



**TRANSPORT
SCOTLAND**
CÒMHDHAIL ALBA

Environmental Impact Assessment Record of Determination

A876 Higgin's Neuk Rbt to Clackmannanshire Bridge

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Project Details

Description

BEAR Scotland has been commissioned by Transport Scotland to carry out resurfacing works on the A876 approx. 1 km southwest of Kincardine, within the Falkirk Council administration boundary. The works will consist of carriageway resurfacing and reinstatement of road markings for a length of 0.58 km (approximately 0.7 ha).

Construction activities for resurfacing include:

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

The works are currently programmed to be completed within the 2022/2023 financial year (February/March 2023). However, works may be delayed into the 2023/2024 financial year (April 2023 to January 2024 inclusive). Works are expected to be completed over four nights (19:30 – 06:00). Traffic management (TM) is currently anticipated to consist of road closure with signed diversion. The diversion will add approx. 40 km. Where required, alternative pedestrian routes will be included in the TM setup.

Location

The scheme lies approx. 1 km southwest of Kincardine, with agricultural land, wetland and road infrastructure surrounding the scheme extents (Figure 1).

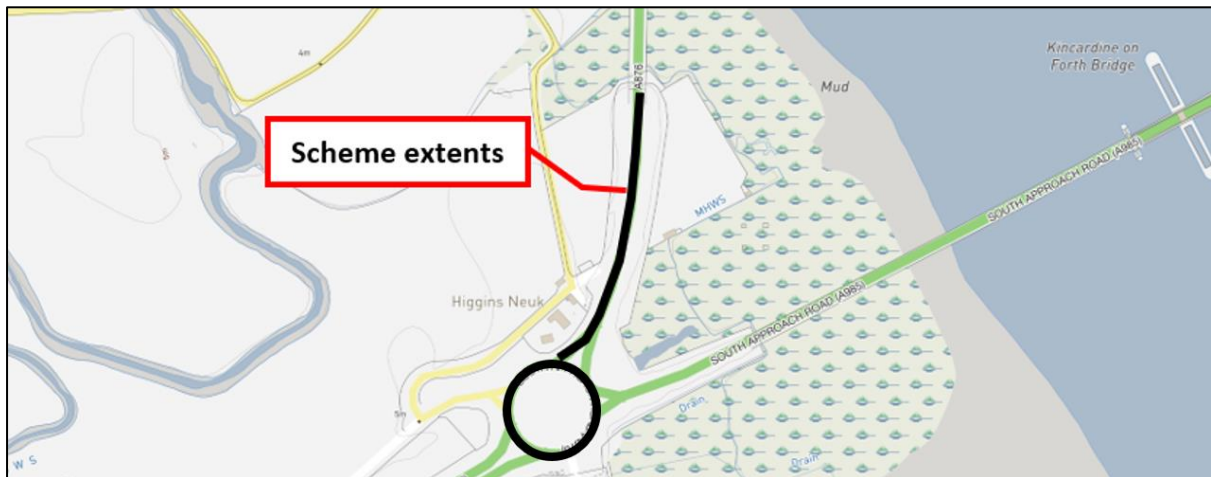


Figure 1. Extent of works. Source: Grid Reference Finder. Reproduced by permission of Ordnance Survey on behalf of HMSO. © Crown Copyright and database right 2022.

Description of local environment

Air quality

The scheme lies within the boundary of Falkirk Council, which has five [Air Quality Management Areas](#) (AQMAs) within its administrative boundary. The nearest AQMA, 'Grangemouth', lies approx. 4.25 km southeast of the scheme and is declared for sulphur dioxide (SO₂).

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

Baseline air quality is mainly influenced by vehicles travelling along the trunk road. Secondary sources are likely derived from day-to-day agricultural land management.

Cultural heritage

The [PastMap](#) and [Historic Environment Scotland](#) (HES) online mapping tools records one Category A listed building, 'Kincardine Bridge' (LB50078), within 300 m of the scheme. There is no connectivity between the scheme and the Kincardine Bridge e.g., the bridge lies approx. 135 m southeast of the scheme.

Of lesser cultural heritage value, sixteen undesignated cultural heritage assets (UCHAs) lie within 300 m of the scheme. There is no connectivity between the

scheme and the UCHAs, e.g., the nearest lies outwith the trunk road boundary scheme extents, approx. 5 m east of scheme.

Landscape and visual effects

The scheme is not situated within a 'sensitive area' designated for landscape features e.g., [National Park](#) (NP), [National Scenic Area](#) (NSA).

The scheme lies approx. 1 km southwest of Kincardine, with agricultural land, wetland and road infrastructure surrounding the scheme extents.

[The Landscape Character Type](#) (LCT) within the study area is Carselands (no. 153). Key characteristics of this landscape is a flat, open, large scale Carselands of predominantly open agricultural landcover forming the floor and former floodplains of the River Forth, River Devon and Black Devon. The view from the scheme extents ranges far across the flat landscape with the Forth estuary dominating the landscape to the east and the Ochil hills on the horizon to the northwest. South of the scheme a flat agriculture landscape spreads across the Forth valley with tree shelterbelts and clusters of woodland interspersed throughout.

Land use within 2 km of the scheme extents is categorised into the following: (i) cultivated farmland, (ii) wetland, (iii) motorway and major roads, (iv) urban development and (v) estuary.

The [national scale land capability for agriculture](#) classifies land surrounding the scheme as being 'Class 5.3' - land capable of use as improved grassland (pasture deteriorates quickly). Agricultural land surrounding the scheme forms a pattern of open and exposed fields containing mainly grazed pasture. Field patterns are an important landscape element, varying in size and shape to fit the local topography. Field boundaries, for example, highlight the landform by accentuating undulating land and flatter areas. Most field boundaries are post-and-wire fencing, with vegetative features further delineating field boundaries e.g., shrub hedgerow, rough grassland, ruderal herb stands, scrub and tree shelterbelt.

There are no areas of ancient woodland registered on the [Ancient Woodland Inventory Scotland](#) within 300 m of the scheme. There are also no trees on the [Native Woodland Survey of Scotland](#) within 300 m of the scheme.

Biodiversity

The [NatureScot Sitelink](#) online mapping tools identifies that the trunk road within the scheme extents lies partly within the depicted boundary of the Firth of Forth Special Protection Area (SPA) (EU Site Code: UK9004411), Firth of Forth Ramsar (EU Site Code: UK13017), and Firth of Forth Site of Special Scientific Interest (SSSI) (EU Site Code: 169840).

The scheme is not situated within a Local Nature Reserve (LNR) designated for biodiversity features. 'Pow Burn and Estuary Wildlife Site' Local Nature Conservation

Site (LNCS) lies approx. 100 m east of the scheme (at its nearest point). The site supports a significant extent of saltmarsh and inundation habitat which are locally rare, and a wide range of bird species are associated with the inter-tidal habitat. The site is an important part of the corridor of intertidal habitat along the edge of the Forth estuary and linked to the Firth of Forth SPA.

The [National Biodiversity Network](#) (NBN) online mapping tool records one mammal species of conservation importance. Forty-five bird species, including migratory overwintering waterfowl, wintering waders and wildfowl, were recorded within 2 km of the scheme (in last 10-years) within 10 km grid square NS98. Only records with open-use attributions (OGL, CC0, CC-BY) were included in the search criteria.

A search of the NBN online mapping tool records no invasive non-native species (INNS) or invasive native perennials (as listed in the Trunk Road Inventory Manual) within 2 km of the scheme extents (in the last 10-years). Two records of broad-leaved dock (*rumex obtusifolius*), fourteen records of creeping thistle (*Cirsium arvense*), six records of curled dock (*Rumex crispus*) and five records of spear thistle (*Cirsium vulgare*), all injurious weeds (as listed under the Weeds Act 1959), are recorded within 2 km of the scheme extents (within last 10-years). The nearest records pertain to two records of broad-leaved dock, two records of creeping thistle and three records of spear thistle, approx. 1 km southeast of the scheme (2016 and 2017). A search of the Asset Management Performance System (AMPS) records creeping thistle within the grassed verge adjacent to the scheme extents (2015).

Geology and soils

The A876 within the scheme extents is not located within a [Geological Conservation Review Site](#) (GCRS), and there are no Local Geodiversity Sites (LGS) with connectivity to the scheme extents.

The trunk road within the scheme extents lies partly within the depicted boundary of the Firth of Forth SSSI (EU Site Code: 169840). The SSSI is designated for a variety of geological and geomorphological features, which have been crucial in understanding the palaeogeography and palaeoecology of Scotland during the Carboniferous period. A rich abundance of fossils of international importance is also found throughout the SSSI.

The [National Soil Map of Scotland](#) online mapping tool records the Generalised Soil Type in the study area is Mineral Gleys, and Major Soil Group in the study area is Gleys.

The [British Geological Survey](#) online mapping tool records that the superficial geology underlying the scheme extents is comprised of (i) Raised Tidal Flat Deposits of Holocene Age (silt and clay), and (ii) Reclaimed Intertidal Deposits (silt and clay). The bedrock geology underlying the scheme extents is comprised of Scottish Lower Coal Measures Formation (sedimentary rock cycles, coal measure type).

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

Material assets and waste

The proposed works are required to resurface the worn carriageway and reinstate road markings. Materials used will consist of:

- Asphaltic material
- Road-marking paint
- Bituminous emulsion bond coat
- Milled in road studs

The scheme is executed by the operating company as site operations e.g. 'As-of-Right' scheme of value less than £350,000. As a result, a Site Waste Management Plan (SWMP) is not required.

The 0.58 km scheme involves removal of the surface course and localised areas of base and binder course. In total, 612 tonnes of bituminous material (European Waste Catalogue Code: 17 03 02) will be removed from site, none of which includes bituminous material with European Waste Catalogue Code: 17-03-01* (bituminous mixtures containing coal tar (Hazardous)).

Noise and vibration

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

The night-time modelled noise level (L_{night}) within the scheme extents ranges between 65 and 70 decibels, with noise levels dropping to between 55 and 60 decibels at the nearest Noise Sensitive Receptor (NSR) (residential property) ([Scotland's Noise Scotland's Environment](#)).

Baseline noise levels are mainly influenced by vehicles travelling along the trunk road. Communication with the Design Engineer confirmed that the road surface is in a poor condition, with a series of defects, which have the potential to elevate ambient noise levels. Secondary sources are likely derived from day-to-day agricultural land management activities.

Population and human health

The scheme lies approx. 1 km southwest of Kincardine, with agricultural land, wetland and road infrastructure surrounding the scheme extents. As such, only two properties lie within 300 m of the scheme. Both properties lie 20 m west of the scheme and have limited screening from the trunk road provided by a roadside tree shelterbelt (approx. 5 m wide). There are no sensitive receptors/land uses within 300 m of the scheme.

One [Core Path](#) (ID: 30866) (utilising a local footpath) runs adjacent to and parallel with the northbound (NB) lane of the carriageway for approx. 150 m at the northern scheme extents, and continuously with the southbound (SB) lanes of the

carriageway at the scheme location. Street lighting is present in the southern scheme extents in proximity to the roundabout within the scheme extents.

The A876 at the scheme location has a single NB carriageway, and two lanes for vehicles travelling SB, with the national speed limit applying throughout. The Higgins Neuk Roundabout (Rbt), in the southern scheme extents, is a two-lane roundabout with the national speed limit applying throughout. The roundabout has four exits and provides access to and from the Kincardine Bridge, Clackmannanshire Bridge and local properties.

The Annual Average Daily Traffic (AADT) flow at the scheme location is 24,821 (ID: 81307) (2020 data) ([Road traffic statistics](#)) and is comprised of:

- 30 two wheeled motor vehicles,
- 17,685 cars and taxis,
- 99 bus and coaches,
- 5,415 Light Goods Vehicles (LGVs), and
- 1,592 Heavy Goods Vehicles (HGVs).

The AADT flow recorded for pedal cycles is 0 (2021 data).

There are no congestion issues noted on the A876 within the scheme extents during the proposed working hours.

Road drainage and the water environment

The Scottish Environment Protection Agency (SEPA) [River Basin Management Plan](#) online mapping tool records no classified or unclassified surface waterbodies spanned, culverted beneath or which share direct connectivity with the scheme extents. The Firth of Forth at the location of the Upper Forth Estuary transitional waterbody lies approx. 100 m northeast of the scheme extents (at the nearest point). The 38.6 km² Upper Forth Estuary is classified (ID: 200435) and lies in the Scotland river basin district. The water body has been designated as a heavily modified water body on account of physical alterations that cannot be addressed without a significant impact from an increased risk of subsidence or flooding. The Upper Forth Estuary has been assigned a Water Framework Directive 2000/60/EC (WFD) overall classification of 'Moderate', an ecological classification of 'Moderate', and a classification of 'Good' for fish migration.

A search of the Scotland's Environment (SE) online mapping tool determined that the works lie on the 'Airth' [groundwater](#), which has been classified as 'Poor'.

The scheme is not located within a [Drinking Water Protected Area](#) or a [Nitrate Vulnerable Zone](#).

The SEPA indicative surface water online [flood mapping](#) tool records that a 20 m stretch of Higgins Neuk Rbt, within the scheme extents, is at a low risk of surface water flooding (1-in-1000-year flood event).

Road drainage is provided by filter drains and roadside gullies.

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

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

However, DPMEE associated with the construction phase will be localised to the works footprint and be of a short duration. Moreover, considering the nature, size, and scale of the scheme, and with implementation of mitigation detailed below, the proposed works impacts on local air quality levels during the construction period are assessed to be temporary negligible adverse in magnitude.

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

Proposed air quality mitigation measures:

- Careful consideration will be given to the siting and orientation of ancillary plant, vehicles, and NRMM, so that it is located, as far as is possible, away from receptors (if possible, >20 m from surrounding properties). Activities which have the potential to produce DPMEE (e.g., cutting and grinding of materials) will also, if possible, be undertaken away from any surrounding properties.
- A water-assisted dust sweeper will sweep the carriageway after dust-generating activities, and waste will be contained and removed from site as soon as is practicable.
- Vehicles that remove cold-milled material from site will have sheeted covers.
- Ancillary plant, vehicles and NRMM will have been regularly maintained, paying attention to the integrity of exhaust systems.
- Ancillary plant, vehicles and NRMM will be switched off when stationary to prevent exhaust emissions (e.g., there will be no idling vehicles).
- Where practicable, if powered generators are required, the use of mains electricity or battery powered ancillary plant will be considered in place of diesel or petrol alternatives.
- Cutting, grinding, and sawing equipment (if required) will be fitted or used in conjunction with suitable dust suppression techniques e.g., local exhaust ventilation system that fits directly onto tools.

- Materials that have a potential to produce dust will be removed from site as soon as possible.
- Regular monitoring (e.g., by engineer or Clerk of Works) will take place when DPMEE generating activities are occurring. In the unlikely event that unacceptable DPMEE are emanating from the site, the operation will, where practicable, be modified and re-checked to verify that the corrective action has been effective. Actions to be considered include: (a) minimizing cutting and grinding on-site, (b) reducing the operating hours, (c) changing the method of working, etc.

Cultural heritage

Construction of the A876 road corridor is likely to have removed any archaeological remains that may have been present within the boundaries of the trunk road. The potential for the presence of unknown archaeological remains in the study area has therefore been assessed to be low. Moreover, the works do not entail any earthworks or vegetation clearance, and people, ancillary plant, vehicles, NRMM and materials are restricted to areas of made/engineered ground within the boundary of the A876 carriageway. As such, there is negligible risk of disturbing or damaging previously undiscovered or unrecorded items of cultural interest.

There is no connectivity between the scheme and the Category A listed 'Kincardine Bridge', and the works do not include any alterations that would affect the historic and architectural character of this feature. As such, application for listed building consent or any other permission is not required.

Given there are no features of cultural heritage significance that require planning permission or consent with connectivity to the scheme extents, and with implementation of mitigation detailed below, the proposed works impacts on cultural heritage during the construction period are assessed to be negligible in magnitude.

Upon completion of the works, no residual impacts on cultural heritage are anticipated.

Proposed cultural heritage mitigation measures:

- People, ancillary plant, vehicles, NRMM and materials will be restricted to areas of made/engineered ground (as much as is reasonably practicable). Where access outwith made/engineered ground is required for the safe and effective completion of the scheme, the area will be reduced as much as is reasonably practicable, and ideally will be accessed on foot.
- If a change to the construction programme onsite is required that necessitates earthworks or vegetation clearance, BEAR Scotland's Environmental Team will be contacted.

Landscape and visual effects

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

However, people, ancillary plant, vehicles, NRMM and materials are restricted to areas of made/engineered ground within the boundary of the A876, and construction works are programmed to be undertaken at night (4-nights) on a rolling programme. As such, the visual impact of the works will be somewhat reduced.

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

Upon completion of the works, no residual impacts are anticipated e.g., the works involve only like-for-like replacement of the road surface.

Proposed landscape and visual effects mitigation measures:

- Construction vehicles will not be left in places where soil or vegetation can be damaged. If damage to road verge occurs, this will be lightly cultivated or graded (upon completion of the works) to allow natural recolonisation by local species and promote integration with existing landscape character.
- The site will be monitored regularly for signs of litter and other potential contaminants, and litter will be removed before and after works take place.
- The site will be left clean and tidy following construction.

Biodiversity

Consultation with NatureScot and a Habitats Regulations Appraisal (HRA) Stage 1 Screening has shown that there is sufficient information and assessment evidence to conclude that the proposed scheme will not cause a Likely Significant Effect (LSE) on the Firth of Forth SPA/Ramsar, either alone or in-combination with other projects and plans, as all works are restricted to the A876 carriageway and entail only 'like-for-like' replacement of road surface. Works are only partly located within the depicted boundary of the SPA/Ramsar, with the trunk road corridor offering unsuitable habitat for qualifying species. In addition, no in-water works are required, and there is no requirement for land take or site clearance from within the SPA/Ramsar. Noise and vibration are also not considered to be defining features of the works e.g., the works will be undertaken over four nights (19:30 – 06:00) on a rolling programme, and the overall level of risk is judged to be similar, or lower than that arising from current road traffic travelling on the A876. It is also reasonable to conclude that any wildlife in proximity to the scheme is habituated to the regular and continual movement of vehicles on the A876 and accustomed to noise and artificial light generated by vehicle movements. Existing street lighting is present throughout the scheme extents, limiting the need for additional artificial lighting. Works will also be undertaken outwith the breeding season for qualifying species within the SPA/Ramsar, additionally all species listed under the designation are non-breeding i.e., it is the overwintering populations of these birds that have triggered the

designations. Therefore, no further stages of HRA considered necessary for this scheme.

People, ancillary plant, vehicles, NRMM and materials are restricted to made/engineered ground within the boundary of the A876, therefore there is no connectivity between the scheme and 'Pow Burn and Estuary Wildlife Site' LNCS.

There is no requirement for earthworks, destruction or removal of vegetation, permanent (or temporary) land-take, accommodation works, site clearance or locally gained resources. As such, the works do not involve any physical altering or removal of habitat or result in habitat fragmentation.

A temporary short-term increase in noise levels may cause disturbance to local wildlife. The works will, for example, require a range of ancillary plant, vehicles and NRMM which will emit noise and create potential disturbance. The works will also require delivery of materials and the presence of personnel to facilitate the improvements to the carriageway surface. However, the number of construction vehicles and construction operatives required onsite is low given the scale and scope of works. In addition, any species in the area are likely to be accustomed to road noise on the A876 and the scheme is of short duration (4-nights) and will be undertaken on a rolling programme. The potential for significant species disturbance within the area of likely construction disturbance is therefore somewhat diminished.

There are no records of any INNS or invasive native perennials within the grassed verge adjacent to the scheme extents (within last 10-years). The injurious weed record pertains to creeping thistle present within the grassed verge adjacent to the scheme extents (2015). However, if any invasive or injurious flowering plant species will also be controlled/treated by cultural methods and/or chemical weed control as per the SE Annual Landscape Management Plan. There are also no earthworks or vegetation clearance associated with the scheme, 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 invasive native perennials or injurious flowering plant species.

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

Upon completion of the works, no residual impacts are anticipated in relation to biodiversity.

Proposed biodiversity mitigation measures:

- All personnel will be made aware of the proximity, and the protected status, of the Firth of Forth Special Protection Area (SPA), Firth of Forth Ramsar, and Firth of Forth Site of Special Scientific Interest (SSSI).
- Site personnel will remain vigilant for protected species and will not approach or touch any animals seen on site. Any sightings of protected species will be

reported to BEAR's Environmental Team. Should a protected species be encountered or move within 50 m of the active works (including compounds), works must be temporarily halted until the animal(s) move at least 50 m away from the construction site, or until BEAR's Environmental Team can provide advice.

- No access to the Firth of Forth or surrounding embankments will be permitted.
- The Contractor will employ 'soft-start' techniques for all noisy activity to avoid sudden and unexpected disturbance during works. Each time the activity is started up after a period of inactivity, the noise levels will be gradually increased over a period of 30 minutes to permit animals (and birds) to move away from the disturbance.
- Where possible, artificial lighting used during night works will be sufficiently screened and aligned so as to ensure that there is no direct illumination of neighbouring habitat (particularly the shoreline of the Firth of Forth) to ensure minimal impact on nocturnal species.
- All equipment stored onsite will be checked at the start of each workday to ensure protected species, and any or other mammal species, are not present. Any storage containers/plant within the compound will also be secured overnight to prevent exploration by protected species (and any or other mammal species). Any areas where an animal could become trapped (e.g., storage containers) will also be covered at the end of each working day, to avoid mammals falling in and becoming trapped.
- Toolbox Talk 'Working with Injurious Weeds & Invasive Plants' will be briefed prior to works commencing. Site personnel will be briefed on the location of the injurious species that are recorded onsite and will remain vigilant for the presence of any other potentially unrecorded instances of invasive or injurious weeds in road verges throughout the works period.
- People, ancillary plant, vehicles, NRMM and materials will be restricted to areas of made/engineered ground (as much as is reasonably practicable). If during works unforeseen access to the surrounding environment is required, works will cease in this area and BEAR Scotland's Environmental Team will be contacted to allow consideration of potential environmental effects.
- BEAR Scotland's Environmental Team will be contacted to allow consideration of potential environmental effects if: (i) unforeseen site clearance is required, (ii) unplanned works must be undertaken outwith the carriageway boundary, (iii) there is any deviation from the agreed plan, programme and/or method of working, (iv) nesting birds are found onsite.
- BEAR Scotland's Control Room will be contacted if there is a pollution incident.

Geology and soils

Road schemes have the potential to impact upon the geology and soils through direct and indirect impacts on sensitive sites, loss or sterilisation of mineral deposits or soil resources, disturbance of contaminated land, or surcharging of ground which may accelerate erosion and subsidence.

However, works are minor in nature and are restricted to like-for-like replacement of worn road surface, with all works restricted to made-ground on the A876 carriageway surface, therefore there will be no impact upon the Firth of Forth SSSI. The work corridor is also not located within a GCRS or LGS.

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

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

Proposed mitigation measures:

- All personnel will be made aware of the proximity, and the protected status, of the Firth of Forth Site of Special Scientific Interest (SSSI).
- People, ancillary plant, vehicles, NRMM and materials will be restricted to areas of made/engineered ground (as much as is reasonably practicable). If during works unforeseen access to the surrounding environment is required, works will cease in this area and BEAR Scotland's Environmental Team will be contacted to allow consideration of potential environmental effects.
- No access to the Firth of Forth or surrounding shoreline will be permitted.
- If any contaminated land requiring remediation were encountered, it will be contained and/or removed in a safe and controlled manner to the standards required by SEPA. Any removal of potentially hazardous material is likely to constitute a net positive impact as this will remove the risk of any future contamination.

Material assets and waste

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

However, the detailed design will reduce the requirements for primary materials e.g., the carriageway surfacing and sub-base will be carefully considered to minimise the requirements for importing primary material. Materials will also be derived from recycled, secondary, or re-used origin as far as practicable within the design specifications to reduce natural resource depletion. Specifying TS2010 surface course allows a wider array of aggregate sources to be considered when compared to typical stone mastic asphalt (SMA). As a result, the use of TS2010 should reduce the usage of imported aggregates and increase the use of a wider range of

sustainable aggregate sources. The design life for the TS2010 surfacing is also estimated to be 20 years. The enhanced durability of TS2010 therefore reduces reoccurring routine maintenance and associated levels of traffic disruption to this section of road over the period.

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

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

Proposed material and waste mitigation measures:

- Good materials management methods (e.g., 'just-in-time' delivery) will be implemented wherever possible.
- The Contractor will comply with all 'Duty of Care' requirements, ensuring that any surplus materials or waste are stored, transported, treated, used, and disposed of safely without endangering human health or harming the environment. Material transfer notes and/or waste exemption certificates (if required) will also be completed and retained.
- The Contractor is responsible for the reuse / disposal of non-hazardous road planings, and this has been registered in accordance with a Paragraph 13 waste exemption issued by SEPA, as described in Schedule 3 of the Waste Management Licensing Regulations 2011 (exemption numbers: WML/XS/2004413 and WMX/XS/2002087).
- Designated areas will be identified within which all materials and personnel, including construction compounds, will be contained to limit environmental disturbance during construction works. This will include a designated area (if required) for segregation and reuse of waste materials.
- The selection of areas for materials stockpiling will avoid sensitive locations such as road drainage and surface waterbodies (e.g., the Firth of Forth). Stockpiled materials with leachate potential, for example, will be stored away from road drainage to prevent cross-contamination with other materials, wastes, or groundwater.
- Materials will be stored with the appropriate security to prevent loss, theft, or vandalism.
- All temporary road signs and traffic cones will be removed from site on completion of works.
- If hazardous substances are used onsite, each substance will be subject to assessment under the Control of Substances Hazardous to Health (COSHH) Regulations 2002. Hazardous substances will also be clearly labelled, and disposed of, in line with COSHH safety data sheets and the Special Waste Regulations 1996. Special waste will also not be mixed with general waste and/or other recyclables.

Noise and vibration

Activities undertaken on site could potentially have some localised and short-term noise impacts in proximity to the works. The road works will, for example, require a range of ancillary plant, vehicles and NRMM for cold milling in preparation for carriageway resurfacing. Noise will also be generated by using breakers (jackhammers), chipping hammers, use of rollers, etc. As a result, there is potential for noise and vibration effects.

However, the works are not located within a CNMA or CQA, and the proximity of road space suggests that residents within the local area will have a degree of tolerance to noise and disturbance. Works will also be completed over 4-nights on a rolling programme, with the aim being to complete the noisiest works by 23:00. Works with the potential to induce worst-case scenario noise and vibration (cold milling in preparation for carriageway resurfacing, using breakers (jackhammers), chipping hammers, use of rollers, etc.) will also be intermittent, temporary, transient and short-lived. The potential for disturbance will therefore be somewhat diminished.

Considering the likely sources of noise and vibration, the distance from the point of generation to NSRs, the nature, duration, size and scale of the scheme, and with implementation of the mitigation detailed below, it is unlikely that noise and vibration associated with the works will lead to significant impacts, disruption and/or complaints. The proposed scheme is therefore anticipated to result in temporary minor adverse noise impacts.

The road surface is in a poor condition, with a series of defects. Replacing the life-expired surface course with TS2010 road surfacing affords the benefits of a reduction in mid-to-high frequency traffic noise and a reduction in ground vibrations. As a result, upon completion of the work noise associated with the movement of vehicles on the trunk road should decrease post construction.

Proposed noise mitigation measures:

- Where possible, the noisiest work operations (e.g., cold milling, using breakers (jackhammers), chipping hammers, use of rollers, etc.) will be completed before 23:00.
- Wherever possible, careful consideration will be given to the siting and orientation of particularly noisy items of NRMM so that it is located away from (if possible, > 20 m from) surrounding properties. Activities which have the potential to produce excessive noise e.g., cutting and grinding of materials should, if possible, also be undertaken away from surrounding properties.
- If unacceptable noise is emanating from the site the operation will, where possible, be modified and re-checked to verify that the corrective action has been effective. Actions to be considered include (a) minimizing cutting and grinding on-site, (b) reducing the operating hours, (c) repositioning equipment, (d) changing the method of working etc. Corrective actions will be actioned through the non-conformance reporting procedure, which ensures a root-cause analysis is carried out on each incident. The non-conformance procedure also ensures that appropriate corrective and preventative action measures are agreed and

implemented in a timely fashion with all parties, and are recorded and actioned through to closeout, and fully auditable and traceable.

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

Population and human health

During construction, activities undertaken on site have the potential to have temporary adverse impacts on local residents and vehicle travellers. However, the scheme does not require permanent (or temporary) land-take, accommodation works, site clearance or locally gained resources, and there is no requirement for a Compulsory Purchase Order (CPO). Pedestrians and non-motorised users (NMUs) utilising the Core Path and local footpath will be accommodated with TM arrangements (if necessary). Moreover, works will be undertaken at night when it is likely that footfall will be low, and the proximity of the trunk road suggests that pedestrians will have a degree of tolerance to noise and disturbance. A TM Plan, which will include measures to avoid or reduce road traffic disruption, will be produced in accordance with the Traffic Signs Manual (Department of Transport 2009). Moreover, TM will only be in place for 4-nights (when traffic flows will be at a minimum), and no congestion issues are noted during the proposed construction hours.

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

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

Proposed population and human health mitigation measures:

- 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.

- 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.
- Given the proximity of urban development to the scheme extents, Toolbox Talk TTN-042 Being a Good Neighbour will be briefed prior to works commencing.
- 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's social media platforms.
- 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.
- 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.

Road drainage and the water environment

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

However, there are no classified or unclassified surface waterbodies spanned or culverted beneath the scheme extents. No 'in-water' works are required, therefore there will be no change in the hydrological regime or water quality within the Upper Forth Estuary, and there is no requirement for land take, site clearance or resources from within a waterbody. There is also no requirement for the abstraction or transfers of water from a waterbody. The potential for a direct pollution incident within the Upper Forth Estuary is also unlikely e.g., experience gained from BEAR maintenance schemes elsewhere on the network has shown that where standard best working practice is adopted (e.g., adherence to SEPA GPPs or PPGs, utilisation of drain covers or similar, etc.), water quality is protected. In addition, filter drains within the scheme extents provide SuDS treatment to run-off prior to discharge.

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

Upon completion of the works, no residual impacts are anticipated in relation to the road drainage and water environment.

Proposed road drainage and water environment mitigation measures:

- No works are permitted to take place within the Upper Forth Estuary. If such a need were identified onsite, BEAR Scotland's Environmental Team will be contacted (before works commence) to allow consideration of potential environmental effects.
- The abstraction or transfers of water, discharges to, or the washing of tools in the Upper Forth Estuary is not permitted.
- The Contractor will implement measures to minimise the risk of sediment or accidental spillages entering the road drainage system e.g., prior to works commencing any roadside gullies within 10 m of work activities will be bunded (e.g., utilisation of drain covers or similar) to ensure full segregation of the works from the road drainage system. The Contractor will inspect bunds periodically to ensure that they have not been removed, damaged, or interfered with and they will be cleaned of silt and debris as necessary. If it is identified that bunds are not up to standard, the works will not commence until they have been reinstated to the condition, they were originally in.
- All site personnel will be made aware of site spillage response procedures and in the event of a spill, all works associated with the spill will stop, and the incident reported to the Site Supervisor. Small spills that did not leave the site boundary and are cleaned up without material environmental harm or residual environmental impact would most likely not be required to be notified to SEPA or other authorities. However, all such incidents must be recorded and reported to BEAR Scotland's Environmental Team. In the event of a 'serious incident', SEPA will be notified without delay. Such notification will include: (i) the time and duration of the incident, (ii) a description of the cause of the incident, (iii) any effect on the environment as a result of the incident, and (iv) any measures taken to minimise or mitigate the effect and prevent a recurrence.
- All waste, vehicles, ancillary plant, NRMM and fuels will be stored in the compound(s) or laydown area and will be secured and located, if space is available, at least 10 m from drainage entry points and the Upper Forth Estuary, in order to comply with GPP 5 'works and maintenance in or near water'. Refuelling will only be undertaken at designated refuelling areas (e.g., on hardstanding, with spill kits available, and >10 m from drainage entry points and the Upper Forth Estuary, where practicable). Spill kits will also be available within all site vehicles and spill kits will be replenished onsite when required. Only designated trained and competent operatives will be authorised to refuel plant. Generators, and other ancillary plant and NRMM, where there is a risk of leakage of oil or fuel, will have internal bunding or must have a secondary containment system placed beneath them that meets 110% capacity requirements. Containment systems will also be emptied regularly. All waste, vehicles, ancillary plant, NRMM and fuels will also be stored in a manner that ensures they are protected from damage by collision or extremes of weather.
- Regular visual pollution inspections of the designated laydown area and work site (particularly near road drainage entry points) will be conducted (e.g., site walkover by engineer or Site Supervisor), especially during periods of heavy rain.

- All vehicles and NRMM onsite will have been regularly maintained, paying attention to the integrity of oil tanks, coolant systems, gaskets etc. A checklist must be present to make sure that the checks have been carried out.

Climate

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

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

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

Proposed climate mitigation measures:

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

Vulnerability of the project to Major Accidents and Disasters

A 20 m stretch of the trunk road, within the scheme extents, is at a low risk of surface water flooding (0.1% Annual Exceedance Probability (AEP), 1-in-1000-year flood event). However, there will be no increase in impermeable surface area and there will be no modification to the existing road drainage therefore there will be no increase to existing base flows within the road drainage system. There will be also no change to the likelihood of flooding on the A876 within the scheme extents upon completion of the works.

Works are restricted to areas of made ground on the A876 carriageway surface, with access to the scheme gained via the A876. TM will employ road closure with signed diversion. Pedestrians will be accommodated within TM arrangements (if necessary). As such, the proposed works impacts on road traffic accidents is assessed to be of negligible magnitude.

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

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

Assessment cumulative effects

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

In addition, a search using [Falkirk Council Simple Search](#) identified that there are no planning applications within 300 m of the scheme. Considering the nature, duration, size and scale of the resurfacing works, it is unlikely that the proposed works would 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.

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 located partly within the Firth of Forth SPA and Firth of Forth Ramsar, which are sensitive areas 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.
- Works are restricted to like-for-like replacement of worn road surface, with all works restricted to made-ground on the A876 carriageway surface.
- Works are programmed to only take 4-nights to complete on a rolling programme, with the aim being to complete the noisiest works by 23:00 each night.
- There are no waterbodies spanned by or culverted beneath the scheme extents.
- 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.
- By removing the carriageway defects this will provide this part of the A876 carriageway with another life cycle, and significantly improve the ride quality, which will result in safer conditions for road users.

Location of the scheme:

- Although the works are located partly within the Firth of Forth SPA and Ramsar, the high-level HRA screening and consultation with NatureScot confirmed that the works will not result in LSE on the qualifying features of the SAC.
- The scheme does not lie within any sites of historical, cultural, or archaeological significance.
- The scheme is not located within any areas designated for landscape interests.
- Land use will not change as a result of the works.
- The works do not require any private land acquisition.
- The scheme is not located within a densely populated area.

Characteristics of potential impacts of the scheme:

- Any potential impacts of the works are expected to be temporary, short-term, not significant, and limited to the construction phase.
- With good practice pollution prevention measures implemented onsite, there is a negligible risk of a pollution event e.g., compliance with the SEMP.
- As the works are restricted to the like-for-like replacement of worn road surface, there is no change to the vulnerability of the road to the risk or severity of major accidents/disasters that would impact on the environment.
- No impacts on the environment are expected during the operational phase as a result of the works.

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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