



**TRANSPORT  
SCOTLAND**  
CÒMHDHAIL ALBA

# **Environmental Impact Assessment Record of Determination**

**A82 460 Dubh Eas**

**Bridge deck refurbishment and  
concrete repairs**

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## Project Details

### Description

BEAR Scotland has been commissioned by Transport Scotland to carry out various works at the A82 460 Dubh Eas Bridge. The works will consist of bridge deck refurbishment and concrete repairs to the bridge and gabion baskets.

The procedure will likely be the following:

- Set up traffic management (TM) and mark out site.
- Concrete repairs to parapet bases/upstand edge beam on the elevated bridge deck.
- Repair damaged concrete and gabion baskets at embankment to south-east of the bridge.
- Removal of existing carriageway surface and waterproofing to approximately 100m depth, using hydro-demolition where required.
- Re-waterproofing the entire bridge deck.
- Resurfacing the bridge deck.
- Re-installation of road markings.
- Remove TM and open road.

The works are currently programmed to be completed within the 2023/2024 financial year (April 2023 to March 2024) with a provisional start date of the 4<sup>th</sup> September 2023, however works may be delayed to a later date within the financial year. Works will be carried out over 4 weeks, between 7:00 and 19:00 for repair works and re-waterproofing. Resurfacing works will be carried out between 20:00 and 05:00. Changes in the programme may result in a change to currently planned construction hours, with possible increase or decrease in night works.

As the works are programmed for September, when water levels are considered to be low, in-water works and a dry-working area for the small-scale repairs to the damaged concrete and gabion basket enforcements on the embankment are currently not expected to be required. To undertake these works, access is anticipated to be via the verge and bank at the southeast corner of the bridge. There is no requirement for permanent or temporary land take for this scheme, with material brought to site as required and stored within areas of made ground within TM set-up.

TM is currently anticipated to consist of single lane closure with two-way temporary traffic light system during concrete repair works and night-time road closure for

resurfacing works. The overnight road closure is anticipated to be required for 1-2 nights only. However, if the programme changes, this may result in amendments to the exact TM requirements. Where required, alternative pedestrian routes will be included in the TM setup.

## Location

The scheme is located on the A82 trunk road in the Stirling Council area, approximately 1.3km north of Inverarnan and 4km north of Loch Lomond, at National Grid Reference NN 31974 19822 (Figure 1).

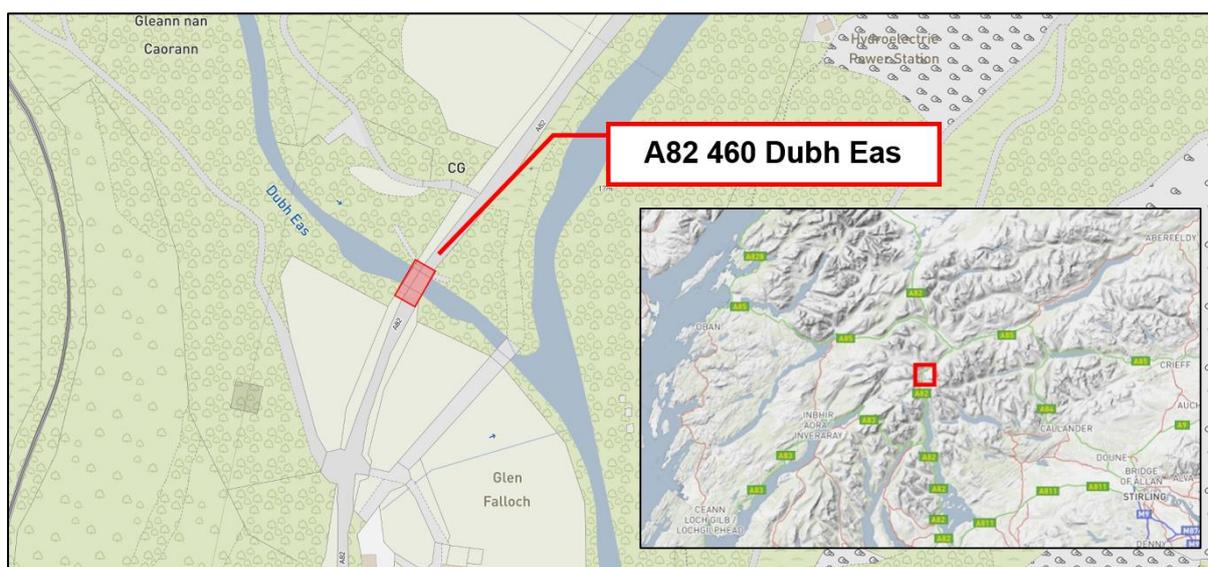


Figure 1. Location of A82 460 Dubh Eas Bridge.

## Description of local environment

### Air quality

The nearest air quality monitoring site to the scheme is located in Greenock, approximately 43km south of the scheme ([Air Quality Scotland](#)). Pollution levels in the general vicinity of works are anticipated to be lower than those at the monitoring station in Greenock due to the remote nature of the scheme location.

The scheme does not fall within any Air Quality Management Areas (AQMAs) declared by Stirling Council ([Air Quality Management Areas](#)).

There are no sites registered on the Scottish Pollutant Release Inventory (SPRI) ([Scotland's Environment](#)) for air pollutant releases within 1km of the scheme.

Baseline air quality at the scheme location is likely to be primarily influenced by traffic along the A82 trunk road, with secondary sources likely to arise from train

movements associated with the nearby railway 'West Highland Line', located approximately 260m west of the scheme.

## Cultural heritage

According to Historic Environment Scotland's [PastMap](#), there are two Listed Buildings located within 300m of the scheme extent. 'Inverarnan, Glen Falloch Farm, Campbell Burial Enclosure' (ID: LB50323) and 'Farmhouse Including Gatepiers' (ID: LB50324) are both Category C Listed Buildings which lie approximately 200m and 230m south of the scheme respectively, outside the A82 trunk road boundary.

There are also twelve Historic Environment Records (HERs) and seven records from the Canmore database within 300m of the scheme extent. There is no connectivity between the scheme and the noted cultural heritage records, e.g. the nearest of these is an Archaeological Event Record (HER; Reference: 4313) which lies outwith the trunk road boundary, approx. 60m east of the bridge.

Construction of the A82 road corridor is likely to have removed any archaeological remains that may have been present. Therefore, the potential for the presence of unknown archaeological remains in the study area has been assessed to be low.

There are no World Heritage Sites, Scheduled Monuments, Garden and Designed Landscapes, Conservation Areas or Inventory Battlefields identified within 300m of the scheme ([PastMap](#)).

## Landscape and visual effects

The scheme is located within the Loch Lomond & The Trossachs National Park (NP) ([SiteLink \(nature.scot\)](#)) which is designated for the following general special qualities:

- A world-renowned landscape famed for its rural beauty,
- Wild and rugged highlands contrasting with pastoral lowlands,
- Water in its many forms,
- The rich variety of woodlands,
- Settlements nestled within a vast natural backdrop,
- Famous through-routes,
- Tranquillity,
- The easily accessible landscape splendour.

The Landscape Character Type (LCT) within the scheme extent is Upland Glens – Loch Lomond & the Trossachs (no. 252) ([Scottish Landscape Character Types](#)). The Upland Glens - Loch Lomond & the Trossachs LCT has the following key characteristics:

- Often narrow with little flat glen floor, strongly enclosed by steep hill slopes of the adjacent *Steep Ridges* and *Hills* and *Highland Summits*.
- Steep glen sides often patterned with rocky outcrops, boulders and screes but also extensively forested, particularly on lower slopes.
- Tributary burns and rivers cut deep gullies into slopes and many feature waterfalls and cascades, pools and rocky outcrops.
- Walled pastures sometimes occasionally occurring on lower (usually south facing) slopes. Heather covers better drained areas and bright green flushes appear at spring lines on hill slopes.
- Some glens covered with extensive coniferous forestry.
- Notable ancient and semi-ancient woodlands of oak and birch in some glens, Natural regeneration of scrub woodland where grazing has declined as in the Luss Glens.
- Relict wood pasture and Caledonian pine woodlands evident in some areas,
- Scattered trees and native woodland trace the edges of burns.
- Sparsely settled but with some isolated farms in lower reaches of glens, these often south-facing.
- Significant cultural features in more open glens, including shielings and abandoned field systems.
- Areas of crofting evident on some lower slopes.
- Some important historic strategic routes for communications and accommodate key road and rail links today for example.
- Classic views channelled up and down the Glens, with steep side slopes framing landscapes that lie beyond them.

The scheme is located in a rural area on the A82, approximately 1.3km north of Inverarnan and 8km southwest of the settlement of Crianlarich. Residential use is limited, with only one residential property identified within 300m of the scheme. The property is located 200m south of the bridge and scattered trees provide some screening to the scheme. The West Highland Railway Line is located approximately 260m to the west of the scheme. Other forms of land use are limited, given its rural location. Within the wider area, the scheme extent is surrounded by mountain peaks, and a campsite and cottages are located in Inverarnan. The land cover surrounding the bridge is dominated by broadleaved deciduous woodland alongside grassland, bracken fields and heathland. The landscape with its hills, mountains and waterfalls is likely to attract tourists and outdoor recreationists ([Scotland's Environment](#)).

The A82 Trunk Road connects Alexandria with Crianlarich, Fort William and Inverness. It commences immediately north of Tullichewan Roundabout in Alexandria leading generally northwards for a distance of 243 kilometres to its junction with the A9 at (but excluding) Longman Roundabout in Inverness. The A82 is predominantly single carriageway along its length, with some lengths of '2+1' carriageway.

## Biodiversity

One Special Protection Area (SPA) and one Special Area of Conservation (SAC) are located within 2km of the scheme, and one Site of Special Scientific interest (SSSI) is located within 300m of the scheme extent ([SiteLink](#)).

Loch Lomond Woods SAC and Glen Falloch Woods SSSI consist of numerous woodlands. These sites overlap, with the nearest areas to the scheme located approximately 200m east and 270m north of the bridge respectively.

Glen Etive and Glen Fyne SPA (EU Site Code: UK9020307) lies to the north and west of the scheme, approximately 260m at its closest point. The SPA is separated from the scheme by areas of woodland and the railway line.

Consultation with NatureScot was carried out in 2023 and a Habitats Regulations Appraisal (HRA) was completed in line with NatureScot's advice to assess potential impacts of the proposed works on the above designated sites.

Ancient woodland (of semi-natural origin) recorded on the Ancient Woodland Inventory (AWI) Scotland is present in all directions around the scheme, with its closest patch located approximately 150m to the west of the scheme ([Map | Scotland's environment web](#)).

The NBN Atlas does not hold any records of bird species within 2km over a 10-year period. However, this does not preclude the existence of birds and associated nests from the area. In addition, habitats suitable for breeding birds can be found in proximity to the bridge. Under the Wildlife and Countryside Act 1981, all wild birds and their active nests are protected.

There are no records on NBN Atlas of invasive non-native species (INNS) of plants, as listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) (WCA), and injurious weeds, as listed under the Weeds Act 1959, or an invasive native perennial, as listed in the Trunk Road Inventory Manual, using the same search criteria ([NBN Atlas](#)).

Transport Scotland's Asset Management Performance System (AMPS) does not hold any records of INNS along the A82 throughout the scheme extent. All works will

be restricted to the A82 carriageway and the bridge structure. Working in the verges and surrounding habitat is not anticipated, however the verge might need to be entered to access gabion baskets.

Habitats in the surrounding area are dominated by a range of broadleaved woodlands and grassland. River Dubh Eas/Allt nan Caorainn falls within the scheme extent and provides freshwater habitats and associated bankside habitats ([Map | Scotland's environment web](#)).

The works are restricted to the A82 460 Dubh Eas bridge, with exception of highly localised gabion and concrete works on the embankment with access via vegetated verge. The bridge and the surrounding area provide suitable habitat for a range of protected species. The works have the potential to impact these species, should they be using the areas around the scheme. Therefore, a Preliminary Ecological Appraisal (PEA) was carried out by suitable qualified environmentalists of BEAR Scotland on 26 January 2022.

## Geology and soils

The scheme does not lie within a Geological Conservation Review Site (GCRS) or geological SSSI, and no GCRS or geological SSSI are present within 300m ([SiteLink \(nature.scot\)](#)).

The bedrock within the scheme extents is comprised of Ben Ledi Grit Formation (Psammite and semipelite). The superficial geology underlying the scheme is comprised of Till and Morainic Deposits (diamicton, sand and gravel) ([BGS GeolIndex](#)).

The Generalised Soil Type beneath the scheme extent is recorded as mineral podzols ([Scotland's Soils](#)).

## Material assets and waste

The proposed works are required to refurbish the bridge deck and repair concrete and gabion baskets. Please note that this list is not comprehensive at this stage but materials used will likely consist of:

- Asphaltic material
- Concrete
- Gabion basket repair material including wire mesh
- Bridge deck waterproofing system
- Road markings and road studs

Wastes are anticipated to be the current road planings from the carriageway surface, the existing waterproofing system and potentially wastes generated from hydro-demolition.

Road planings will be fully recovered for re-use (if not contaminated with coal tar) in line with BEAR Scotland's Procedure 126: The Production of Fully Recovered Asphalt Road Planings. The contractor is responsible for the disposal of road planings and this has been registered in accordance with a Paragraph 13(a) waste exemption issued by SEPA, as described in Schedule 3 of the Waste Management Licensing Regulations 2011 (exemption reference number: WML/XS/2004042). It is not yet known if the works will encounter coal tar contaminated road surfacing.

The existing waterproofing system may contain asbestos. Therefore, a site investigation will be carried out prior to construction to check if the waterproofing system contains asbestos. Should asbestos be identified during the survey, the waterproofing system (if containing 0.1% or more asbestos) will be disposed of as special waste and only asbestos trained personal shall carry out works. Details and method statement will be provided by the subcontractor appointed for the works.

A Site Waste Management Plan is not required for this scheme.

## Noise and vibration

One residential receptor has been identified within 300m of the scheme, with the property located approximately 200m from the scheme. The distance to the works and intervening scattered vegetation will provide some barrier to noise generated by the works.

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

Noise modelled data is not available for the scheme extent ([Scotland's Noise Scotland's Environment](#)).

The scheme is situated within a rural location where vehicle traffic on the A82 is anticipated to be the dominant source of noise emissions.

## Population and human health

The scheme is located in a rural area and as such there is only one residential receptor within 300m of the scheme. The property is located approximately 200m south of the scheme. Scattered trees are present between the scheme and the receptor, which will provide a limited visual barrier to the scheme.

There are no National Cycle Network (NCN) routes ([OS Maps](#)) or Core Paths ([Scotland's Environment](#)) within the scheme extent. The hiking route 'Meall an Fhudair, near Inverarnan' is listed on Walkhighlands ([Walkhighlands](#)), with suggested start and parking from the A82 in the vicinity of the 460 Dubh Eas bridge. A section of the West Highland Way is located approximately 200m east of the scheme. The path is screened by woodland along the scheme extent. There are no paved footpaths, bus stops or other pedestrian facilities along the A82 within the scheme extent.

The A82 Trunk Road connects Alexandria with Crianlarich, Fort William and Inverness. It commences immediately north of Tullichewan Roundabout in Alexandria leading generally northwards for a distance of 243 kilometres to its junction with the A9 at (but excluding) Longman Roundabout in Inverness. The A82 is predominantly single carriageway along its length, with some lengths of '2+1' carriageway.

The nearest traffic count point (ID 761) on the A82 is located approximately 250m north of the scheme ([Road traffic statistics](#)). Estimated vehicle count data for this point in 2021 shows an Average Annual Daily Traffic (AADT) count of 3,139 motor vehicles, of which 5.6% (178) were heavy goods vehicles ([Road traffic statistics - Manual count point: 761](#))

## Road drainage and the water environment

The River Dubh Eas/Allt nan Caorainn (ID:10167) is spanned by the A82 460 Dubh Eas bridge. The river was classified by the Scottish Environment Protection Agency (SEPA) under the Water Framework Directive 2000/60/EC (WFD) in 2020 as having an overall status of 'bad ecological potential' ([SEPA Water Classification Hub](#)). Dubh Eas joins the River Falloch approximately 110m downstream of the A82 460 Dubh Eas bridge. River Falloch (d/s Dubh Eas, ID: 10165) was classified as having an overall status of 'good' ([SEPA Water Classification Hub](#)). No other classified surface waterbodies were identified nearby the scheme.

The scheme falls within the 'Cowal and Lomond' groundwater body (ID: 15089), which was classified by SEPA in 2020 as having an overall status of 'Good' ([SEPA Water Classification Hub](#)).

The River Dubh Eas, which is spanned by the A82 460 Dubh Eas bridge within the scheme extent, has a high likelihood of river flooding. This means that each year, the riverbanks have a 10% chance (high risk) of flooding. No areas of surface water flooding are recorded within the scheme extent ([SEPA Flood Map](#)).

## 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 CO2 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

Construction activities associated with the proposed works have the potential to temporarily cause local air quality impacts. Activities undertaken on site may cause dust and particulate matter to be emitted to the atmosphere. However, taking into account the nature and scale of the works and the following mitigation measures, the risk of significant impacts to air are considered to be low.

- All plant, machinery and vehicles associated with the scheme will be maintained to the appropriate standards and will be switched off when not in use.
- Activities involving cutting/planing will be appropriately managed to reduce the potential for dust creation. This will involve use of measures such as dampening down or on tool extraction where required.
- Green driving techniques will be adopted, and effective route preparation and planning to be undertaken prior to works.
- All delivery vehicles carrying material with dust potential will be covered when travelling to or leaving site, preventing the spread of dust beyond the work area.
- Material stockpiles will be reduced as much as reasonably practicable by using a 'just in time' delivery system. All material will also be stored on made ground.
- Any stockpiled material on site will be monitored daily to ensure no risks of dust emissions exists.
- Materials will be removed from site as soon as is practicable.
- Good housekeeping will be employed throughout the work.

With the above mitigation measures in place, it is anticipated that any air quality effects associated with the proposed works are unlikely to be significant. This receptor is not considered further in this Record of Determination (RoD).

### Cultural heritage

The features of cultural heritage interest within 300m of the scheme have no connectivity to the works as they are all located outwith the A82 trunk road and its verges. In addition, the construction of the A82 road corridor is likely to have removed any archaeological remains that may have been present. Therefore, the potential for the presence of unknown archaeological remains in the working area has been assessed to be low. Moreover, all works are restricted to the trunk road boundary and surrounding engineered ground, with the majority of the works to be carried out from the bridge deck. No excavations outwith the trunk road boundary are

required for the works. The works do not include any alterations that would affect the historic and architectural character of features in the area. The following good practice measures will be in place to reduce the risk of impacts to undiscovered features of cultural heritage interest:

- Should any unexpected archaeological evidence be discovered, works will stop temporarily in the vicinity and the BEAR Scotland Environment Team contacted for advice.
- People, plant, and materials should, as much as is reasonably practicable, only be present on areas of made / engineered ground. Where access outwith these areas is required for the safe and effective completion of the scheme, it shall be reduced as much as is reasonably practicable and ideally be limited to access on foot. There shall be no storage of vehicles, plant, or materials against any buildings, walls or fences.

With the above mitigation measures in place, it is anticipated that any cultural heritage effects associated with the proposed works are unlikely to be significant. This receptor is not considered further in this RoD.

## Landscape and visual effects

The proposed scheme lies within the Loch Lomond and the Trossachs National Park (LLTNP). The works will be carried out over four weeks at the A82 460 Dubh Eas bridge and land use will not change as a result of the works. Therefore, the works will not create any significant change to the local landscape and no change to the special characteristics of the National Park are expected. No consultation response has been received to date from the LLTNP Authority. In addition, the following mitigation measures will be put in place during works:

- Throughout all stages of the works, the site will be kept clean and tidy, with materials, equipment, plant and wastes appropriately stored, reducing the landscape and visual effects as much as possible.
- The working area and laydown area will be appropriately reinstated following works.
- Works will avoid encroaching on land and areas where work is not required or is not permitted. This includes general works, storage of equipment/containers and parking.
- Where applicable, upon completion of the works, any damage to the local landscape should be reinstated as much as is practicable.
- The site will be left clean and tidy following construction.

With the above mitigation measures in place, it is anticipated that any landscape and visual effects associated with the proposed works are unlikely to be significant. This receptor is not considered further in this RoD.

## Biodiversity

Activities undertaken on site as part of the scheme could potentially have a temporary adverse impact on biodiversity in the area as a result of an increased vehicle presence and the potential for disturbance to protected species and pollution of habitats.

### Designated sites

There are no European sites (SPAs, SACs, Ramsar sites), SSSIs, National Nature Reserve (NNRs) or Local Nature Reserve (LNRs) within the scheme extent. However, Loch Lomond Woods SAC and Glen Falloch Woods SSSI are located within 200m of the scheme. Glen Etive and Glen Fyne SPA is located within 260m of the scheme.

A Habitats Regulations Appraisal (HRA) Proforma was completed to assess potential impacts of the proposed works on the above designated sites. The HRA Proforma concluded that the works would have limited potential to result in Likely Significant Effects (LSE) on the qualifying features of the designated sites and would not result in Adverse Effect on Site Integrity (AESI) due to the following reasons:

Applicable to all qualifying features:

- There will be no works within the boundary of the SAC or SPA; therefore, the works will not result in direct impacts on any of the qualifying interests.
- No land take, vegetation clearance or modification of riparian habitat is associated with the scheme.
- No in-water works are required, with all works to be carried out from within the trunk road boundary and where required for access, from the verge.
- Hydrological connectivity between the Dubh Eas watercourse, which discharges into River Falloch, and watercourses located within the SAC is limited, as the SAC watercourses are located upstream of the River Falloch.
- Good practice measures and required working methods (e.g., containment measures) will be in place and are adhered to as standard to protect the water environment.
- Good practice measures will be adopted as a standard for proposed works that may result in increased noise levels on site.
- No significant dust, particulate matter, and exhaust emissions (DPMEE) sources will be introduced by the works.
- The works are of short duration and highly localised to the bridge.

The consultation response received from NatureScot regarding the presented HRA assessment in June 2023 confirmed that NatureScot is in agreement with this assessment.

## Terrestrial Ecology

No INNS were recorded during the PEA survey and works will not include vegetation removal. The scheme does not require permanent or temporary land-take, accommodation works, site clearance, or locally gained resources, and there is no requirement to import topsoil. As such there is limited potential to spread or introduce INNS, invasive native perennials, or injurious weeds.

Although there are areas of AWI woodland either side of the A82 from the scheme, works will be restricted to the A82 460 Dubh Eas bridge and will not entail any tree felling. Pollution controls will be in place to ensure there is no loss of containment to the local environment. Therefore, the works will not impact the adjacent AWI woodland.

Pollution controls and good practice measures to reduce impacts of works on the local environment will be detailed in the SEMP and adhered to on site. Any protected species in the area are likely to be accustomed to road noise on the A82 and the scheme is of short duration. Therefore, with the following mitigation measures in place, the risk of significant impacts on biodiversity are considered to be low:

- Works will be strictly limited to areas required for access and to carry out the above-described works. Unnecessary encroachment onto terrestrial or aquatic areas will not be tolerated.
- No tree felling or in-stream works are permitted.
- No works will take place within nearby AWI woodlands.
- All construction operatives will be briefed through toolbox talks prior to works commencing. The toolbox talks will provide information on the legislation, general ecology, and best practice measures for relevant protected species.
- Site personnel will remain vigilant for the presence of any protected species throughout the works period. Should a protected species be noted during construction, works shall temporarily halt until the species has sufficiently moved on. Any sightings of protected species shall be reported to the BEAR Scotland Environmental Team.
- Artificial lighting (if required) shall be directed away from watercourses and suitable bankside habitat as far as is safe and reasonably practicable.
- A 'soft start' will be implemented on site each day. This will involve switching on vehicles and checking under/around vehicles and the immediate work area for mammals prior to works commencing to ensure none are present and that there is a gradual increase in noise.
- Any excavations, exposed pipes/drains, or areas where an animal could become trapped (e.g. storage containers) will be covered over when not in use, at the end of each shift, and following completion of the works to avoid animals falling in and becoming trapped.

- If fencing is utilised at any point during the works, a gap of 200mm from ground level will be provided, allowing free passage for mammals and preventing entrapment.
- Site personnel will remain vigilant for the presence of INNS in road verges throughout the works period. Should any INNS be identified in working areas, no works may take place within 7m of these areas until the BEAR Scotland Environmental Team can provide further advice.

With the above mitigation measures in place, it is anticipated that any biodiversity effects associated with the proposed works are unlikely to be significant. This receptor is not considered further in this RoD.

## Geology and soils

The scheme does not lie within a GCRS or a geological SSSI. Construction activities are restricted to areas of made ground, with the majority of the works located within the carriageway boundary and some works to be undertaken to repair existing gabion baskets and adjacent concrete on the embankment. Works are restricted to bridge deck refurbishment, concrete repairs and repairs to the gabion baskets; therefore, the risk of damage to features of geological interest is negligible and the works are not anticipated to have an adverse impact on geology and soils.

With the following mitigation measures in place, the likelihood of significant impacts on geology and soils is negligible.

- The parking of machinery/personnel and storage of equipment on road verges will be minimised as far as is reasonably practicable.
- Upon completion of the works, any damage to the local landscape (i.e. damage to grass verges) should be reinstated as much as is practicable.
- Mitigation measures to prevent contamination of soils through loss of containment will be strictly adhered to.

With the above mitigation measures in place, it is anticipated that any geology and soils effects associated with the proposed works are unlikely to be significant. This receptor is not considered further in this RoD.

## Material assets and waste

There is potential for impacts as a result of resource depletion through use and transportation of new materials. However, materials will be sourced locally where possible and the following mitigation measures will be put in place:

- Materials will be sourced from recycled origins as far as reasonably practicable within design specifications.

- Care will be taken to order the correct quantity of required materials to prevent the disposal of unused materials.
- Where possible, minimal packaging shall be requested on required deliveries to reduce unnecessary waste and production of packaging materials.

There is potential for impacts during works as a result of the improper storage or disposal of waste. The following mitigation measures will be put in place:

- The waste hierarchy (Reduce, Reuse, Recycle and Dispose) will be employed throughout the construction works.
- The subcontractor will adhere to waste management legislation and ensure they comply with their Duty of Care.
- Containment measures will be in place to prevent debris or pollutants from entering the surrounding environment.
- Uncontaminated road planings will be re-used or recycled under a SEPA Paragraph 13(a) waste exemption and in line with BEAR Scotland's Procedure 126: The Production of Fully Recovered Asphalt Road Planings.
- All wastes and unused materials will be removed from site in a safe and legal manner by a licensed waste carrier upon completion of the works. The appointed waste carrier must have a valid SEPA waste carrier registration, a copy of which will be provided to and retained by BEAR Scotland as early as possible.
- All appropriate waste documentation will be present on site and be available for inspection. A copy of the Duty of Care paperwork shall be provided and filed appropriately in accordance with the Code of Practice (as made under Section 34 of Environmental Protection Act 1990 as amended).
- Re-use and recycling of waste will be encouraged and the subcontractor will be required to fully outline their plans and provide documentary evidence for waste arising from the works (e.g., waste carrier's licence, transfer notes, and waste exemption certificates).
- An asbestos survey will be undertaken prior to the removal of the waterproofing system to confirm if any asbestos is present.
- Staff will be informed that littering will not be tolerated. Staff will be encouraged to collect any litter seen on site.
- Where applicable, all temporary signage will be removed from site on completion of the works.
- If the works encounter coal tar, then contaminated planings will be appropriately processed in line with Transport Scotland's Guidance Note on Dealing with Coal Tar Bound Arisings ([Coal Tar Guidance](#)). This will include:
  - Coal tar contaminated road planings will be classified as special waste.
  - All waste will be appropriately segregated, with coal tar contaminated planings being kept separate from uncontaminated planings.

- Coal tar contaminated road planings will be transported by a registered waste carrier and be accompanied by a SEPA-issued consignment note. SEPA will be notified, at least 72 hours before and no longer than one month before, prior to special waste leaving site. It will be transported to a facility that holds suitable pollution prevention and control permits and waste management licences. Copies of consignment notes will be retained for a period of three years.
- Waste will be transported in a safe and secure manner to prevent the release of contaminated material en-route.

With the above mitigation measures in place, it is anticipated that any material assets and waste effects associated with the proposed works are unlikely to be significant. This receptor is not considered further in this RoD.

## **Noise and vibration**

Construction activities associated with the proposed works have the potential to cause noise and vibration impacts through the use of equipment and construction vehicles. The proposed scheme is anticipated to result in temporary minor adverse noise impacts. The following mitigation measures will be put in place:

- The Best Practice Means, as defined in Section 72 of the Control of Pollution Act 1974, will be employed at all times to reduce noise to a minimum.
- For any night works, the Environmental Health Officer (EHO) and local residents will be notified of works and provided with a 24-hour contact number for the BEAR Scotland Control Room.
- On-site construction tasks will be programmed to be as efficient as possible, with a view to limiting noise disruption to local sensitive receptors.
- For night works within 300m of residential properties, the noisiest works will be programmed to be completed before 23:00 each night where possible.
- All site personnel will be fully briefed in advance of works regarding the need to minimise noise during works and of the site-specific sensitivities.
- All plant will be operated in such a way that minimises noise emissions and will have been maintained regularly to the appropriate standards.
- Where fitted, and where permitted under Health and Safety requirements, white noise reversing alarms will be utilised during construction.
- Where ancillary plant such as generators are required, they will be positioned so as to cause minimum noise disturbance. Where deemed necessary, acoustic screens will be utilised.

With the above mitigation measures in place, it is anticipated that any noise and vibration effects associated with the proposed works are unlikely to be significant. This receptor is not considered further in this RoD.

## Population and human health

During construction, activities undertaken on site may have temporary adverse impacts on local residents, vehicle travellers, and non-motorised road users (NMUs) as a result of vehicle noise and delays due to TM measures. Although one residential property was identified within 300m of the bridge, the works are of short duration and full road closure will be limited to a few nights (likely 1-2 nights). With the following mitigation measures in place, the risk of significant impacts on population and human health is considered to be low:

- Local residents will be notified of the impending works and TM (single lane closure with temporary traffic light during the day and full-road closure overnight for a limited number of days). Information provided will include contact details (office phone number and e-mail address) for the Project Engineer as well as a 24-hour contact number for the BEAR Scotland Control Room.
- Appropriate provisions / measures will be implemented within the TM to allow the safe passage of NMUs of all abilities through the site.
- Journey planning information will be available for drivers online at the Traffic Scotland website. Journey planning information will also be available for drivers online through BEAR's social media platforms.
- Local access to nearby properties will be maintained during construction.

With the above mitigation measures in place, it is anticipated that any population and human health effects associated with the proposed works are unlikely to be significant. This receptor is not considered further in this RoD.

## Road drainage and the water environment

During the works, there is potential for temporary impacts on the water environment. Potential changes in water quality from pollution events (either by accidental spillage of sediments, particulate matter, chemicals, fuels or by mobilisation of these in surface water caused by rain or tidal movements) during works have the potential to have a direct or indirect effect on the surrounding waterbodies. The following mitigation measures will be put in place to reduce the risk of pollution incidents as a result of works:

- The scheme will not entail any in-stream works.
- A containment system will be in place prior to works commencing on the bridge to prevent the loss of any materials (e.g. dust, debris, wet concrete and water) from activities such as deck blasting (hydro-demolition), parapet replacement,

concrete pouring and repairs. The integrity of the containment system will be checked frequently (at least daily), and should containment fail, operations will cease immediately, and necessary repairs undertaken.

- Wastewater from hydro demolition works is considered a trade effluent, and as such discharge of this into the water environment (including groundwater) is subject to authorisation. A method to appropriately capture, treat (to remove suspended solids to an acceptable level and neutralise the high pH), and/or dispose of the wastewater will be devised by the sub-contractor and appropriate consenting will be in place (if required).
- Where alternative methods on treatment and disposal of wastewater are proposed, these methods will first be confirmed with regulators (SEPA), and BEAR Scotland NW Environment Team will be advised.
- Standard working practices to comply with The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended) for works in or near water will be detailed in the SEMP and adhered to on site.
- No discharges into any watercourses or drainage systems will be permitted. Appropriate containment measures will be in place to prevent any loss of construction materials into the water environment.
- An incident response (contingency) plan will be put in place to reduce the risk from pollution incidents or accidental spillages. All necessary containment equipment, including suitable spill kits (for oil and chemicals) will be available on site, quickly accessible if needed, and staff trained in their use.
- All spills will be logged and reported. In the event of any spills into the water environment, all works will stop and the incident will be reported to the project manager and the BEAR Scotland Environmental Team. SEPA will be informed of any such incident as soon as possible using the SEPA Pollution Hotline.
- All plant and equipment will be regularly inspected for any signs of damage and leaks. A checklist will be present to make sure that the checks have been carried out.
- Storage of hazardous materials, oil and fuel containers will be distanced more than 10m away from any watercourses.
- If required, a designated refuelling area will be identified. Fuel bowsers will be stored on an impermeable area and be fully bunded. This will be distanced more than 10m from any watercourses.
- During refuelling of smaller mobile plant, a funnel will be used, and drip trays in place. Care will be taken to reduce the chance of spillages. Spill kits will be quickly accessible to capture any spills should they occur. The ground / stone around the site of a spill will be removed, double bagged and taken off site as special waste.
- Generators and static plant may have the potential to leak fuel and / or other hydrocarbons and will have bunding with a capacity of 110%. If these are not bunded then drip trays will also be supplied beneath the equipment with a capacity of 110%.

With the above mitigation measures in place, it is anticipated that any road drainage and the water environment effects associated with the proposed works are unlikely to be significant. This receptor is not considered further in this RoD.

## **Climate**

Construction activities associated with the proposed scheme works have the potential to cause local air quality impacts as a result of the emission of greenhouse gases through the use of vehicles and machinery, material use and production, and transportation of materials to and from site. The following mitigation measures will be put in place:

- BEAR Scotland will adhere to their Carbon Management Policy.
- Where possible, the works will be undertaken utilising a daytime work pattern to reduce the requirement for additional lighting.
- Local contractors and suppliers will be used as far as practicable to reduce fuel use and greenhouse gas emitted as part of the works.
- Where possible, materials will be sourced locally to reduce greenhouse gas emissions associated with materials movement, and waste will be disposed at local landfill.

With the above mitigation measures in place, it is anticipated that any climate effects associated with the proposed works are unlikely to be significant. This receptor is not considered further in this RoD.

## **Major Accidents and Disasters**

The River Dubh Eas/Allt nan Caorainn, spanned by the A82 460 Dubh Eas bridge within the scheme extent, has a high risk of river flooding. However, the majority of the works are restricted to the bridge above the watercourse and mean water levels are expected to be lower during the summer.

Works are restricted to the made ground of the A82 carriageway and engineered elevated banks (gabion baskets). TM will be designed in line with existing guidance. The proposed works are anticipated to last four weeks. TM is currently anticipated to consist of single lane closure with two-way temporary traffic light system during concrete repair works and night-time road closure for resurfacing works. Where required, alternative pedestrian routes will be included in the TM setup, to minimise impact of the works on NMUs.

These measures, along with mitigation measures and standard working practices, will be detailed in the SEMP and adhered to on site. 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. A search of the Stirling Council Planning Portal ([Map Search \(stirling.gov.uk\)](http://stirling.gov.uk)) confirmed that there are no planning applications within 300m of the scheme. A search of the Scottish Roads Works Commissioner's website ([Map Search](#)) has identified that no other roadworks are currently ongoing, or noted as being planned, on the trunk road at the same time as this scheme. There are also no local authority road networks in proximity to the scheme. Due to the nature of the proposed works, no cumulative effects are anticipated with any other developments in the vicinity.

BEAR Scotland programme all of their proposed works in line with appropriate guidance and contractual requirements. All schemes are programmed to take into account existing and future planned works, with a view of limiting any cumulative effects relating to TM. As a result of this exercise, where a potential for cumulative impacts is identified, BEAR will reprogramme schemes to avoid / limit any cumulative effects or will utilise existing TM to complete multiple schemes at once. This approach allows BEAR Scotland to effectively manage the potential cumulative effects as a result of TM, resulting in minimal disruption to users of the Scottish trunk road network.

BEAR Scotland is proposing works at the A82 480 Dubh Eas North bridge, with a provisional start date of 4<sup>th</sup> September. However, the works are minor and of short duration (approximately 5 days), located approximately 850m away, separated by woodland, and are not considered to lead to in-combination effects with this scheme.

Overall, it is unlikely that the proposed works will have a significant cumulative effect with any other future works in the area.

## Assessments of the environmental effects

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. Although potential for LSE on the qualifying features of the Loch Lomond Woods SAC and Glen Etive and Glen Fyne SPA could not be ruled out, it was concluded that there will be no AESI.

## 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 completed 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 whole in the Loch Lomond and the Trossachs National Park 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:

- The total working area is less than 1 ha.
- The works will be temporary, localised, and of minor scale.
- Any potential impacts of the works are expected to be temporary, short-term, non-significant, and limited to the construction phase.
- Works are not expected to result in significant disturbance to protected species that may be present in the wider area.
- No in-combination effects have been identified.
- The risk of major accidents or disasters is considered to be low.
- No impacts on the environment are expected during the operational phase as a result of works. The works are expected to result in positive impacts on road users during the operational phase.

Location of the scheme:

- Works will not result in any change to the special qualities for which the Loch Lomond and the Trossachs NP is designated.

- Although the works are located within 300m of the Glen Etive and Glen Fyne SPA and Loch Lomond Woods SAC, the HRA concluded that the works would not result in AESI.
- The works will be restricted to made/engineered ground of the A82 460 Dubh Eas bridge and do not fall under the SSSI operations requiring consent from NatureScot. Due to these reasons, there is limited pathway to effect and no negative impacts on the SSSI are anticipated.
- Any impacts to the local landscape during the construction phase will be minor, temporary and not considered significant. In addition, no operational impacts are anticipated.

Characteristics of potential impacts of the scheme:

- Containment measures of the working area will be in place to prevent debris or pollutants from entering the surrounding environment.
- Measures will be in place to ensure appropriate removal and disposal of waste.
- The SEMP will include plans to address environmental incidents.
- Mitigation measures detailed above and in the SEMP will be put in place with the objective to prevent and, if required, subsequently control any potential impacts on sensitive receptors.
- In the event that INNS are found on site, measures to prevent potential INNS spread will be implemented.

## 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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