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Environmental Impact Assessment Record of Determination

A68 220 Earlston

Bridge Refurbishment and Scour Protection Works

Contents

Project Details

Description

BEAR Scotland has been commissioned by Transport Scotland to carry out bridge refurbishment works at the A68 220 Earlston Bridge. Due to the reporting of a significant number of defects in the most recent 2021 Principal Inspection, a refurbishment scheme has been proposed over the defective elements of the structure, works activities will include:

Above Deck Works

- Deck refurbishment will be undertaken over the course of approximately four weeks and is expected to be undertaken during daytime working and will include the following elements:
  - The road surface of the A68 Earlston Bridge will be milled to deck level.
  - Waterproofing will then be removed.
  - The deck will be cleared to reach concrete across the full structure.
  - A delamination survey will then be undertaken along with associated concrete repairs which will be completed via hydro-demolition at defective areas to approx. 50mm behind reinforcement.
  - Any damaged reinforcement will be repaired via replacement or re-painting.
  - Waterproofing will then be replaced through a spray-applied BBA approved system.
- Joint replacement will be undertaken over the course of approximately one week during night-time working hours.
  - Replacement of the joints on the structure involve the breaking of existing, cleaning of the deck, completing any concrete repairs, if necessary, and installing the new joint material.
- Resurfacing of an approx. 134m section of the A68 carriageway along Earlston Bridge will be undertaken over the course of approximately one night and will include the following elements:
  - Binder material laid and compressed by paver.
  - Material compacted using a heavy roller.
  - Road markings and studs applicated where necessary.
- Reinstatement of verges and services will be undertaken over the course of approximately two weeks during dayworks working hours and will include the following elements:
  - Excavation of existing verges to be completed and services to be rehoused in new ducts, if necessary.

Below Deck Works

- Bearing replacement works will be undertaken over the course of approximately twelve weeks during daytime working hours. Replacement of bearings within the central pier will be undertaken within a dry working area (expected to be approximately four to five weeks). Bearing replacement works will involve the following elements:
  - The A68 Earlston Bridge structure will be jacked by a few millimetres at all three supports, south abutment, north abutment and central pier.
  - Hydro-demolition will be undertaken to remove the existing bearings.
  - Replacement of bearings will then be undertaken.
  - For bearing replacement works at the central pier a dry working area will be implemented around prior to the commencement of works.
  - Where necessary, an access scaffold will be constructed around central pier located to be erected within the dry working area of Leader Water.
  - For the central pier works, it is expected that a suspended scaffold will be used to avoid working in water. However, a dry working area will be in place below the works to ensure any run-off / debris is contained and does not enter Leader Water.
- Concrete repairs to abutments will be undertaken over the course of approximately two weeks, during daytime working hours entirely from land, and will include the following elements:
  - Defective concrete will be broken out via hydro-demolition at each abutment via ‘gun’ or robot to approx. 50mm behind defective concrete.
  - Defective areas of reinforcement to be repaired, where necessary.
  - Shuttering will be installed, and concrete repairs carried out.
- Localised painting will be undertaken over the course of approximately four weeks during daytime working hours and will include the following elements:
  - Existing paint work will be removed via grit blasting with the works being fully encapsulated.
  - Localised painting of the existing universal longitudinal beams below the structure will then be completed likely via rope-access or from a suspended scaffold depending on temporary works setup.
  - Repainting is required at localised areas across all spans and all beams.
- Reprofiling of embankment and use of grey banking will be undertaken over approximately two weeks, during daytime working hours and will involve the following elements:
  - Minor excavations and earthworks to be completed to reprofile the existing embankments at both north and south sides of the structure.
  - Following which a cementitious mat will be installed as top layer.
- Reconstruction of the stone revetments will be undertaken over the course of approximately one week during daytime working hours with in-water works required.
  - Removal of soil / debris currently present on top of the stone revetments as a result of sol deposition following flood events to expose the stone revetments below.
  - Repairs to the stone revetments where required along including along the toe which may require a dry working area to allow for installation.

- Drainage investigation and repair works to be undertaken over the course of approximately four days during daytime working hours and will involve the following elements:
  - Drainage investigation to be completed via either CCTV or physical probe to existing drainage system from above deck to the abutment below and in relation to a small culvert directly adjacent to the north-west of the structure that leads to Leader Water.
  - Repairs of drainage system will be undertaken where required.

The works are currently programmed to be completed within the 2024/2025 financial year. Works are expected to be completed over approx. nine months with the in-river works occurring over a four-five week period with works expecting to commence in July 2024 (predominantly daytime working, with night works to be undertaken for carriageway resurfacing and joint replacement, expected to occur over approx. one week). Traffic Management (TM) will be required under a number of different traffic management arrangements, notably: alternating lane closures with temporary traffic lights and full road closure with signed diversion. Local footpaths are present either side of the A68 on the A68 220 Earlston Bridge, if necessary, NMUs will be diverted/escorted around the site. There is the possibility the footpaths may be temporarily blocked during construction.

Location

The scheme is located on the A68 220 Earlston Bridge, which lies on the periphery of Earlston, with agricultural land surrounding the scheme (Figure 1).

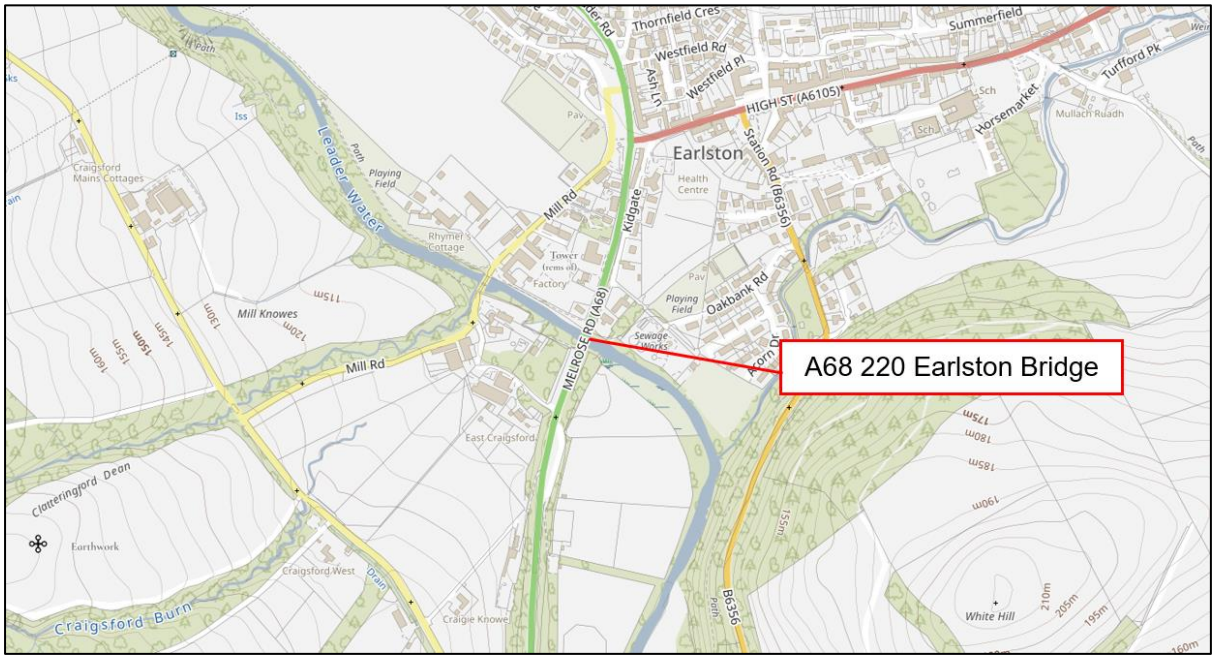

Figure 1. Extent of works. Source: Asset Management Performance System (AMPS). © Europa Technologies Ltd. Contains Ordnance Survey data © Crown copyright and database right 2018.

Description of local environment

Air quality

Properties within 300m of the scheme – refer to 'Population and Human Health'.

The scheme is not located within an Air Quality Management Area (AQMA), and air quality monitoring sites in the wider area record bandings in the 'green zone' (Low Index 1-3).

The scheme lies within the boundary of Scottish Borders Council, which has no Air Quality Management Areas (AQMAs) within its administrative boundary. The nearest AQMA, 'High Street Musselburgh' lies within the East Lothian Council administrative boundary approx. 41km northwest of the scheme and has been declared for nitrogen dioxide (NO_2).

There are seven sites registered on the Scottish Pollutant Release Inventory (SPRI) for pollutant releases to air within 10km of the scheme. Details as follows:

- Addistone Poultry Farm, Earlston -Intensive livestock production and aquaculture which has been declared for ammonia (t), particulate matter - PM_{10} and smaller (t) and particulate matter - total (t) (located 3km northeast)
- Cottage Wood Poultry Farm, Earlston -Intensive livestock production and aquaculture which has been declared for ammonia (t), particulate matter - PM_{10} and smaller (t) (located 4.8km northeast)
- Easter Langlee Landfill Site, Galashiels -Intensive livestock production and aquaculture which has been declared for Chlorofluorocarbons (CFCs) (kg), Hydrochlorofluorocarbons (HCFCs) (kg), Methane (t), and Methyl chloroform (kg) (located 5.3km southwest)
- Galashiels STW, Winston Road, Galashiels - Mineral industry which has been declared for Methane (t) (located 6.3km southwest)
- Springfield Poultry Farm -Intensive livestock production and aquaculture which has been declared for ammonia (t) (located 3.9km northeast)
- Standingstone Poultry Farm, Earlston -Intensive livestock production and aquaculture which has been declared for ammonia (t) (located 3.2km northeast)
- West Morriston Free Range Poultry, Earlston -Intensive livestock production and aquaculture which has been declared for ammonia (t) (located 3.8km northeast)

Baseline air quality in the study area is mainly influenced by vehicles travelling along the trunk road. Secondary sources are derived from vehicles travelling along the

local road network and day-to-day agricultural land management and urban activities.

Cultural heritage

The PastMap and Historic Environment Scotland (HES) online mapping tools records two listed buildings (Category B) lie within 300m of the A68 220 Earlston Bridge. There is no connectivity between the scheme and the listed buildings e.g. the nearest lies outwith the trunk road boundary, approx. 80m east of the scheme.

Of lesser cultural heritage value, forty undesignated cultural heritage assets (UCHAs) lie within 300m of the scheme, two of which, a canmore site and Historic Environment Record, pertain to the A68 220 Earlston Bridge. There is no connectivity between the scheme and the remaining UCHAs e.g. the nearest lies outwith the trunk road boundary, approx. 25m east of the scheme.

Construction of the A68 road corridor is likely to have removed any archaeological remains that may have been present within the trunk road boundary. The potential for the presence of unknown archaeological remains in the study area has therefore been assessed to be low.

Landscape and visual effects

The scheme is not situated within a National Park (NP) or National Scenic Area (NSA).

The scheme lies within the 'Pastoral Upland Fringe Valley' Landscape Character Type (no. 117) (Scottish Landscape Character Types). The key characteristics of this LCT are:

- Medium scale pastoral valley with flat floor enclosed by upland fringe pastures, often with rough grassland and moorland covered hills above.
- Smooth large-scale landform modified in places by bluffs and moraine on valley floor, scree slopes or rock outcrops on valley sides.
- Narrow, often wooded tributary side valleys.
- Broadleaf woodlands and scrub on bluff slopes and scattered trees along river banks, occasional coniferous plantations and shelterbelts on valley sides.
- Valley floor pastures enclosed by drystone dykes with occasional hedgerows, interspersed with occasional patches of scrub, coarse grass and rushes.
- Scattered villages, farmsteads and mansion houses with policy woodlands.

Land use within 300 m of the scheme is categorised into the following:

- Rectilinear fields and farms,
- Industrial or commercial area,
- Recreation Area and

- Urban area.

The national scale land capability for agriculture classifies land surrounding the scheme as being:

- 'Class 3.1' – land capable of producing consistently high yields of a narrow range of crops and/or moderate yields of a wider range (short grass leys are common).

The scheme lies on the periphery of Earlston, with land surrounding the bridge dominated by woodland, urban development, and agricultural land.

Riparian woodland associated with Leader Water / Kelphope Burn surrounds the A68 220 Earlston bridge.

A small, approx. 0.8ha of wet woodland registered on the Native Woodland Survey of Scotland is present approx. 165m west of the scheme extents. In addition an approx. 5.4ha area of woodland registered on the Ancient Woodland Inventory Scotland as ancient woodland of semi-natural origin is present approx. 280m east of the scheme, this area of woodland is also noted as being native lowland mixed deciduous.

The existing trunk road is a prominent linear landscape feature. The trunk road corridor, for example, has a distinct character shaped by fast-flowing traffic, road markings, safety barriers, signage, landscaping, lighting etc. The scale of the trunk road detracts from the quality and character of the wider landscape.

Biodiversity

The NatureScot Sitelink online mapping tools identifies that the A68 220 Earlston Bridge spans Leader Water, which forms part of the River Tweed Special Area of Conservation (SAC).

The scheme is not situated within 2km of, and does not share connectivity with, any other 'European Sites' e.g., SAC, Special Protection Area (SPA), Ramsar, etc.

The scheme is not situated within 300m of a Site for Special Scientific Interest (SSSI), or Local Nature Reserve (LNR) designated for biodiversity features.

One Local Nature Conservation Site (LNCS) is located within 300m of the scheme:

- Cowdenknowes Local Biodiversity Site (LBS) is located approx. 290m east of the scheme.

A number of ecological surveys have been undertaken in support of these works to date.

A search of the NBN online mapping tool records the following species within 2km of the scheme extents (within the last 10-years):
One invasive non-native species (INNS):

- Japanese knotweed (*Reynoutria japonica)*.

However, the Japanese knotweed is recorded as being treated and controlled in 2022. The nearest record is, located approx. 1.7km south of the scheme.

A search of the Asset Management Performance System (AMPS) online mapping tool records no invasive non-native species (INNS) or injurious weeds (as listed under the Weeds Act 1959), within the scheme extents (within last 10-years). Rosebay willowherb (*Chamerion angustifolium*) invasive native perennials (as listed in the Trunk Road Inventory Manual) is recorded approx. 20m south of the scheme extents (2021).

Ecology surveys undertaken in 2022 and 2023, noted Himalayan balsam (*Impatiens glandulifera*) underneath the A68 220 Earlston Bridge, and along the left and right embankments of Leader Water / Kelphope Burn at the bridge. In addition, a 2m x 3m pocket of Rosebay willowherb was also noted approx. 30m north of the bridge, behind the vehicle restraint system (VRS) adjacent to the southbound lane.

Habitat immediately bordering the trunk road tends to be of low intrinsic value because the existing road verge is subject to cyclic maintenance e.g., grass cutting, weed control, tree, and shrub cut-back etc. The roadside verges either side of the A68 220 Earlston Bridge, to the north and south of the span, therefore, comprise a homogenous species-poor improved grassland alongside herbaceous, shrub and broadleaved tree growth. Roadside vegetation offers low ecological habitat value due to its limited scale, fragmented nature and high potential for disturbance owing to cyclic landscape maintenance, and the proximity of road space (with its fast-flowing traffic). The presence of the trunk road also restricts continuity of, and connectivity between, habitats either side of the road boundaries.

Earlston bridge spans Leader Water / Kelphope Burn which along with its associated riparian woodland offers optimal biodiversity habitats supporting a number of species.

Geology and soils

The A68 within the scheme extents is not located within a Geological Conservation Review Site (GCRS), and there are no Local Geodiversity Sites (LGS) with connectivity to the scheme extents.

The National Soil Map of Scotland online mapping tool records the Generalised Soil Type and Major Soil Group in the study area is Alluvial soils.

The British Geological Survey online mapping tool records that the superficial geology in the scheme extents is comprised of:

- Alluvium (silt, sand and gravel).

The bedrock geology in the scheme extents is recorded as:

- Hawick Group (wacke).

There is no evidence of historical industrial processes or the storage of hazardous materials that could have given rise to significant land contamination**.**

Material assets and waste

The proposed works are required for bridge refurbishment. Materials used will consist of:

- Concrete,
- Expansion joints,
- Bearings,
- Paint,
- Anti-graffiti coating,
- Waterproofing,
- Verge material,
- Revetment material (stone/rip rap),
- Concrete mattress,
- Hot rolled asphalt and
- Hot applied thermoplastic screed (road markings).

As the value of the scheme exceeds £350,000 a Site Waste Management Plan (SWMP) is required.

The main waste for these works is likely to consist of planings (European Waste Code 17-03-02), concrete (European Waste Code 17-01-01), steel (European Waste Code 17-04-05) and riverbed substrate which has deposited on the stone revetment during flood events.

Noise and vibration

Receptors - refer to ‘Population and human health’.

Works are not located within a Candidate Noise Management Area (CNMA) or Candidate Quiet Areas (CQA).

There is no modelled noise data available for the study area (Scotland’s Noise Scotland’s Environment). However, given the rural nature of the area, and the low Annual Average Daily Traffic (AADT) flow, it is considered likely that noise levels will be low, with baseline noise levels mainly influenced by vehicles travelling along the trunk road. Secondary sources are likely derived from day-to-day agricultural land management and urban activities.

Population and human health

Numerous properties (including residential, business premises, farmsteads, and industrial premises) and a medical practice lie within 300m of the A68 220 Earlston bridge. Two residential properties lie within 50m of the scheme and have limited screening from the bridge, provided by boundary fencing and riparian woodland and scrub habitat (approx. > 10m wide). Properties further afield are screened by a combination of intervening properties and/or woodland (approx. 40m wide). The medical practice lies 260m north of the bridge and is screened by intervening properties.

Local footpaths are present either side of the A68 on the A68 220 Earlston bridge. There are no other non-motorised user or community facilities with connectivity to the scheme.

Street lighting is absent within the scheme extents.

The A68 at the scheme location is a single carriageway with the national speed limit applying throughout. The Annual Average Daily Traffic (AADT) flow is low (5,825 motor vehicles (ID: 40732, 2022 data)) (Road traffic statistics) and is comprised of:

- 46 two wheeled motor vehicles,
- 3,972 cars and taxis,
- 60 bus and coaches,
- 1,210 Light Goods Vehicles (LGVs), and
- 537 Heavy Goods Vehicles (HGVs).

There are no congestion issues noted on the A68 within the scheme extents during the proposed working hours.

Road drainage and the water environment

The Scottish Environment Protection Agency (SEPA) River Basin Management Plan online mapping tool records Leader Water / Kelphope Burn (Cleekhimin Burn confluence to River Tweed) a classified waterbody (ID: 5266) is spanned by the A68 within the scheme extents. Leader Water / Kelphope Burn is a river, in the River Tweed catchment of the Solway Tweed river basin district. The main stem is approximately 23.2km in length. Leader Water / Kelphope Burn has been assigned a Water Framework Directive 2000/60/EC (WFD) overall classification of ‘Moderate’, an ecological classification of ‘Bad’, and a classification of ‘High’ for fish barrier.

Tufford Burn, a classified waterbody (ID: 5268), is located approx. 280m east of the scheme. This river is a tributary of Leader Water/ Kelphope Burn with the main stem

being 7.8km in length. This waterbody has been designated as being heavily modified and has been assigned a Water Framework Directive 2000/60/EC (WFD) overall classification of 'Good', an ecological classification of 'Bad', and a classification of 'High' for fish barrier.

Clatteringford Dean, an unclassified waterbody, is located approx. 180m west of the scheme. This river is also a tributary of Leader Water / Kelphope Burn.

There are no other unclassified surface waterbodies within 300m of, spanned by, culverted beneath or which share direct connectivity with the scheme extents.

A search of the SEPA online flood mapping tool records that the trunk road, within the scheme extents, is not at risk of surface water flooding. Leader Water / Kelphope Burn has been recorded as being of high likelihood of river flooding (i.e. each year this area has a 10% chance of flooding).

A search of the SE online mapping tool determined that the trunk road, within the scheme extents, lies on the ''Peebles, Galashiels and Hawick' groundwater, which has been classified as 'Good'.

A search of the SE online mapping tool determined that the trunk road, within the scheme extents, does not lie within a Nitrate Vulnerable Zone.

Climate

The Climate Change (Scotland) Act 2009 sets out the target and vision set by the Scottish Government for tackling and responding to climate change (The Climate Change (Scotland) Act 2009). The Act includes a target of reducing CO_2 emissions by 80% before 2050 (from the baseline year 1990). The Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 amended the Climate Change (Scotland) Act 2009 to bring the target of reaching net-zero emissions in Scotland forward to 2045 (Climate Change (Emissions Reduction Targets) (Scotland) Act 2019).

The Scottish Government has since published its indicative Nationally Determined Contribution (iNDC) to set out how it will reach net-zero emissions by 2045, working to reduce emissions of all major greenhouse gases by at least 75% by 2030 (Scotland's contribution to the Paris Agreement: indicative Nationally Determined Contribution - gov.scot (www.gov.scot)). By 2040, the Scottish Government is committed to reducing emissions by 90%, with the aim of reaching net-zero by 2045 at the latest.

Transport Scotland is committed to reducing carbon across Scotland's transport network and this commitment is being enacted through the Mission Zero for Transport (Mission Zero for transport | Transport Scotland). Transport is the largest contributor to harmful climate emissions in Scotland. In response to the climate

emergency, Transport Scotland are committed to reducing their emissions by 75% by 2030 and to a legally binding target of net-zero by 2045.

Policies and plans

This Record of Determination has been undertaken in accordance with all relevant regulations, guidance, policies and plans, notably including the Environment and Sustainability Discipline of the Design Manual for Roads and Bridges (Design Manual for Roads and Bridges (DMRB)) and Transport Scotland's Environmental Impact Assessment Guidance (Guidance - Environmental Impact Assessments for road projects (transport.gov.scot)).

Description of main environmental impacts and proposed mitigation

Air quality

During the construction phase, activities undertaken on site could potentially have some minor localised and short-term air quality impacts in proximity to the works. The construction phase will, for example, require a range of ancillary plant, vehicles, and non-road mobile machinery (NRMM) which will contribute to local dust and air pollutants. The main sources are likely to be dust generated by cold milling in preparation of carriageway resurfacing, during the removal of soil and stone from the revetments, as well as exhaust emissions from ancillary plant and vehicles. As a result, there is potential for local impacts to air quality.

However, with the implementation of mitigation detailed below, impacts on local air quality levels during the construction period are assessed to be temporary negligible adverse in magnitude.

Upon completion of the works, no residual air quality impacts are anticipated.

Proposed air quality mitigation measures:

- The working area on the bridge will be fully and effectively encapsulated with frequent checks (at least daily) of the containment system and completion of a sign-off permit prior during the painting works (i.e. removal and reapplication).
- Encapsulation will include installation of extraction equipment with dust filters to create negative air pressure within the encapsulated area and vacuum extractors to pipe out waste (e.g. grit and old paint) into an enclosed skip.
- Upon completion of works, the working area will be cleaned, and the encapsulation material (e.g. plastic sheeting) will be dismantled and folded in such a way as to contain any trace of remaining debris before removal from site.
- Grit bags will remain closed when not in use to prevent cast off to the surrounding environment.
- Materials stored in the laydown area will only be moved when they are required.
- Materials will be removed from site as soon as is practical. A water-assisted road sweeper will sweep the carriageway after dust-generating activities to minimise potential effects on the A68 carriageway, waste will be contained and removed from site as soon as is practicable.

- The A68 in proximity to the site will be monitored, where excessive mud build up occurs the road will be swept.
- Any materials leaving site i.e. soils, road planings etc. will be appropriately covered.
- Any excavated material being temporarily retained on site will be appropriately stored to prevent windblown dust, where appropriate these areas will be dampened down and / or covered.
- Ancillary plant, vehicles and non-road mobile machinery will be regularly maintained, with attention being paid to the integrity of exhaust systems.
- Ancillary plant, vehicles and non-road mobile machinery will be switched off when stationary to prevent exhaust emissions (e.g., there will be no idling vehicles).
- Cutting, grinding, and sawing equipment (if required) will be fitted or used in conjunction with suitable dust suppression techniques e.g., local exhaust ventilation system that fits directly onto tools.
- Regular monitoring (e.g., by engineer or Clerk of Works) will take place when activities likely to result in impacts to local air quality are occurring. In the unlikely event that unacceptable dust, particulate matter or exhaust emissions are emanating from the site, the operation will, where practicable, be modified and re-checked to verify that the corrective action has been effective. Actions to be considered include: (a) minimizing cutting and grinding on-site, (b) reducing the operating hours, (c) changing the method of working, etc.

Cultural Heritage effects

People, ancillary plant, vehicles, NRMM and materials will be restricted to areas of made ground within the boundary of the A68 as far as possible and are limited to bridge refurbishment, therefore there is no connectivity between the scheme and the listed buildings, the closest of which is 80m from the scheme.

Furthermore, construction of the A68 road corridor is likely to have removed any archaeological remains that may have been present within the trunk road boundary scheme extents. As such the potential for the presence of unknown archaeological remains in the study area has been assessed to be low. However, given that earth works are required out with the road corridor there remains some limited potential for previously undiscovered items to be present within the working areas.

Nevertheless, with implementation of mitigation detailed below, the proposed impacts on cultural heritage during the construction period are assessed to be negligible in magnitude. Upon completion of the works, no residual impacts on cultural heritage are anticipated.

Cultural heritage mitigation measures:

- All site personnel will be briefed on the importance of archaeological finds and will be instructed to inform the site supervisor where potential finds are made. If there are any unexpected archaeological finds, all works will temporarily stop, the area will be cordoned off and BEAR Scotland's Environmental Team contacted for advice.
- People, ancillary plant, vehicles, NRMM and materials will be restricted to areas of made/engineered ground (as much as is reasonably practicable). Where access outwith made/engineered ground is required for the safe and effective completion of the scheme, the area will be reduced as much as is reasonably practicable.
- If a change to the construction programme onsite is required that necessitates additional earthworks or vegetation clearance, BEAR Scotland's Environmental Team will be contacted.

Landscape and visual effects

During construction there will be a short-term impact on the landscape character and visual amenity of the site as a result of the presence of construction plant, vehicles, and TM.

However, the scheme is not situated within a 'sensitive area' designated for landscape features e.g., NP, NSA, etc. Furthermore, surrounding properties are somewhat visually screened from the works location and will be undertaken partially from beneath road level. As such, the visual impact of the works will be somewhat reduced.

Upon completion of the works, the cementitious mat may be visible from the footpaths present alongside the bridge, however this is not anticipated to cause a negative impact on the landscape within the area.

Considering the nature of the scheme, and with implementation of mitigation detailed below, impacts on landscape are assessed as temporary negligible adverse in magnitude.

Upon completion of the works, no residual impacts are anticipated e.g., when complete the visual appearance will remain largely unaffected, with bridge refurbishment being the only discernible change.

Proposed landscape and visual effects mitigation measures:

- The site will be monitored regularly for signs of litter and other potential contaminants, with any litter being removed after works take place. The site will also be left clean and tidy.

- During the installation of the site compound, access tracks etc., consideration will be given to reduce visual impacts / damage to the landscape and where possible sited to minimise damage to surrounding soil or vegetation.
- As far as is possible construction vehicles will not be left in places where soil or vegetation can be damaged.
- Upon completion of the works and removal of the site compound, measures will be taken to make-good the area, by grass seeding of the site, including access tracks. Where damage has occurred, the area will be lightly cultivated or graded to allow natural recolonization by local species and promote integration with existing landscape character.

Biodiversity

The A68 220 Earlston Bridge spans Leader Water, which forms part of the River Tweed SAC, with works required to be carried out from within the SAC.

As such a Habitats Regulations Appraisal (HRA) screening has been undertaken which could not rule out the potential for Likely Significant Effects (LSE) on the River Tweed's SAC qualifying features. An Appropriate Assessment (AA) was therefore undertaken which concluded that following the implementation of mitigation measures the works would not result in an adverse effect on site integrity (AESI) to any of the qualifying features. The HRA will be consulted on and authorised by the competent authority prior to the commencement of works.

There may be a requirement for some vegetation clearance to facilitate access which could result in impacts to nesting birds and bats. However, additional surveys will be undertaken prior to the commencement of works and where necessary species licences will be obtained with additional mitigation adhered to.

During the in-water works there is potential for direct and indirect impacts to aquatic species. However, in-water works will be undertaken over a short period of time (4 -5 weeks), with mitigation measures detailed below being strictly adhered to which will minimise the potential for impacts.

A temporary short-term increase in noise levels may cause disturbance to local wildlife. The works will, for example, require a range of ancillary plant, vehicles and NRMM which will emit noise and create potential disturbance. The works will also require delivery of materials and the presence of personnel to facilitate the improvements to the carriageway surface. However, the number of construction vehicles and construction operatives required onsite is low given the scale and scope of works. In addition, any species in the area are likely to be accustomed to noise and visual disturbance pertaining to vehicle movements, on the A68 and the scheme will be undertaken utilising a day-time working pattern as far as is possible

(reducing the requirement for artificial lighting). The potential for significant species disturbance within the area of likely construction disturbance is therefore somewhat diminished and with mitigation measures detailed below being adhered to impacts are expected to be minimal.

Invasive non-native species Himalayan balsam has is present below the A68 Earlston Bridge and along the banks of Leader Water, as such there is potential for the spread of this species during the works. However, strict biosecurity measures, as detailed in the below mitigation, will be adhered to onsite which will negate the risk of spreading this species. Of lesser note, rosebay willowherb, an invasive native perennial, has also been identified within proximity to the site, however the closest instance is approx. 20m south of the bridge and as such this is not expected to be directly impacted.

Considering the nature of the scheme, and with implementation of mitigation detailed below, the proposed work impacts on biodiversity throughout the construction period are therefore assessed to be temporary minor adverse in magnitude.

As such upon completion of the works, moderate beneficial residual impacts are anticipated in relation to biodiversity.

Proposed biodiversity mitigation measures:

- Measures to be implemented to protect the aquatic environment are detailed in Section 11: Road Drainage and Water Environment.
- Leader Water is designated under the River Tweed Special Area of Conservation (SAC) (EU Site Code UK0012691). As such all personnel will be made aware of the sensitivity and protected status of the River Tweed SAC.
- No works are permitted on site until the Habitat Regulations Appraisal has been approved by Transport Scotland and NatureScot. All mitigation measures detailed within this assessment will be strictly adhered to on site.
- Prior to the installation of dry working areas, the fisheries board (River Tweed Commission (RTC)) will be appointed to undertake fish rescue. Mitigation will be provided by the RTC and all conditions and mitigation suggested by the RTC will be adhered to on site. Mitigation is expected to consist as a minimum the following measures:
    - All in-stream works will not operate during the fish spawning season (1st October – 30th April). Furthermore, all temporary in-stream structures i.e. scaffolding, will be removed from the watercourse prior to the commencement of the fish spawning season.

  - All pumps used during the dewatering will be screened. The screen will prevent fish being drawn into the pumps thus preventing entrapment and mortality.
  - Fish netting and pumps will be regularly inspected to ensure their integrity is maintained.
  - In the event the dry working area is inundated by water e.g. following a flood event, then fish that have potentially moved into the works area will be required to be removed with fish rescue (under licence) prior to recommencing dewatering.

- During night works, which will be restricted to above deck works i.e. resurfacing, artificial lighting will be sufficiently screened and aligned so as to ensure that there is no direct illumination of neighbouring habitat to ensure minimal impact on nocturnal species.
- Ancillary plant, vehicles, and non-road mobile machinery will be stored (when not in use) at the site compound. If fencing is utilised at the compound (or anywhere else), a gap of 200mm from ground level will be provided, allowing free passage for mammals and preventing entrapment.
- BEAR Scotland's Environment Team will periodically visit the site to supervise operations to monitor compliance with this SEMP and other environmental documents / consents.
- BEAR Scotland's Environment Team will undertake a pre-works check (approx. 14 days before works commence) of the surrounding area to check for any protected species shelters. Where additional licencing or mitigation is required, these will be obtained and implemented on site.
- Vegetation clearance will be minimised as far as possible and only undertaken where absolutely necessary to facilitate the works.
- In the event vegetation works are undertaken within the bird nesting season a pre-works bird nesting check will be undertaken by BEAR Scotland's Environmental Team no more than 48 hours prior to the commencement of works. Given the potential presence of nesting birds on site, Toolbox Talk TTN-048 Birds will be briefed prior to the commencement of works.
- Site operatives will remain vigilant for the presence of active nests within the vegetation due to be cut back. Where an active nest is identified it will not be removed and a 5 – 10m buffer zone will be set up around the nest until such time that the chicks have fledged. If the event an active nest is

identified by site operatives during the works BEAR Scotland's Environmental Team will be contacted for advice.

- All works including painting will be carried out within approved containment systems, ensuring that all materials are enclosed and not lost to the wider environment.
- Any unsupervised excavations/trenches > 0.5m deep will be covered or have ramps installed when left unsupervised at the end of a working day, to avoid species becoming trapped.
- Himalayan balsam an Invasive Non-native Species is present along the banks of the Leader Water including below the bridge. To prevent the spread of these species access along the banks of the A68 Earlston Bridge will be minimised as far as possible. Toolbox Talk TTN-009 Working with Injurious Weeds & Invasive Plants will also be briefed prior to works commencing.
- Appropriate biosecurity measures will be implemented on site to ensure the risk of spreading Himalayan balsam is minimised as far as possible. This should include, but not be limited to the following measures:
    - Where any soil removed from the embankments / stone revetments is required to be taken off site, it will be considered to be contaminated with Himalayan balsam and disposed of appropriate at a licenced facility.
    - All tools, equipment, machinery and footwear which access the banks of Leader Water will be appropriately cleaned to ensure that no soil or Himalayan balsam plant material is taken off site. Any soil removed from footwear, equipment etc. must be left in situ within areas already contaminated with Himalayan balsam.
- Site personnel will remain vigilant for the presence of potentially unrecorded instances of invasive non-native flowering plant species (INNS) or injurious weeds within the works area throughout the works period. Should any additional INNS (i.e. Japanese knotweed, giant hogweed) be identified in working areas, no works will take place within 7m of these areas until the BEAR Scotland Environmental Team can provide further advice on additional mitigation measures.
- The use of tool tethers must be implemented when working from suspended areas.
- Access platforms will be fully encapsulated during works, using debris netting/Envirowrap (or similar). Containment measures will be

periodically checked during the construction to ensure they remain effective.

- All site workers will have received adequate training relevant to their role prior to working on the site, including specific environmental inductions and 'toolbox talks' as required.
- Site personnel will remain vigilant for protected species and will not approach or touch any animals seen on site. Any sightings of protected species will be reported to BEARs Environmental Team. Should a protected species be encountered or move within 50m of the active works (including laydown areas), works will be temporarily halted until the animal(s) move at least 50m away from the construction site, or until BEAR Scotland's Environmental Team can provide advice.
- The Contractor will employ 'soft-start' techniques for all noisy activity to avoid sudden and unexpected disturbance during works. Each time the activity is started up after a period of inactivity, the noise levels will be gradually increased over a period of 30 minutes to permit animals (including birds) to move away from the disturbance.
- All equipment stored onsite will be checked at the start of each workday to ensure mammal species are not present. Any storage containers/plant will also be secured when not in use to prevent exploration by mammal species. Any areas where an animal could become trapped (e.g., storage containers) will also be covered when not in use, to avoid mammals falling in and becoming trapped.
- People, ancillary plant, vehicles, non-road mobile machinery and materials will be restricted to areas of made/engineered ground (as much as is reasonably practicable). If during works unforeseen access to the surrounding environment is required out with that already detailed, works will cease in this area and BEAR Scotland's Environmental Team will be contacted to allow consideration of potential environmental effects.
- BEAR Scotland's Environmental Team will be contacted to allow consideration of potential environmental effects if:
    - unforeseen site clearance is required,
    - there is any deviation from the agreed plan, programme and/or method of working,
    - nesting birds are found onsite.
- BEAR Scotland's Control Room will be contacted if there is a pollution incident.

Geology and soils

Construction activities will require earthworks during the reprofiling of the embankment. As such, there is potential for the works to impact upon the geology and soils through direct and indirect impacts on sensitive sites, loss or sterilisation of mineral deposits or soil resources, disturbance of contaminated land, or surcharging of ground which may accelerate erosion and subsidence.

However, the working corridor is not located within a GCRS, geological SSSI or LGS and material which has been deposited on top of the revetments during flood events will be reused on site as far as possible, as such the potential for impacts is somewhat reduced.

With the implementation of the mitigation detailed below, the potential for impact on geology and soils within the area of likely construction disturbance is somewhat diminished. The proposed works impacts on geology and soils throughout the construction period are therefore assessed to be temporary minor adverse in magnitude.

Upon completion of the works, no residual impacts are anticipated in relation to geology and soils.

Proposed mitigation measures:

- Where necessary appropriate mitigation measures i.e. bog mats or similar, will be implemented within access tracks / compounds / laydown areas in the event that ground conditions become too soft to manage the risk of damage.
- If any contaminated land requiring remediation is encountered, it will be contained and/or removed in a safe and controlled manner to the standards required.
- Soil stripping, where required, will be minimised as far as possible and undertaken sequentially, where appropriate, so that only the area due to be developed next is stripped, limiting the area of bare exposed soils.
- Excavated soil which will be reused on site will be removed in layers and stored appropriately at least 10m from Leader Water.
- Following the reinstatement of verges and services, the verge will be appropriately reseeded to minimise the duration of bare soils.
- Silt fencing will be installed around any stockpiled material to prevent run-off. Silt fencing will be regularly inspected and maintained to ensure its integrity.

Material assets and waste

Minimising impacts arising from construction materials are focussed upon making the most efficient use of materials onsite to reduce the need for imported primary materials and minimise the creation and disposal of waste through (i) reduction, (ii) re-use, and (iii) recycling. Potential impacts have been assessed for both the construction and operational phases of this scheme. It is anticipated that most material impacts are likely to arise during construction, though long-term residual impacts could occur post construction during the operational phase e.g., during the disposal of materials arising from routine maintenance operations.

However, the detailed design will reduce the requirements for primary materials e.g., the carriageway surfacing, and subbase will be carefully considered to minimise the requirements for importing primary material. Materials will also be derived from recycled, secondary, or re-used origin as far as practicable within the design specifications to reduce natural resource depletion. Specifying TS2010 surface course allows a wider array of aggregate sources to be considered when compared to typical stone mastic asphalt (SMA). As a result, the use of TS2010 should reduce the usage of imported aggregates and increase the use of a wider range of sustainable aggregate sources. The design life for the TS2010 surfacing is also estimated to be 20 years. The enhanced durability of TS2010 therefore reduces reoccurring routine maintenance and associated levels of traffic disruption to this section of road over the period.

A SWMP template, will be partially completed be the Design Engineer and then will be issued to the Contractor to complete the contract delivery section. The SWMP will provide details of the following:

- The quantity and type of waste that will be produced,
- How waste will be minimised, reused, recycled, recovered, or otherwise diverted from landfill,
- How materials that cannot be reused, recycled, or recovered will be removed from site and consigned, transported and disposed of in full accordance with all relevant UK legislation.

Full encapsulation of the works area will ensure that all waste generated from the bearing replacement, concrete repairs and painting activities, will be contained and controlled to minimise the risk of unwanted emissions of pollutants.

Considering the nature of the scheme, and with implementation of the mitigation detailed below, the proposed works impacts on material assets and waste throughout the construction period are therefore assessed to be temporary negligible adverse in magnitude.

Upon completion of the works, no residual impacts are anticipated for materials assets or waste.

Proposed material and waste mitigation measures:

- A Site Waste Management Plan (SWMP) will be completed by the Designer and Contractor as required.
- Good materials management methods (e.g., 'just-in-time' delivery) will be implemented wherever possible.
- If any soil is required to be removed from site, waste classification testing will be undertaken and confirmation of acceptance by the waste receiver obtained prior to the movement of soil. Where these soils are likely to contain Himalayan balsam, they must be taken to a licenced facility and appropriately disposed of.
- Care will be taken to order the correct quantity of materials to prevent the disposal of any excess.
- The Contractor will comply with all 'Duty of Care' requirements, ensuring that all surplus materials and waste are stored, transported, treated, used, and disposed of safely without endangering human health or harming the environment. Material transfer notes and/or waste exemption certificates (if required) will also be completed and retained.
- Any materials being removed from site will have the appropriate waste licencing / exemptions.
- Designated areas will be identified, within which all materials should be stored to limit environmental disturbance during construction works. This will include a designated area (if required) for segregation and reuse of waste materials.
- The selection of areas for materials stockpiling will be at least 10m from Leader Water and avoid sensitive locations such as road drainage. Stockpiled materials with leachate potential, for example, will be stored away from road drainage to prevent cross-contamination with other materials, wastes, or groundwater.
- Materials will be stored with the appropriate security to prevent loss, theft, or vandalism.
- All temporary road signs and traffic cones will be removed from site on completion of works.
- Wastewater from welfare facilities will be subject to effluent treatment followed by tanker removal.
- If hazardous substances are used onsite, each substance will be subject to assessment under the Control of Substances Hazardous to Health (COSHH) Regulations 2002. Hazardous substances will also be clearly

labelled and disposed of, in line with their relevant waste regulations. Special waste will also not be mixed with general waste and/or other recyclables.

Noise and vibration

Activities undertaken on site could potentially have some localised and short-term noise impacts in proximity to the works. The works will, for example, require a range of ancillary plant, vehicles and NRMM. Noise will also be generated by use of hammers, unloading of materials, etc. As a result, there is potential for noise and vibration effects. In particular, for residential properties located to the north of the bridge which are within approx. 10m and have limited screening from the works.

However, the works are not located within a CNMA or CQA. Works will also be completed utilising a daytime working pattern as far as possible and will be undertaken partially from beneath road level. Where night works are required, these are expected to be limited to a duration of one week during joint replacement and resurfacing works. Works with the potential to produce high levels of noise and vibration (hammers, unloading of materials, etc.) will also be intermittent, temporary, and short-lived. Therefore, the potential for disturbance will therefore be somewhat diminished.

The medical practice is set-back 260m and is screened from the scheme extents and as such it unlikely to be impacted by noise and vibration generated from the works.

With the implementation of the mitigation detailed below, it is unlikely that noise and vibration associated with the works will lead to significant impacts, disruption and/or complaints. The proposed scheme is therefore anticipated to result in temporary minor adverse noise impacts.

Upon completion of the works, no residual noise and vibration impacts are anticipated.

Proposed noise mitigation measures:

- The local authority environmental health will be notified of nighttime working by BEAR Scotland's design engineer.
- Wherever possible, careful consideration will be given to the siting and orientation of particularly noisy items of non-road mobile machinery so that it is located away from surrounding properties.
- Where possible, the noisiest work operations (e.g., breaking out of road surfacing, unloading materials etc.) will be completed before 23:00.
- If unacceptable noise is emanating from the site the operation will, where possible, be modified and re-checked to verify that the corrective action has been effective. Actions to be considered include (a) minimizing

cutting and grinding on-site, (b) reducing the operating hours, (c) repositioning equipment, (d) changing the method of working etc. Corrective actions will be actioned through the non-conformance reporting procedure, which ensures a root-cause analysis is carried out on each incident. The non-conformance procedure also ensures that appropriate corrective and preventative action measures are agreed and implemented in a timely fashion with all parties, and are recorded and actioned through to closeout, and fully auditable and traceable.

- Ancillary plant, vehicles and non-road mobile machinery with directional noise characteristic will (where practical) be shut down in intervening periods between site operations.
- The use of paving breakers (jackhammers), chipping hammers, etc. will be avoided (except where there is an overriding justification), and if used will be fitted with mufflers or silencers of the type recommended by the manufacturer.
- The use of percussive hand-tools, etc. will be avoided (except where there is an overriding justification), and if used will be fitted with mufflers or silencers of the type recommended by the manufacturer.
- Drop heights from vehicles and non-road mobile machinery will be kept to a minimum to minimise noise when unloading.
- All ancillary plant, vehicles and non-road mobile machinery used onsite will have been regularly maintained, paying attention to the integrity of silencers and acoustic enclosures.
- All compressors will be ‘sound-reduced’ models fitted with properly lined and sealed acoustic covers which will be kept closed when in use.
- HGV, site vehicles and non-road mobile machinery will be switched to the minimum setting required by HSE and, where possible, will utilise ‘broadband non-tonal’ or ‘directional sound reversing’ alarms. Speed limits will also be reduced through the works.

Population and human health

During construction, activities undertaken on site have the potential to have temporary adverse impacts on local residents, road users and NMUs.

While residential properties are located, at their closest, 15m from the works, they are offered some visual screening due to the presence of surrounding vegetation, furthermore the majority of works will be undertaken during daytime working hours and as such impacts to local residents may be somewhat reduced.

The medical practice lies 260m north of the bridge and is screened by intervening properties. There is potential for disruptions to members of the public accessing the medical practice via the A68.

Local footpaths are present either side of the A68 on the A68 220 Earlston Bridge and as such there is potential for disruptions to footpaths during the works. However, with mitigation measures detailed below impacts to pedestrians and NMU's are considered to be minimal.

While the works are expected to be on site for a duration of approx. 9 months, traffic flows along this route are low and no congestion issues are expected, therefore impacts to road users are expected to be minimal.

Considering the nature, duration, size and scale of the scheme, and with implementation of the mitigation described below, impacts on population and human health are assessed as temporary minor adverse in magnitude.

Upon completion of the works, no residual impacts are anticipated in relation to population and human health:

Proposed population and human health mitigation measures:

- Advanced signage will be strategically placed on the trunk road to notify stakeholders of the road closure and diversion. Signage will be installed at least 7 days in advance of the road closure.
- Where appropriate, a communication strategy (e.g., social media, consultation with local authority and other stakeholders, letter drop etc.) will be initiated to keep local residents and/or businesses informed of the proposed working schedule, particularly the times and durations of noisy construction activities. The communication strategy will also provide a 24-hour contact number for the BEAR Scotland Control Room.
- Given the proximity of urban development to the scheme extents, Toolbox Talk TTN-042 Being a Good Neighbour will be briefed prior to works commencing.
- Traffic management arrangements will include appropriate accommodations for non-motorised road users, if necessary, NMUs will be diverted/escorted around the site.
- A Traffic Management Plan (TMP), which includes measures to avoid or reduce disruption to road traffic, will be produced in accordance with the Traffic Signs Manual (Department of Transport 2009). The TMP will ensure that there is no severance of community assets, access routes or residential development.
- Journey planning information must be available for drivers online at the trafficscotland.org website. Journey planning information must also be available for drivers online through BEAR Scotland's social media platforms.

Road drainage and the water environment

The works fall under 'Maintenance, Repair, Removal & Replacement of Existing Structures' and as they will comply with SEPA's General Binding Rules, do not require any further authorisation for the main construction. The discharge of treated wastewater from hydro-demolition activities will be required to be registered and authorised by SEPA with all conditions of the granted registration being adhered to.

During construction works, there is potential for temporary adverse impacts on the water environment. Potential changes in water quality e.g., from pollution events (either by accidental spillage of sediments, particulate matter, chemicals, fuels or by mobilisation of these in surface water caused by rain) during works have the potential to have a direct or indirect effect on Leader Water and by association the River Tweed SAC.

Ancillary plant, vehicles and NRMM will be stored in the compound and the accidental release of pollutants is extremely unlikely. Pollution prevention measures, will also be enforced onsite with SEPA's Guidance for Pollution Prevention (GPP) being strictly adhered to, reducing the likelihood of a loss of containment occurring.

There is potential for direct and indirect impacts to aquatic species during in-water works. However, the recognised in river working period in the Tweed district extends from the 1st of May to the 30th of September. As such any works in the wetted part of the channel, will not be undertaken during the period in which fish are likely to be spawning in the watercourse nor in the period between such spawning and the subsequent emergence of juvenile fish, therefore there is no risk of impacting these species during the most sensitive period or preventing access to upstream spawning habitats where present. Furthermore, mitigation measures detailed below will be implemented on site to minimise as far as is possible the impacts to aquatic species.

Considering the nature of the scheme, and with implementation of the mitigation detailed below, the proposed works impacts on the road drainage and water environment are assessed as temporary negligible adverse in magnitude.

As such upon completion of the works, no residual impacts are anticipated in relation to the water environment.

Proposed road drainage and water environment mitigation measures:

- Appropriate silt mitigation will be implemented to prevent silt pollution of the watercourse during works.
- The reinstatement of stone revetments will not result in an increase in footprint, the alteration in bank height, alteration in the natural bed level or the alteration of the channel width.

- Compliance with the General Binding Rules (GBR) 9 and 13 will be followed. In particular the following will be noted:
    - Refuelling will take place at least 10m from Leader Water.
    - Any static plant or equipment used within 10m of Leader Water will be positioned on a suitable drip tray with capacity for 110% of the fuel tank supplying the static plant of equipment.
    - Machinery used near Leader Water will be appropriately maintained to avoid oil leaks.
    - Washing of any machinery will take place at least 10m from Leader Water and the washings will not be allowed to enter Leader Water.
    - Any damage caused to the bed and banks of Leader Water from the operation of machinery will be repaired, including re-establishing vegetation on any areas of bare earth on the banks, either by covering the area with grass turfs or lining with a biodegradable geotextile and seeding.
    - Vegetation will only be permitted to be removed from the banks if the works cannot otherwise be reasonably carried out.
    - Vegetation that is removed will not be disposed of into the channel.
    - The removed sediment and other matter will not be placed on the bank of the watercourse.
- While undertaking the removal of lead paint mitigation is expected to consist as a minimum the following measures:
    - No discharges into the water environment will be permitted. The working area on the bridge will be fully and effectively encapsulated with frequent checks (at least daily) of the containment system and completion of a sign-off permit prior to each period of grit-blasting.
    - Encapsulation will include installation of extraction equipment with dust filters to create negative air pressure within the encapsulated area and vacuum extractors to pipe out waste (e.g. grit and old paint) into an enclosed skip.
    - Upon completion of works, the working area will be cleaned, and the encapsulation material (e.g. plastic sheeting) will be

dismantled and folded in such a way as to contain any trace of remaining debris before removal from site.

- Concrete, cement, grout, etc. mixing and washing areas will be sited 10m from Leader Water and road drainage entry points. The washing out and cleaning of concrete batching plant will be undertaken within a contained area, and wash waters will be collected and contained for authorised disposal off site. Wash waters from concrete works will not be discharged into Leader Water.
- Any loose material or bagged cement/concrete (if required) will be stockpiled in an area of the site where it can be left undisturbed and will not interfere with site operations and be at least 10m from West Water. Bagged cement/concrete will also be protected to ensure it remains dry. The surface of stockpiles will also be graded to reduce surface runoff and will be located at least 10m from road drainage and stored on an impermeable surface or have bunds erected around stockpiles.
- In-stream works, soil stripping, concrete repairs and excavation works will not take place during high flows or periods of heavy rainfall. Dry weather and low flow conditions are pre-requisites for the safe installation and management of sediment mitigation measures. The creation of a dry-working-area is easier to manage during low flows. The Contractor will therefore monitor the weather forecast and flows/water levels throughout the works, and during periods of extreme weather or high flow events the works will be temporarily postponed. The Contractor will also have a contingency plan in place if damage to the dry-working-area occurs.
- Straw bales/silt curtain (or similar) will be placed downstream of works in Leader Water to prevent silt in runoff discharging downstream during works. Sediment/silt arisings that have accumulated upstream of the straw bales/silt curtain will also be carefully removed and properly disposed of e.g. by spreading over the adjacent fields (away from areas of wildlife interest) and ensuring that placement of sediment/silt does not result in the heightening of Leader Water banksides and that the sediment/silt cannot be washed back into Leader Water. The straw-bales/silt curtain will also be removed as soon as possible after they are no longer needed.
- Prior to constructing the temporary dry working area, the following will be noted:

  - The temporary dry working area will be designed by a competent person in consultation with the River Tweed Commission and will consider the following:
    - the reduction in channel capacity (for flood risk);
    - the potential increase in flow velocity (for adjacent bed and bank erosion and toe scour);
    - changes in flow patterns (for adjacent bed and bank erosion and toe scour);
    - fluctuations in water levels.
    - channel substrate (to avoid installation problems);
    - alignment of the dry working area ends where bank erosion can be induced.
  - Fish rescue will be undertaken prior to the area being dewatered.
  - When the works are complete, but before the barriers are removed, all materials, debris, tools, plant and equipment will be removed from the dry working area. The area will be checked thoroughly for spillages or potential pollution sources and any pollution issues remediated immediately.
  - Prior to rewatering the area the upstream and downstream barriers will be removed of any silt / trash which has built up.
  - The works area will be partially re-watered before the dry working area is removed completely to avoid sudden ingress of water causing erosion of the replaced bed or bank material. When re-watering, the pump inlets will be screened to prevent intake of fish or other aquatic animals.
  - A competent person will be made responsible for monitoring the temporary dam at regular time intervals. This will include: (i) water levels (upstream, downstream), (ii) bank and bed erosion at the upstream and downstream ends, (iii) channel stability, and (iv) debris accumulation.

- All site personnel will be fully briefed in silt management procedures and briefed on their responsibilities. This will be achieved through delivery Toolbox Talk TTN-012 Water Pollution – Silt prior to works commencing onsite.
- During hydro-demolition the following will be implemented:
  - Prior to works commencing discharging of water will be registered with SEPA under The Water Environment (Controlled Activities)

(Scotland) Regulations 2011 Registration Application Form Discharge of Trade (or Other) Effluent.

- Prior to works commencing, a bund will be created below the work area to contain the runoff water from the hydro demolition works and allow it to be pumped onto the treatment process. Before the hydro-demolition works commence, clean water will be sprayed into the encapsulated area to check its effectiveness / robustness. The hydro-demolition works will not commence until this is found to be satisfactory.
- Water from hydro-demolition will be discharged at less than or equal to 10,000 litres ($10m^3$) per day. Any wastewater used daily above 10,000 litres ($10m^3$) will be stored on site and discharged at an appropriate time not exceeding 10,000 litres ($10m^3$) per day.
- All water to be used onsite will be delivered by bulk tanker and be of potable quality.
- Once in operation, the waste-water produced will be contained within the encapsulation. Waste-water will be collected in the sump and pumped to a storage container using a sump pump positioned within the bund, with a second pump in the container to transfer the water to the Siltbuster HD Unit (positioned on the bridge) for the treatment phase. The solid waste will be removed manually where at all possible. The solids falling into the encapsulation will be removed by hand, as and when required.
- Once the waste-water has been pumped onto the bridge, it will then undergo a two-phase treatment using the Siltbuster HD Unit, which is specifically designed to treat waste-water from hydro-demolition operations. The system will firstly remove suspended solids to an acceptable level and secondly will neutralise the high pH by using a fully automated CO_2 dosing process to neutralise the alkalinity. Safe estimate target values are: (i) suspended solids – 50 mg/l (50 parts per million), (ii) pH level to be neutral (7 to 9) at discharge.
- The waste-water that has been treated by the Siltbuster will then be disposed of in line with the granted SEPA Registration. It will be discharged in an appropriate manner that does not result in excess sediment to be generated into the flow of Leader Water.
- Hydro-demolition works will avoid heavy rainfall periods which could affect the performance of the Siltbuster HD Unit.

  - While bearing replacement works will be fully encapsulated above Leader Water, to provide further protection to the watercourse a dry-working area will be created below the suspended span during hydro-demolition works for the removal of bearings at the central pier. This will ensure that no wastewater enters Leader Water.

- The abstraction or transfers of water from, discharges to, or the washing of tools in surface waterbodies will not be permitted.
- An edge protection system will be utilised to prevent material, ancillary plant, debris, sediment, etc., escaping beyond the bridge parapets over the A68 220 Earlston Bridge during bridge deck works. Sandbags will be located at the bottom of the containment systems and debris netting will cover the edge protection system.
- The Contractor will implement measures to minimise the risk of sediment or accidental spillages entering the road drainage system e.g., prior to works commencing any roadside gullies within 10m of work activities will be bunded (e.g., utilisation of drain covers or similar) to ensure full segregation of the works from the road drainage system. The Contractor will inspect bunds periodically to ensure that they have not been removed, damaged, or interfered with and they will be cleaned of silt and debris as necessary. If it is identified that bunds are not up to standard, the works will not commence until they have been reinstated to the condition, they were originally in.
- The Contractor will have suitable plans in place to deal with the potential for flood / pollution events.
- Any incidents that occur on site i.e. spills, pollution events etc. will be reported appropriately.
- All waste, vehicles, ancillary plant, non-road mobile machinery and fuels will be stored in the compound(s) or laydown area and will be secured and located, if space is available, at least 10m from drainage entry points and Leader Water, in order to comply with GPP 5 ‘works and maintenance in or near water’. Refuelling will only be undertaken at designated refuelling areas (e.g., on hardstanding, with spill kits available, and >10m from drainage entry points and Leader Water, where practicable). Spill kits will also be available within all site vehicles and spill kits will be replenished onsite when required. Only designated trained and competent operatives will be authorised to refuel plant. Generators, and other ancillary plant and non-road mobile machinery, where there is a risk of leakage of oil or fuel, will have internal bunding or will have a secondary containment system placed beneath them that

meets 110% capacity requirements. Containment systems will also be emptied regularly. All waste, vehicles, ancillary plant, non-road mobile machinery and fuels will also be stored in a manner that ensures they are protected from damage by collision or extremes of weather.

- Regular visual pollution inspections of the designated laydown area and work site (particularly near road drainage entry points, and Leader Water,) will be conducted (e.g., site walkover by engineer or Site Supervisor), especially during periods of heavy rain.
- All vehicles and non-road mobile machinery used onsite will have been regularly maintained, paying attention to the integrity of oil tanks, coolant systems, gaskets etc. A checklist will be present to make sure that the checks have been carried out.

Climate

BEAR Scotland, working on behalf of Transport Scotland, undertake carbon monitoring of major projects and operational activities. Emissions from activities are recorded using Transport Scotland's Carbon Management System. BEAR Scotland also undertakes resource efficiency activities to manage and reduce emissions contributing to climate change. The carriageway resurfacing works will also extend the maintenance intervals required for future works. In doing so, the service life of the trunk road is also extended.

During works there is potential for impacts as a result of the emission of greenhouse gases through the use of equipment, vehicles, and NRMM, material use and production, and transportation of material/waste. However, considering the nature, duration, size and scale of the scheme, and the mitigation detailed below, the risk of significant impacts to climate are considered to be negligible adverse in magnitude.

Upon completion of the proposed scheme no residual impacts are anticipated on the climate.

Proposed climate mitigation measures:

- Local contractors and suppliers will be used as far as practicable to reduce fuel use and greenhouse gas emitted as part of the works.
- BEAR Scotland will adhere to its Carbon Management Policy.
- Where possible, waste will be disposed of at local waste management facilities.

Vulnerability of the project to Major Accidents and Disasters

Works are taking place in summer, with site facilitation expected to occur in July and in water works commencing in July, when historically the Leader Water flow levels are low, therefore the risk of flooding during the scheme is minimised.

The works compound will be located in the layby to the south of the structure (357177, 637994), and access to the site will be gained via the A68 mainline. TM will employ two-way traffic lights with occasional full road closures. Pedestrians will be appropriately accommodated within the TM. As such, the proposed works impacts on road traffic accidents is assessed to be of negligible magnitude.

A Site Environmental Management Plan (SEMP) will be produced by BEAR Scotland which sets out a framework to reduce the risk of adverse impacts from construction activities on sensitive environmental receptors. The Contractor will comply with all conditions of the SEMP during works and may be subject to audit throughout the contract.

Considering the above, the vulnerability of the project to risks of major accidents and disasters is considered to be low.

Assessment of cumulative effects

The proposed works are not anticipated to result in significant environmental effects. Due to the nature of the proposed works, no cumulative effects are anticipated with any other developments in the vicinity. Any future BEAR Scotland schemes will be programmed to take into account already-programmed works and as such, any cumulative effect will be limited.

In addition, a search using Scottish Borders Council 'Simple Search' identified that there are three planning applications within 300m of the scheme.

Table 1: Planning Applications in Last 2 Years

Reference	Proposal	Description of Proposal	Status	Distance from scheme
24/00311/FUL	Alterations to dwellinghouse	New Dormer window to be added to existing bedroom 2, new Velux windows to rear (northwest) elevation, existing porch to be. replaced with larger Porch to front (Southeast) elevation. Internal alterations.	Decided (Approval 16th Apr 2024)	Borders northeast of the scheme

24/00510/CLPU	24-hour use of service station including dedicated petrol filling station kiosk.	24-hour use of service station including dedicated petrol filling station kiosk.	Registered (29th Apr 2024)	175m east
23/01748/SCR	The construction and operation of battery energy storage facility with capacity approximately 150MV	Request for a Screening Opinion under the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017.	Decided (Screening required 24th Jan 2024)	180m west

A search of the Scottish Road Works Commissioner's website (map search) has identified that no other road works are currently ongoing, or noted as being planned, on the A68 trunk road or surrounding roads in proximity to the scheme which will be undertaken at the same time.

Considering the nature and scale of the works being undertaken by BEAR Scotland, no in-combination effects are anticipated.

Assessments of the environmental effects

The A68 220 Earlston Bridge scheme is located within the River Tweed SAC and as such, a HRA has been undertaken that has shown that there is sufficient information and assessment evidence to conclude that the proposed scheme, with the implementation of mitigation and control measures, will not result in any AESI. Consultation with NatureScot and Transport Scotland will be undertaken with regards to the outcome of the AA.

As detailed in the Description of Main Environmental Impacts and Proposed Mitigation section, there are no significant effects anticipated on any environmental receptors as a result of the proposed works.

Statement of case in support of a Determination that a statutory EIA is not required

This is a relevant project in terms of section 55A(16) of the Roads (Scotland) Act 1984 as it is a project for the improvement of a road and the works (together with any area occupied by apparatus, equipment, machinery, materials, plant, spoil heaps, or other such facilities or stores required during the period of construction) are situated in the River Tweed SAC, which is a sensitive area within the meaning of regulation 2(1) of the Environmental Impact Assessment (Scotland) Regulations 1999.

The project has been subject to screening using the Annex III criteria to determine whether a formal Environmental Impact Assessment (EIA) is required under the Roads (Scotland) Act 1984 (as amended by The Roads (Scotland) Act 1984 (Environmental Impact Assessment) Regulations 2017). Screening using Annex III criteria, reference to consultations undertaken, and review of available information has not identified the need for a statutory EIA.

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

Characteristics of the scheme:

- Works are restricted to like-for-like bridge refurbishment and restoration of the A68 220 Earlston Bridge.
- The works will improve safety on the bridge and protect against future deterioration of the structure and flood events. Consequently, carrying out these works now will reduce the need for major works at a future date. This in turn will minimize the extent of work required on the A68 220 Earlston bridge. In doing so, the service life of the structure is also extended.
- All 'in-water' works will be restricted to out with the spawning season (1st October – 30th April).
- Works are not expected to result in significant disturbance to protected species that may be present in the wider area.
- Any potential impacts of the works are expected to be temporary, short-term, not significant, and limited to the construction phase.
- No in-combination effects have been identified.
- The risk of major accidents or disasters is considered to be low.

Location of the scheme:

- The 'in-water' works are located within the River Tweed SAC, however a HRA has been undertaken which has confirmed that the works will not result in AESI on the qualifying features of the SAC.
- The scheme does not lie within any sites of historical, cultural, or archaeological significance.
- The scheme is not located within any areas designated for landscape interests.
- Land use will not change as a result of the works.

- The works do not require any private land acquisition.
- The scheme does not lie within any sites designated for geology or soils.
- The scheme is not located within a densely populated area.

Characteristics of potential impacts of the scheme:

- The waste hierarchy will be followed to reduce waste to landfill.
- The dry-working area will reduce the likelihood of significant quantities of dust, earth, particulate matter etc. from entering the River Tweed SAC.
- With good practice pollution prevention measures implemented on site, there is a negligible risk of a pollution event.
- As the works are restricted to the like-for-like bridge refurbishment there is no change to the vulnerability of the road to the risk or severity of major accidents/disasters that would impact on the environment.
- No adverse impacts on the environment are expected during the operational phase as a result of the works. The works are expected to result in beneficial impacts on biodiversity and the water environment.

References of supporting documentation

- A68 Earlston Bridge Refurbishment Habitats Regulations Appraisal, May 2024 (Produced by BEAR Scotland)

Annex A

"sensitive area" means any of the following:

- land notified under sections 3(1) or 5(1) (sites of special scientific interest) of the Nature Conservation (Scotland) Act 2004
- land in respect of which an order has been made under section 23 (nature conservation orders) of the Nature Conservation (Scotland) Act 2004
- a European site within the meaning of regulation 10 of the Conservation (Natural Habitats, &c.) Regulations 1994
- a property appearing in the World Heritage List kept under article 11(2) of the 1972 UNESCO Convention for the Protection of the World Cultural and Natural Heritage
- a scheduled monument within the meaning of the Ancient Monuments and Archaeological Areas Act 1979
- a National Scenic Area as designated by a direction made by the Scottish Ministers under section 263A of the Town and Country Planning (Scotland) Act 1997
- an area designated as a National Park by a designation order made by the Scottish Ministers under section 6(1) of the National Parks (Scotland) Act 2000.

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