of the existing rail gantries located beneath the bridge deck to support current and future structural maintenance requirements. Access for these activities will be established from the M90, with all traffic management measures implemented in accordance with approved procedures.</p> <p>Due to poor and unstable underfoot conditions at the abutment slopes, permanent underside access provisions will be developed at both ends of the structure. These access points will be constructed to enable safe, efficient, and repeated access for future inspections and maintenance operations.</p> <p>An underbridge unit will be deployed to inspect the existing rail gantry and assess its condition. A structural evaluation will be undertaken to confirm whether the existing system possesses the necessary load-bearing capacity for continued use. Where the gantry is found to be structurally sound, targeted maintenance works will be carried out. Should the assessment determine that the existing system is no longer fit for purpose, it will be fully removed and replaced with a new gantry system, including all necessary surface preparation and protective treatments.</p> <p>In conjunction with the gantry works, new permanent underside access structures will be designed and installed adjacent to each abutment. These will provide a long-term solution for safe personnel access beneath the bridge deck, reducing future reliance on temporary systems and improving operational efficiency.</p> <p>All works will be carried out by appropriately trained personnel in accordance with health, safety, and environmental regulations, and will include appropriate waste handling and material disposal at licensed facilities.</p>
Plant	Underbridge unit, welding apparatus, cutting apparatus
Outline Method Statement	<p>Install temporary traffic management to close off a carriageway on the northbound side of the carriageway.</p> <p>Install temporary underside access.</p> <p>Survey current ground levels and inspect the existing rail gantries to assess the current condition.</p> <p>Through a temporary platform or underbridge unit, repairs to the existing rail gantry or replacement are to be carried out based on the design requirement.</p> <p>Install permanent access to the underside of the bridge over the slope of the embankments near both abutments as per the design.</p>
Materials/Waste	<p>Materials: 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, Steel weld, precast concrete steps and steel railing or similar.</p> <p>Waste: Waste construction materials include sand blast grit, existing paint, unused paint and structural steel waste. These will be disposed of off-site by licensed waste carriers. Waste steel will be recycled by a licensed carrier.</p>
Proposed Mitigation for Environmental hazards	<p>All grit blasting works will be undertaken within a fully encapsulated worksite to ensure that no materials, debris or tools can enter the surrounding water and marine environment, to eliminate the risk of pollutants or impact to the water environment.</p> <p>Additional mitigation measures to be detailed within works-specific Environmental Scoping Assessment, carried out prior to each works activity.</p>

2.7. Bridge Deck Soffit Steel Repairs and Strengthening

BRIDGE DECK SOFFIT STRUCTURAL STEEL REPAIRS AND STRENGTHENING	
Estimated Const. Period	2027 to 2036. 5 days per week, 12 hours. Construction is estimated to take 4 years to complete.
Estimated Const. Value	Unknown
Location of works	Deck soffit level All Spans –soffit steel
Description of the works	<p>The steel concrete composite deck comprises soffit twin box girders spanning between abutments and continuous over intermediate supports with “I” beams spanning between girders and I section beams cantilevered from the external webs of the box. All the soffit steelworks are in composite with reinforced concrete slab.</p> <p>The box girders, cross and cantilever beams may require remedial work to enhance their live load capacity or repairs age related deterioration to sustain their structural integrity. A bridge deck structural assessment is currently in progress to confirm the existing live load capacity of all elements of the deck and to identify any weak structural. The outcome of that assessment will identify elements that requires strengthening and may include installation of additional steel members to the deck soffit structural steel. If strengthening is recommended, steel samples will be collected from the existing soffit steel to confirm the metallurgy of the structural steel and ensure a similar grade of steel is used for any future repairs, to design out bimetallic corrosion.</p> <p>The strengthening works, a temporary working/access platform with full encapsulation will be provided to facilitate safe access to all areas of the soffit steel in all spans and protect the local environment from contamination. It is assumed that the works will commence as soon as temporary access/ working platform is installed.</p> <p>The existing paint system on the girders will be stripped to bare steel by grit blasting or similar approved methods before any strengthening works commences. The permanent strengthening will be installed based on the design and method proposed by designers.</p> <p>Once the soffit level strengthening works is completed, appropriate protective coating system will be applied. The surfaces of the new and existing steelwork will be prepared to the appropriate surface finish class and painted in line with the manufacturer’s instructions.</p> <p>The temporary working/access platform will be removed from the site once all the deck soffit level works is completed.</p>
Plant	Temporary crash deck structure or working platform with local encapsulation around the work areas, grit or paint stripping equipment, power hand tools, welding equipment, and painting equipment.
Outline Method Statement	<p>Install a temporary working platform to facilitate steel samples collection for testing and inspection of the bridge deck as required to inform the bridge strengthening design.</p> <p>Install a temporary working access platform with full encapsulation containment.</p> <p>Remove paint system by grit blasting, chemical, or mechanical to expose bare steel.</p> <p>Surface preparation of steel members prior to installation of repair as per the design.</p> <p>Install new bridge strengthening to the girders as per the design.</p> <p>Apply a protective paint system or similar as per the manufacturer’s guidelines.</p> <p>Inspect and sign off on the repairs.</p> <p>Remove the encapsulation, work platform and temporary access.</p>
Materials/Waste	Materials: 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.

BRIDGE DECK SOFFIT STRUCTURAL STEEL REPAIRS AND STRENGTHENING

	<p>Waste: Waste construction materials include sand blast grit, existing paint, unused paint and steel waste. These will be disposed of off-site by licensed waste carriers. Waste steel will be recycled by a licensed carrier.</p>
<p>Proposed Mitigation for Environmental hazards</p>	<p>All grit blasting works will be undertaken within a fully encapsulated worksite to ensure that no materials, debris or tools can enter the surrounding water and marine environment, to eliminate the risk of pollutants or impact to the water environment.</p> <p>Additional mitigation measures to be detailed within works-specific Environmental Scoping Assessment, carried out prior to each works activity.</p>

2.8. Bridge Deck Bearings Replacement

BRIDGE DECK BEARINGS REPLACEMENT	
Estimated Const. Period	2027 to 2035. 5 Days per week. 12hours. Construction is estimated to take 12-18 months to complete.
Estimated Const. Value	Unknown
Location of works	All Bridge Spans – Underneath the bridge deck
Description of the works	<p>The works comprise the replacement of all 16-no. existing bridge deck bearings with new bridge bearings. These replacements may be carried out either as a single phase or over multiple phases, subject to site constraints and sequencing requirements.</p> <p>Access to the underside of the bridge will be established via a temporary working platform system, which will be progressively installed ahead of the bearing replacement operations. Where grit blasting is required, full containment measures will be incorporated into the platform design to prevent environmental contamination.</p> <p>Prior to the bearing replacement, permanent bridge strengthening and jacking platforms will be installed at each bearing location. This will involve the fabrication and installation of steel sections welded and/or bolted to the existing box girder structure. Surface preparation for these areas will be carried out using grit blasting, mechanical, or chemical means as appropriate to ensure a suitable substrate for the application of protective coatings.</p> <p>Following surface preparation, the new steel strengthening sections and adjacent girder surfaces will be coated with a protective paint system. Once fully cured, temporary jacking equipment will be installed at each jacking location. The bridge deck will then be carefully raised by up to 10mm to facilitate the removal and replacement of the existing bearings and their associated base plates.</p> <p>The removal and installation of bearings will involve hot works, including grinding, welding, and thermal gouging. Where the existing protective coating is damaged during these operations, additional touch-up painting will be undertaken to reinstate full corrosion protection in accordance with the paint specification.</p> <p>Upon completion of the bearing replacements, all temporary jacking equipment and working/access platforms will be dismantled and removed from site. All waste materials, including grit and debris arising from surface preparation activities, will be collected and disposed of at a licensed facility in accordance with environmental regulations.</p>
Plant	Temporary working/access platform, temporary bridge jacking equipment, grit blasting equipment, hand tools, welding/thermal gouging equipment.
Outline Method Statement	<p>Install Traffic management to close off a carriageway (North or Southbound).</p> <p>Install a temporary access/working platform with full containment (at grit blasting locations).</p> <p>Prepare steel surfaces on the box girder for painting by chemical, grit blasting or mechanical paint removal.</p> <p>Install additional steel plates to the box girder at the jacking location.</p> <p>Install temporary bridge jacking equipment.</p> <p>Lift the bridge deck by 10mm using proprietary bridge jacks.</p> <p>Remove existing bearings and base plates by unbolting, grinding or thermal gouging.</p> <p>Weld new base plates onto the box girders.</p> <p>Install new bridge deck bearings.</p> <p>Apply an additional protective paint system as required.</p> <p>Install bearing monitoring equipment.</p> <p>Lower the bridge deck from the jacked state to sit on the new bearings.</p> <p>Remove temporary bridge jacking equipment.</p> <p>Remove temporary access/working platform and clean the site of any debris.</p>

BRIDGE DECK BEARINGS REPLACEMENT	
	Inspect the bearings, sign off, and remove the temporary traffic management.
Materials/Waste	<p>Materials: The scheme has not yet been designed and the quantities of materials/waste to be added/removed from the structure is unknown. Material to be added to the bridge include new steel deck bearings, steel base plates, steel sections, steel welding material, and paint.</p> <p>Waste: Waste construction materials include sand blast grit, existing paint, unused paint, steel waste and existing bearings. These will be removed from the site by licensed waste carriers and landfilled. Waste steel will be recycled by a licensed carrier.</p>
Proposed Mitigation for Environmental hazards	<p>All grit blasting works will be undertaken within a fully encapsulated worksite to ensure that no materials, debris or tools can enter the surrounding water and marine environment, to eliminate the risk of pollutants or impact to the water environment.</p> <p>Additional mitigation measures to be detailed within works-specific Environmental Scoping Assessment, carried out prior to each works activity.</p>

2.9. Soffit Steel Painting

SOFFIT STEEL PAINTING INTERNAL AND EXTERNAL SURFACES	
Estimated Const. Period	2029 to 2036. 5 days per week. 12hours. Construction is estimated to take 4 years to complete.
Estimated Const. Value	Unknown
Location of works	Box girders (internal and external), Cantilever beams and cross girders
Description of the works	<p>The existing paint system on the internal and external surfaces of the box girders, cantilever beams and cross girders will be stripped to bare steel to the specified finish quality and reinstated with a modern, more environmentally friendly system. If the repainting work is carried out as a single stand-alone scheme, the site works will be phased to ensure only sections of the deck will have temporary access/working platforms.</p> <p>The existing paint system will be removed by a combination of grit blasting, mechanical means or similar approved. The exposed steelwork and welds will be inspected for defects, and weld/steel repairs undertaken where required. The steelwork will then be painted with multiple coats. Once all repainting works are completed, the temporary access/working platform will be removed from the bridge.</p>
Plant	Scaffolding or similar temporary working platform, grit blasting equipment, painting equipment, welding equipment and hand tools.
Outline Method Statement	<p>Provision of temporary working/access platform.</p> <p>Stripping existing paint system and steel surface preparation by either chemical, grit blasting or mechanical means.</p> <p>Inspect randomly selected welds and steelwork for defects. Complete weld/steel repairs as required.</p> <p>Application of paint system as per the manufacturer's guidelines.</p> <p>Remove encapsulation and suspended work platform.</p>
Materials/Waste	<p>Materials: The scheme has not yet been designed as such quantities of waste materials, arising from the operations, are not known at this stage. Waste materials are expected to be old/new paint systems, small steel sections may be added to the bridge to repair defects when required.</p> <p>Waste: Waste construction materials include spent grit, existing paint, unused paint and steel waste. These will be disposed of by licensed waste carriers at a landfill. Waste steel will be recycled by a licensed carrier.</p>
Proposed Mitigation for Environmental hazards	<p>All grit blasting works will be undertaken within a fully encapsulated worksite to ensure that no materials, debris or tools can enter the surrounding water and marine environment, to eliminate the risk of pollutants or impact to the water environment.</p> <p>Additional mitigation measures to be detailed within works-specific Environmental Scoping Assessment, carried out prior to each works activity.</p>

2.10. Deck Movement Joints Replacement

DECK MOVEMENT JOINTS REPLACEMENT	
Estimated Const. Period	2029 to 2036. 5 days per week. 12hours. Construction is estimated to take 1 year to complete.
Estimated Const. Value	Unknown
Location of works	M90 Bridge of Earn - bridge deck topside.
Description of the works	<p>The works involve the replacement of existing expansion joints located at the south and north abutments of the structure. These activities are to be undertaken following the completion of the bridge bearing replacement works and are critical in ensuring the protection of the abutment galleries and new bearings from surface water ingress.</p> <p>The existing expansion joints will be removed using controlled grinding and cutting techniques. The replacement expansion joints will be installed as like-for-like units in accordance with existing design drawings and specifications. The new joints will be fully sealed and integrated to ensure water tightness and continuity of the carriageway surface.</p> <p>In conjunction with the expansion joint installation, resurfacing works will be undertaken on the carriageway approaches to each joint to restore the original level, profile, and finish. These works will ensure a smooth transition across the joint and maintain road user comfort and safety.</p> <p>All waste materials arising from demolition and resurfacing will be removed from the site and disposed of at a licensed waste facility in accordance with current environmental regulations.</p>
Plant	Grinding and cutting equipment, lifting equipment, surfacing equipment.
Outline Method Statement	<p>Install traffic management to close off one carriageway (northbound or southbound).</p> <p>Remove the existing bridge expansion joint near the abutment using cutting and grinding methods.</p> <p>Install a new like-for-like replacement joint and connect the deck ducts to the ducts off the deck through the joint.</p> <p>Seal all the gaps for waterlogging.</p> <p>Resurface any carriageway surfacing damaged during the joint removal operations.</p> <p>Clean the carriageway, carry out inspection, and obtain sign-off.</p> <p>Switch the traffic management to the opposite carriageway and repeat the above activities.</p>
Materials/Waste	<p>Materials: The scheme has not yet been designed, and the quantities of materials/waste to be added/removed from the structure is unknown. Material to be added/removed from the bridge is the new construction joint, Surfacing material, and Water sealant.</p> <p>Waste: Waste construction materials include existing expansion joints, damaged surfacing and concrete. These will be disposed of by licensed waste carriers at a landfill. Waste steel will be recycled by a licensed carrier.</p>
Proposed Mitigation for Environmental hazards:	<p>All the waste generated will be disposed of by a licensed carrier.</p> <p>Additional mitigation measures to be detailed within works-specific Environmental Scoping Assessment, carried out prior to each works activity.</p>