



**TRANSPORT
SCOTLAND**
CÒMHDHAIL ALBA

Environmental Impact Assessment Record of Determination

**M9 Approach to Keir
Roundabout northbound -
Resurfacing**

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Project Details

Description

BEAR Scotland, on behalf of Transport Scotland, has been commissioned to undertake resurfacing works on the M9 northbound carriageway, approximately 0.6 km west of Bridge of Allan (Figure 1; National Grid Reference NS 77733 99189 to NS 77984 97798).

The works will involve the replacement of surface course over an approximate length of 1.43km, covering an area of approximately 1.65ha. There are areas where a partial reconstruction will be utilised and areas where a deeper inlay will be utilised.

The resurfacing procedure is as follows:

- Set up traffic management (TM) and mark out site;
- Milling of existing bituminous material by road planer;
- Breaking up surfaces with jackhammer and compressor where not accessible by planer (e.g., around gullies);
- Loader/excavator used to collect and move excess material;
- HGV for removal and replacement of material;
- Sweeper to collect loose material and provide clean laying surface;
- Milled out/excavated materials taken off site;
- Tack/bond coat laid;
- Binder material laid and compressed by paver (where required);
- New bituminous surface course material laid by paver;
- Material compacted using a heavy roller;
- Road markings and studs applied where necessary (in accordance with [Chapter 5](#));
- Remove TM and open road.

The works are currently programmed to be completed within the 2023/2024 financial year (April 2023 to March 2024 inclusive) and are expected to commence on 1st November 2023. Works are expected to be completed over 7 nights, operating between the hours of 19:30 and 06:00. Changes in the programme may result in alteration to the proposed start date, or the need for day works.

Traffic management (TM) will involve a closure of M9 northbound carriageway between Junction 9 and 11, which will be facilitated by a signed diversion. Traffic will be diverted via A9. 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 M9 northbound carriageway approaching A9 Keir Roundabout, approximately 0.6km west of Bridge of Allan within the Stirling Council area (Figure 1). The scheme has the following National Grid References (NGRs):

- Scheme Start: NS 77733 99189
- Scheme End: NS 77984 97798

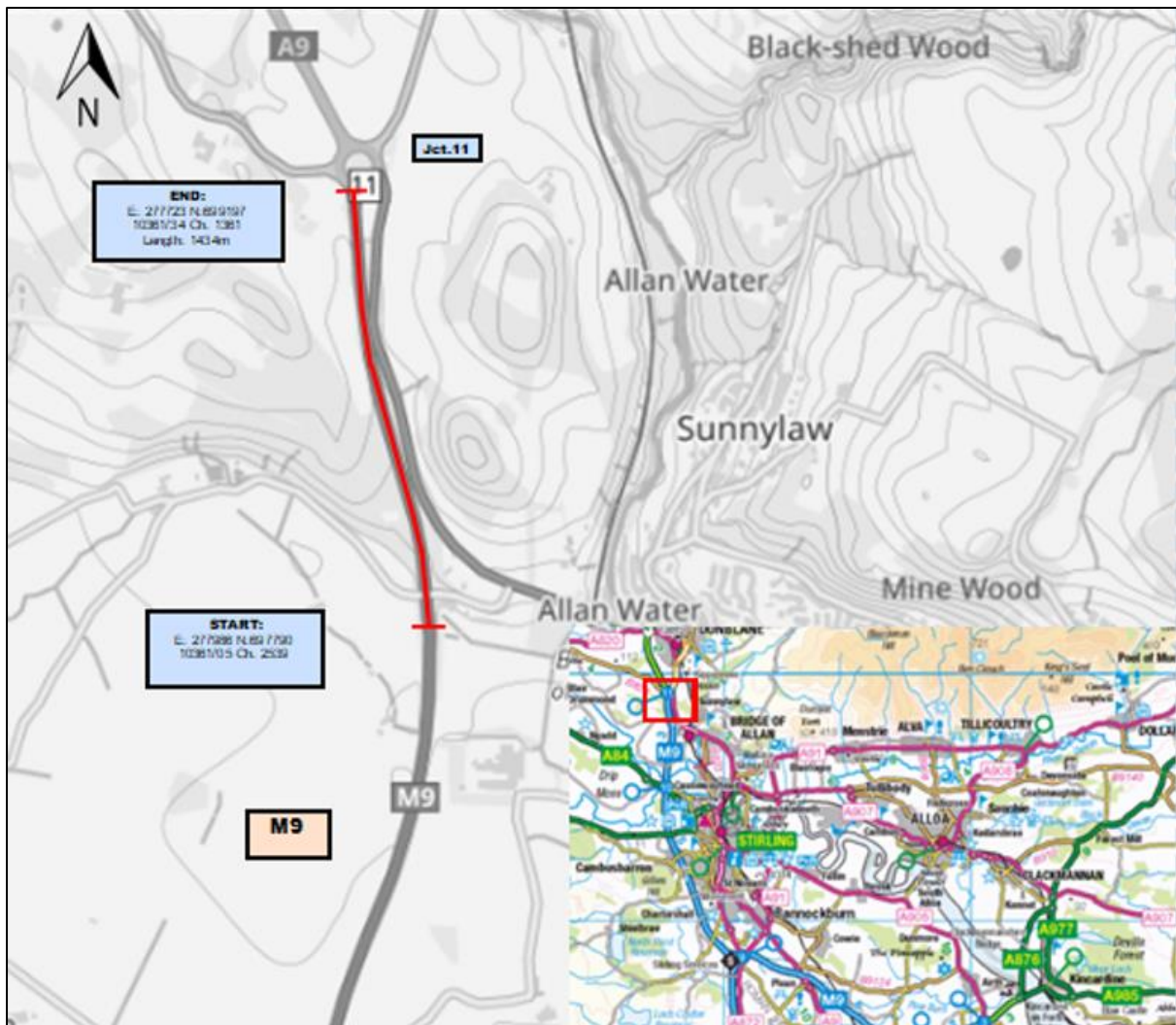


Figure 1. Location and scheme extent of the proposed resurfacing works at M9 Approach to Keir Roundabout NB. Source: BEAR Scotland. F108 – Environmental Assessment Request (Scheme ref: 23-SE-0102-29).

Description of local environment

Air quality

The scheme does not fall within any Air Quality Management Areas (AQMA) ([Air Quality Scotland](#)), the nearest AQMA 'Falkirk Town Centre' lies 20km southeast and is declared to monitor levels of Nitrogen dioxide (NO₂) and (Particulate Matter PM₁₀). The nearest air quality monitoring site to the scheme is in Stirling, approximately 5km southeast of the scheme, which records local concentrations of Nitric oxide (NO), and Particle Matter (PM₁, PM_{2.5} and PM₁₀). The levels at the time of the search were recorded as low ([Air Quality Scotland](#)). Pollution levels in the general vicinity of works are anticipated to be lower to levels at Stirling due to the more rural location of the scheme.

Five facilities of pollutants have been registered within the Scottish Pollutant Release Inventory (SPRI) ([Scotland's Environment](#)). The nearest of these are:

- Scotbeef Ltd, Longleys Farm, Bridge Of Allan - Animal and vegetable products from the food and beverage sector (lies 0.5km from the scheme)
- Guala Closures UCP, Bridge of Allan, Stirling - Other activities (lies 1km from the scheme).

Average Annual Daily Flow (AADF) for the M9 carriageway 1.6km south of the scheme accounted for 34,842 vehicles in 2022, of which 9.6% were heavy goods vehicles (HGV) ([Road Traffic Statistics](#)).

Baseline air quality is likely to be primarily influenced by traffic along the M9 trunk road, with secondary sources likely to arise from vehicles travelling along the A9 and local road network, and day-to-day agricultural activities.

Cultural heritage

The following cultural heritage features are found within 300m of the scheme ([PastMap](#)):

- 'Six Listed Buildings:
 - Old 'Lecropt Churchyard' (LB3922; Category B),
 - 'Lecropt Church' (LB173; Category A), and
 - 'Lecropt Church Cottage' (LB47649; Category C).
 - Keir, Encircling Wall Of Eastern Portion Of Gardens Running From Keir House To Stud House A) Salve Gateway B) Gateway & Stairs On N. Lodge Drive C) Swan Gateway; 'Stud House' (LB3976; Category B),

- 'Keir, South Lodge' (LB3921; Category A), and
- 'Keir House North Lodge' (LB3920; Category C).

The nearest of listed buildings lie 30m west of the scheme and is separated by a woodland.

- 'Keir' Garden & Designed Landscape (GDL, GDL00231). The GDL lies 10m west of the scheme and is a parkland designed by Thomas White and the formal gardens by James Niven, which provide an important setting for the category A listed Keir House.
- Numerous Canmore features and Historic Environment Records (HERs). Two of these, a Canmore and an HER, pertain to M9 carriageway within the scheme extents and are records of a historic building and gates, which have been removed during the construction of M9.

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

Landscape and visual effects

The scheme is not within an area designated as a National Park or National Scenic Area ([Sitelink](#)).

The Landscape Character Type (LCT) within the scheme extents is categorized as 'Lowland Valley Fringes' (no. 154) ([Scottish Landscape Character Types](#)), which is characterised by:

- Low, undulating and gently rolling landform separating the Lowland River Valleys - Central.
- Transitional landscape between the low lying Carselands and the more open hill fringes.
- Often dissected by distinctive narrow river valleys.
- Varied landcover of enclosed arable farmland, rough grassland and lush pasture.
- Unified pattern of small settlements and scattered farmsteads.
- Field boundary patterns well-defined by trees, shelterbelts, hedgerows and small woodlands.
- Swathes of broadleaf woodland and coniferous forest cover integrate with the undulating landform.
- Crossed and encircled by a network of communication routes, often running perpendicular to the gently sloping landform.

- Transitional nature of the landscape provides varying views across the wide, open Carselands and river valleys, and to the lowland hills which often form a dramatic backdrop.

Historic Environment Scotland's HLAMap ([HLAMap](#)) has highlighted that the surrounding landscape is dominated by agricultural fields and designed landscapes. Urban areas are noted to lie further to the east of the scheme.

Biodiversity

A desktop study using NatureScot SiteLink ([SiteLink](#)) has identified the following designated sites within 2km of the scheme:

- Kippenrait Glen Special Area of Conservation (SAC) lies 0.65km east of the scheme.
- River Teith SAC lies 1.7km southwest

Due to sufficient distancing, restriction of works to the M9 carriageway, and no requirement for in-water working, no connectivity exists between the proposed works and the designated sites.

The NBN Atlas holds records of numerous bird species within 2km over a 10-year period. Under the Wildlife and Countryside Act 1981, all wild birds and their active nests are protected.

The NBN Atlas highlighted records of Japanese knotweed (*Fallopia japonica*), giant hogweed (*Heracleum mantegazzianum*), and American skunk-cabbage (*Lysichiton americanus*), which are invasive non-native species (INNS) of plants, as listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) (WCA), under the same search criteria. None of the noted INNS records are highlighted within the verges of M9 within the scheme extents. The nearest of these records are noted at least 0.7km from the scheme.

Transport Scotland's Asset Management Performance System (AMPS) highlighted numerous records of giant hogweed, an INNS, and rosebay willowherb (*Chamaenerion angustifolium*), an invasive native perennial, within the verges of M9 at the scheme.

Although there is potential for unrecorded INNS, injurious and invasive native perennials to be present on roadside verges in proximity to the scheme, all works will be restricted to the M9 northbound carriageway surface and will not entail any verge working, therefore it is unlikely that any INNS, injurious weeds or invasive native perennials will be encountered.

Habitats surrounding the scheme is provided by woodland and minor waterbodies. Habitat further afield is provided by Allan Water, which lies 0.5km east of the scheme and woodland associated with Kippenrait Glen SAC.

Habitat along the scheme offers low ecological habitat value due to its limited scale, fragmented nature and high potential for disturbance owing to cyclic trunk road landscape maintenance, and the proximity to the trunk road (with its fast-flowing traffic). Fields of agricultural land containing mainly arable land with some livestock production (mainly cattle and sheep) intersperses areas of woodland which breaks connectivity between the habitats and restricts the occurrence of semi-natural and natural vegetation types. However, woodland and linear vegetation features along the nearby waterbodies can potentially provide occasional habitat. Due to the works being limited to the M9 trunk road carriageway surface, and the lack of nearby suitable habitat for shelter, it is deemed unlikely that any protected mammal species will be associated with permanent resting places in the immediate surrounding area of works. As such, a desktop study has been deemed sufficient and no additional ecological surveys need to be carried out.

Areas of woodland listed on Ancient Woodland Inventory (AWI) ([Scotland's Environment](#)) as 'log-established' (of plantation origin) borders the northbound and southbound carriageways within the scheme extents.

Geology and soils

The scheme does not lie within a Geological Conservation Review Site (GCRS) or geological Site of Special Scientific Interest (SSSI) ([SiteLink](#)).

The Generalised Soil Type at the scheme location is identified as brown soils and mineral gleys ([Scotland's Soils](#)).

A desktop study using the British Geological Survey Map ([BGS GeoIndex](#)) identifies the local geology type as a combination of the following:

Bedrock Geology:

- Sheriffmuir Sandstone Member (sandstone), which is a sedimentary bedrock.

Superficial Deposits:

- Till, Devensian (diamicton), which is a superficial deposit.
- Raised Tidal Flat Deposits Of Holocene Age (silt and clay), which is a superficial deposit.

As a result of the works taking place strictly within made ground within the M9 carriageway boundary, it has been determined that the proposed project does not carry the potential to cause direct or indirect impact to geology or soils.

As such, impact has been assessed as being 'no change' and has been scoped out of requiring further assessment.

Material assets and waste

The proposed works will include removal and reinstatement of carriageway surface course. Materials used will consist of:

- TS2010 10mm Surface course Site Class 1
- TS2010 10mm Surface Course Site Class 3
- AC20 20mm Binder
- AC32 32mm Binder
- Tack/Bond coat
- Paving Grade Bitumen
- Eurolite Thermoplastic Road Markings
- Embedded & Surface Mounted Road Studs

Planings from the carriageway surface course, which will be fully recovered for re-use in line with BEAR Scotland's Procedure 126: The Production of Fully Recovered Asphalt Road Planings, where not contaminated with coal tar. 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 number WML/XS/2005649).

Cores taken from the M9 within the scheme extents show no coal tar material within the carriageway layers.

As the value of the scheme exceeds £350,000, a Site Waste Management Plan (SWMP) will be created for this scheme.

Noise and vibration

The scheme extent lies within a semi-rural setting with agricultural fields and woodland on both sides of the carriageway. Properties are screened from the trunk road by roadside embankment, roadside tree shelterbelt and woodland (ranging from 10 m to 50 m wide). Only the farmstead is partially visible from the southern scheme extents.

The works do not fall within a Candidate Noise Management Area (CNMA) as defined by the Transportation Noise Action Plan ([TNAP](#)).

The night-time modelled noise level (L_{night}) for the scheme extents ranges between 70 and 75 decibels ([Scotland's Noise Scotland's Environment](#)). At the nearest Noise Sensitive Receptor (NSR) the L_{night} drops to between 60 and 65 decibels.

Baseline noise levels at the scheme location are likely to be primarily influenced by traffic along the M9 trunk road, with secondary sources likely to arise from vehicles travelling along the A9 and local road network, and day-to-day agricultural activities.

Population and human health

Four residential properties, a church (with cemetery), a village hall and a farmstead lie within 300 m of the scheme. Properties are screened from the trunk road by roadside embankment, roadside tree shelterbelt and woodland (ranging from 10 m to 50 m wide). Only the farmstead is partially visible from the southern scheme extents.

Keir roundabout is located immediately north of the scheme.

There are no National Cycle Network (NCN) routes ([OS Maps](#)), core paths ([Scotland's Environment](#)), walking routes as listed on WalkHighlands ([WalkHighland](#)), bus stops or other pedestrian facilities along the M9 within the scheme extent.

The M9, within the scheme extents, is a two-lane motorway with a continuous hard-shoulder and the national speed limit applying throughout.

Road drainage and the water environment

There are no waterbodies classified by the Scottish Environment Protection Agency (SEPA) under the Water Framework Directive 2000/60/EC (WFD) which lie within 300m of the scheme ([Water Classification Hub](#)).

Numerous minor unnamed waterbodies lie within 300m of the scheme.

The scheme falls within the 'Callander' groundwater body which is classified by SEPA in 2020 as having an overall status of 'Good' ([SEPA water environmental hub](#)) and is also a Drinking Water Protected Area (Ground) ([DWPA](#)).

Sections of the M9 carriageway within the scheme extents have been noted to have medium flood risk potential ([SEPA Flood Map](#)), which indicated that each year these sections have 0.5% chance of flooding.

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 (RoD) 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.

- When not in use, plant and vehicles will be switched off; there will be no idling vehicles.
- All plant, machinery and vehicles associated with the scheme will be maintained in order to minimise emissions, as per manufacturing and legal requirements. No significant dust, particulate matter, and exhaust emissions (DPMEE) sources will be introduced by the works.
- Green driving techniques will be adopted, and effective route preparation and planning will 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.
- Activities involving cutting/planing out 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.
- Material stockpiles will be reduced as far as is 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.
- Drop heights to haulage vehicles and onto conveyors will be minimised.
- Surfaces will be swept where loose material remains.

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 RoD.

Cultural heritage

Although there are records of cultural heritage interest within the scheme and within 300m of the scheme extents, there are no earthworks or vegetation clearance associated with the scheme and construction of the M9 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. Moreover, all works are confined to the upper engineered layers of the M9 carriageway and are restricted to like-for-like replacement of the road surfacing material. Therefore, the works do not include any alterations that would affect the historic and architectural character of the noted cultural heritage records or features, or would have the potential to expose any undiscovered features of cultural heritage.

As standard, the following good practice measures will be in place to reduce the risk of impacts to undiscovered features of cultural heritage interest:

- There will be no storage of vehicles, plant, or materials against any buildings, walls or fences.
- 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 will, 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 will be reduced as much as is reasonably practicable and ideally be limited to access on foot. There will 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

There is potential for minor, temporary visual impacts to the local landscape during the construction phase as a result of obstructed views due to vehicles and machinery. Proposed works will be restricted to like-for-like resurfacing of the M9 carriageway and will be carried out over 7 nights.

Land use will not change as a result of the works, and the works will not result in any residual change to the visual amenity of the local landscape. 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 temporary adverse landscape and visual effects as much as possible.
- 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 will 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

During road resurfacing, activities undertaken on site 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.

All works are restricted to the M9 made-ground within the motorway boundary, with only 'like-for-like' replacement of the road surface being undertaken. There will be no in-stream works; therefore, the works have no hydrological connectivity with the SACs. Furthermore, the designated sites are located at least 0.65km from the works and have no direct sight-lines due to intercepting landscape features. Therefore, there is no potential for disturbance to qualifying features from noise disturbance or presence of operatives.

The works are programmed to be undertaken out with the bird nesting season to avoid disturbance to nesting and/breeding birds if present.

Standard good practice measures to prevent pollution, such as appropriate containment measures, and disturbance to the environment will be detailed in the Site Environmental Management Plan (SEMP) and adhered to on site.

Pollution controls and good practice measures to reduce impacts of works on the local environment will be detailed in the Site Environmental Management Plan

(SEMP) and adhered to on site. 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 resurfacing works. Unnecessary encroachment onto terrestrial or aquatic areas will not be tolerated.
- No tree felling or in-stream works will be permitted.
- If works are delayed until bird breeding season (March to August inclusive), then nesting bird checks will be undertaken prior to works commencing.
- The works will not involve modification of the gravel centre reserves.
- 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 and INNS.
- 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 will temporarily halt until the species has sufficiently moved on. Any sightings of protected species will be reported to the BEAR Scotland Environmental Team.
- The times of artificial lighting use will be limited and will move with the movement of the works, providing some dark periods within previously lit areas. In addition, the lighting will be directed in a way to reduce the spread and ensure that only the task area is lit.
- 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 will take place within 7m of these areas as far as is reasonably practicable.

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.

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.
- 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, unless otherwise stated. The appointed waste carrier will 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 will 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).

- 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.

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 for the proposed activities. Works will be undertaken over 7 nights by utilising a night-time working programme on a rolling programme. 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.
- The Environmental Health Officer (EHO) from Stirling Council will be notified of works due to the proximity of nearby residential properties.
- The noisiest works (e.g. planing) will be programmed to be completed before 23:00 each night, where reasonably practicable.
- 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.
- Local residents will be notified of works via letter drop and road users will be informed of works through a media release, which will provide details of construction dates and times.
- 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 vehicle travellers as a result of vehicle noise and delays due to traffic management measures. Road users will be informed of works through a media release, which will provide details of construction dates and times and the diversion route. The works will be of short duration (7 nights), when traffic is at its lowest and will move progressively along the full scheme extent. With the following mitigation measures in place, the risk of significant impacts on population and human health is considered to be low:

- Construction lighting will take into account the need to avoid illuminating surrounding properties to avoid a nuisance at night, and non-essential lighting will be switched off at night.
- Where appropriate, a communication strategy (e.g., social media, consultation with local authority and other stakeholders, letter drop (for night-time works), 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.
- 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.
- Journey planning information will be available for drivers online at the trafficscotland.org website. Journey planning information will also be available for drivers online through BEAR Scotland's social media platforms.

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 these 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:

- Standard working practices to comply with The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended) for works near water are detailed in the SEMP and will be adhered to on site.
- The scheme will not entail any in-stream works.
- 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 material, 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 shall be distanced more than 10m from any watercourses.
- During refuelling of smaller mobile plant, a funnel will be used, and drip trays will be in place. Care will be taken to reduce the chance of spillages. 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 shall 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.
- The requirement for additional lighting will be reduced as far as reasonably practicable.
- 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 material 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

Sections of the M9 carriageway within the scheme extents have been noted to have medium flood risk potential, which indicated that each year these sections have 0.5% chance of flooding.

Works are restricted to the made ground of the M9 carriageway and traffic management will be designed in line with existing guidance. The proposed works are anticipated to last 7 nights. TM will involve closure of M9 northbound carriageway, facilitated by a local diversion. There are no pedestrian facilities, or other community assets, with connectivity to the scheme extents.

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.

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 ([Map Search](#)) did not identify planning applications within 300m of the scheme location.

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. Due to the nature of the proposed works, no cumulative effects are anticipated with any other developments in the vicinity.

BEAR Scotland programmes 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 traffic management. As a result of this exercise, where a potential for cumulative impacts is identified, BEAR Scotland will reprogramme schemes to avoid / limit any cumulative effects or will utilise existing traffic management to complete multiple schemes at once. This approach allows BEAR Scotland to effectively manage the potential cumulative effects as a result of traffic management, resulting in minimal disruption to users of the Scottish trunk road network.

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 within this Record of Determination, 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 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) exceed 1ha in area.

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 and review of available information has not identified the need for a statutory EIA.

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

Characteristics of the scheme:

- Construction activities are restricted to the 1.65ha area of existing carriageway.
- 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.
- As the works will be limited to the like-for-like replacement of the structural components, 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.
- Any potential impacts of the works are expected to be temporary, transient, 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.

Location of the scheme:

- Works will not result in any residual visual change, and as such will have no change to the local landscape.
- Although the works lie within 2km of the noted SACs, no connectivity exists between these sites and proposed works area and the works do not have potential to affect these sites.
- The works are not expected to result in any alteration to existing features or exposure of potential undiscovered features of cultural heritage.
- The scheme will be confined within the existing carriageway boundary and as a result will not require any land take or alter any local land uses.

Characteristics of potential impacts of the scheme:

- Measures will be in place to ensure appropriate removal and disposal of waste.
- The SEMP will include plans to address environmental incidents.
- Containment measures of the working area will be in place to prevent debris or pollutants from entering the surrounding environment.
- In the event that INNS are found on site, measures to prevent potential INNS spread will be implemented.
- 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.

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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