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Environmental Impact Assessment Record of Determination

A84 South End of Loch Lubnaig – Resurfacing

Contents

Project Details

Description

BEAR Scotland has been commissioned by Transport Scotland to carry out resurfacing works along three separate but consecutive sections of the A84 trunk road, to lengths of 609m, 925m and 680m. The works involve milling out and replacing bituminous material to a mixed depth inlay and drainage works consisting of filter drain refurbishment, cut grip and drainage ditch maintenance. Following the resurfacing works, road markings will be reinstated.

Main plant will include pavers, planers, excavators, and rollers. A welfare unit with generator will be required on site, and heavy goods vehicles (HGVs) will be required for transport of materials and wastes.

The resurfacing procedure is as follows:

- Set up traffic management (TM) and mark out site
- Mill out old surface course
- Reset and/or replace roadside gullies where required
- Lay new surface course
- Roll surface and allow it to set
- Install road markings and studs
- Drainage works
- Remove TM and open road

The works consist of three schemes; A84 South End of Loch Lubnaig, A84 South End of Loch Lubnaig Phase 2 and A84 Loch Lubnaig Ardchullarie More. All three are programmed to be completed within the 2025/2026 financial year, with the first currently programmed to commence on 22nd June 2025 for a duration of twelve nights. Works will be conducted during nighttime working hours (19:00-06:00). Changes in the programme may result in a change to the proposed working hours/commencement dates.

Traffic management (TM) will involve nighttime lane closures with two-way temporary traffic lights and convoy working. Access to junctions and private roads will be maintained. Site access and plant storage will be located within TM. If the programme changes, this may result in amendments to the exact TM requirements.

Location

The schemes run along the east bank of Loch Lubnaig approximately 4km north of Callander in the Stirling Council local authority area (Figure 1). The schemes have the following National Grid References (NGR's):

- A84 South End of Loch Lubnaig: NN 58513 098855 to NN 58501 10411
- A84 South End of Loch Lubnaig (Phase 2): NN 58621 10741 to NN 58795 11643
- A84 Loch Lubnaig Ardchullarie More: NN 58684 12499 to NN 58675 13157

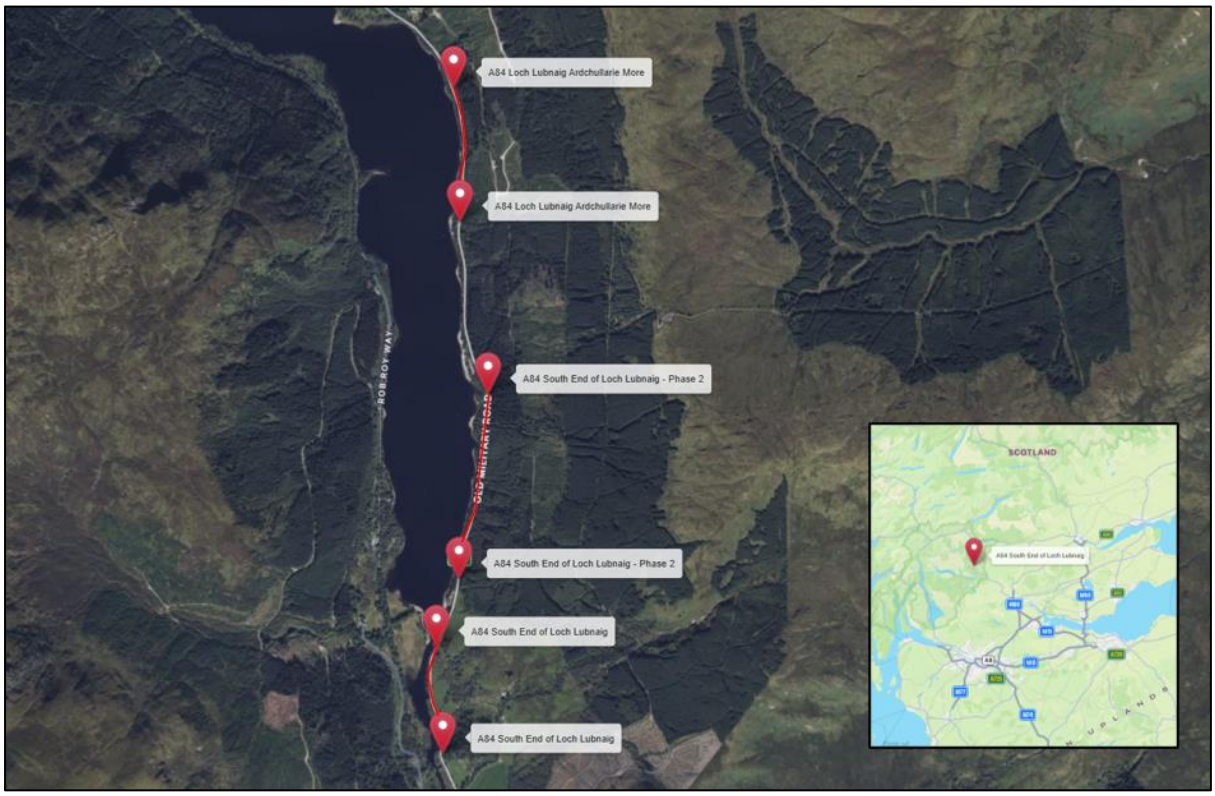

Figure 1: Scheme location and extents.

Description of local environment

Air quality

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

A search of the Air Quality in Scotland online mapping tool records that the works are not located within an Air Quality Management Area (AQMA). The scheme is located within the Stirling Council boundary area, which currently does not have any AQMAs.

No Air Quality Monitoring Stations (AQMS) are located within 10km of the scheme extent (Air quality in Scotland). The nearest air quality monitoring sites lie within Stirling City Centre and Crieff 25km from the scheme extents with the levels at the time of search noted to be in 'low' levels (Low Index 1-3).

There are no sites registered for air emissions on the Scottish Pollutant Release Inventory (SPRI) (Scotland's Environment) within 10km of the works.

The nearest Transport Scotland traffic count point (Site ID: 000000006003) lies 7km north of the closest scheme extents. Traffic count data at this site for 2024 accounted for 3,608 motor vehicles, with 9.7% of these being Heavy Goods Vehicles (HGVs).

Baseline air quality is likely to be primarily influenced by traffic along the A84 carriageway. Secondary sources are derived from day-to-day urban and agricultural/forestry land management activities.

Cultural heritage

According to the PastMap and Historic Environment Scotland (HES) online mapping tools, one Scheduled Monument 'Loch Lubnaig St Bride's Chapel' (SM1630), lies approximately 65m south from the A84 South End of Loch Lubnaig.

Several records on Canmore database and Historic Environment Records (HERs) are noted within 300m of the schemes. The nearest of these, is a record on Camore database and HER and is associated with the noted Scheduled Monument 65m south of the scheme (PastMap).

There are no Listed Buildings, Conservation Areas, Garden & Designed Landscapes, Battlefields or World Heritage sites were identified within 300m of the scheme (PastMap).

No features of Cultural Heritage value have been identified within the scheme extents and its immediate area. Furthermore, the works are confined to the man-made ground of the trunk road with the works being like-for-like. Although the works involve maintenance activities within the trunk road drainage system construction of the trunk road is likely to have removed any archaeological remains that may have been present within the area. As such, 'cultural heritage' is scoped out and is not discussed further within this RoD.

Landscape and visual effects

The schemes fall entirely within Loch Lomond and the Trossachs National Park (LLTNP) (8621) which has been designated for the following special general qualities:

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

The schemes do not not fall within a National Scenic Area (NSA) (SiteLink).

The Landscape Character Type (LCT) within the study area is 'Straths and glens with lochs' (no. 254) (NatureScot). The key characteristics of this LCT are:

- Strongly enclosed by steep and often rugged hill slopes with lochs filling much of the space between, leaving only a narrow flatter margin against the loch shore.
- Lochs generally long and narrow.
- Narrow passes occur between some lochs. Subtle promontories and narrow beaches feature on loch shorelines – these particularly appreciated in long views down the length of the lochs. Modification of natural lochs and water catchments in the LLTNP, giving rise to a variety of structures including dams and aqueducts – many of these comprise distinctive 19th Century structures.
- Settlements often located at the head of lochs and major through roads are aligned through some of these glens and straths.
- Scattered traditional dwellings or clusters of buildings usually located close to alluvial pastures at the intersection with side glens and water courses on some loch shores.

- Tourism and recreation facilities along loch shores.
- Highland-type designed landscapes, grand houses, hunting lodges and associated features, policies and parklands occupy prime loch shore positions. Pier and timber boat houses are a common feature in association with houses and estates particularly on Loch Ard.
- Lochs are highly visible, with roads and cycle/walking routes aligned close to their shores.
- Long views are possible across open water to the Highland Summits and the combination of craggy towering hills and smooth water is an essential component of the scenic richness of the National Park.

The scheme extent lies within a rural area along the eastern bank of the Loch Lubnaig with land use dominated by woodland. Pockets of pastoral grassland are present towards the scheme eastern extents with Loch Lubnaig forming a dominant landscape feature east of the scheme.

The A84 Trunk Road connects Stirling with Doune, Callander and Lochearnhead. It commences from its junction with the M9 at and including the eastern most roundabout at Craigforth Stirling (M9 junction 10) leading generally north-westwards for a distance of 44.7 kilometres to its junction with the A85 in Lochearnhead. The A84 is a single carriageway along its length.

Biodiversity

The scheme is located approximately 10m east of the River Teith Special Area of Conservation (SAC; NatureScot Site Code: 8367), which encompasses the Garbh Uisge/River Leny and at this section. In addition, the A84 carriageway within the scheme extents spans several minor watercourses which outflow into Garbh Uisge/River Leny and Loch Lubnaig, and by association the River Teith SAC, west of the scheme.

Due to proximity and ecological connectivity of the works to the River Teith SAC, a Habitats Regulations Appraisal (HRA) has been produced. Refer to the relevant assessment section below for details.

No other locally or nationally designated sites with biodiversity features (such as Sites of Special Scientific Interest (SSSI), Local Nature Reserves or National Nature Reserves) are located within 300m of the scheme (SiteLink).

The NBN Atlas did not return records of bird species within 2km over the last ten-year period, however it is expected that birds are present within the area. Under the Wildlife and Countryside Act 1981 (as amended) (WCA), all wild birds and their

active nests are protected with some birds, particularly those listed on Schedule 1 of the act, receive additional level of protection.

The NBN Atlas holds no records of injurious and invasive species of plants (as listed in the Network Management Contract (NMC)) using the same search criteria.

The Transport Scotland Asset Management Performance System (AMPS) identified one record of rosebay willowherb *(Chamaenerion angustifolium)* in 2017, an invasive species, within the verges of A84 10m south of the scheme.

The A84 carriageway within the scheme extents lies within a rural area with Loch Lubnaig and Garbh Uisge/River Leny located just 10m west of the scheme and extensive areas of conifer woodland east of the scheme.

Woodland listed as 'ancient' (of semi-natural origin) on Ancient Woodland Inventory maps lies adjacent to the A84 either side of the scheme (Ancient Woodland Inventory). There are no areas of trees covered by a Tree Preservation Order (TPO) within 300m of the scheme (Loch Lomond and The Trossachs NP TPO).

Geology and soils

There are no Geological Conservation Review Sites (GCRSs), or geological SSSI's located within 300m of the scheme (SiteLink).

Bedrock within the scheme extents is comprised of following bedrocks (BGS Geology Viewer):

- Ben Ledi Grit Formation (metasandstone) - metamorphic bedrock
- Ben Ledi Grit Formation (semipelite) - metamorphic bedrock
- Central Scotland Late Carboniferous Tholeiitic Dyke Swarm (quartz-microgabbro) - igneous bedrocks

Superficial deposit within the scheme extents is comprised of following superficial deposits (BGS Geology Viewer):

- Till, Devensian (Diamicton)
- Alluvium – Clay, silt, sand and gravel

The local soil type is recorded as brown soils and mineral podzols (Scotland's Environment Map).

Soils within the scheme extent are recorded as being 'Class 0', as displayed on Scotland's Peat Map. Class 0 are mineral soils with no peat present.

Material assets and waste

The resurfacing works are required to replace worn surface and general maintenance of the A84 trunk road. The works will also include removal of existing filter drain materials and replacement with clean gravel. General maintenance activities will be undertaken on cut grips and drainage ditches along the scheme extents.

Materials used will consist of:

- Asphaltic material
- Bituminous emulsion bond coat
- Milled in road studs
- Thermoplastic road marking paint
- New type B filter drain material
- Perforated carrier pipe

Wastes are anticipated to be removed planings from the surface course, which will be recovered for re-use in line with BEAR Scotland's Procedure 126: The Production of Fully Recovered Asphalt Road Planings. The Contractor is responsible for the disposal of uncontaminated 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.

Filter drain material will be tested for a range of possible contaminants prior to the drainage works being undertaken. Material disposal will be undertaken in accordance with the test findings.

There is no requirement for a site compound.

A Site Waste Management Plan (SWMP) is not required, and coal tar has not been highlighted as being present.

Noise and vibration

For residential, community and commercial receptors refer to the 'Population and Human Health' section below.

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

Noise modelled data from Environmental Noise Directive (END) Round 4 Noise Mapping indicates 24 hour annual average noise level (Lden) between 60 and 75dB at the scheme location (SpatialData).

Baseline noise levels are likely to be primarily influenced by traffic travelling along the A84. Secondary sources are derived from day-to-day urban and agricultural/forestry land management activities.

Population and human health

Five residential properties and one commercial facility lie within 300m of the works. The nearest residential property 'Stank Cottage' lies 130m west of the A84 South End of Loch Lubnaig, beyond the Garbh Uisge/River Leny and has a level of screening provided by intervening tree belts. Remaining dwellings are suitably set-back and screened by tree belts.

A coffee shop 'The Cabin' lies 160m north of the A84 South End of Loch Lubnaig (Phase 2) scheme and is screened from the scheme by intervening woodland belts.

Two public car parks 'The Cabin car park' and 'Loch Lubnaig South carpark' lie within 300m of the A84 South End of Loch Lubnaig (Phase 2); 120m north and 85m south of the scheme respectively.

One layby lies adjacent to the A84 northbound carriageway within the scheme extents.

The National Cycle Network (NCN) route 7 (OS Maps) at its closest point is located approximately 85m west from the A84 South End of Loch Lubnaig beyond the river Garbh Uisge. It is also listed as a core path (NatureScot) and form a part of two walking routes, 'Ben Ledi' and 'Stank Glen' as listed on WalkHighlands (WalkHighlands).

Road drainage and the water environment

Loch Lubnaig (ID: 100258) lies 10m west of the schemes at its nearest point. Loch Lubnaig is a classified lake by Scottish Environmental Protection Agency (SEPA) (SEPA Water Classification Hub) in the River Forth catchment and was rated as "moderate" in 2023 (SEPA).

Garbh Uisge/River Leny (ID: 4718) lies approximately 10m west of the A84 South End of Loch Lubnaig. Garbh Uisge/River Leny is a river in the River Forth catchment

and it was awarded an overall status of 'good' in 2023 by SEPA (Water Classification Hub).

A number of unnamed and unclassified waterbodies are culverted beneath the A84 within the scheme extents with all outflowing into Loch Lubnaig and/or Garbh Uisge/River Leny west of the scheme extents.

The schemes lie within the 'Trossachs' groundwater basin (ID: 150680) which has been classified as "good" by SEPA in 2023. It is also listed as a ground Drinking Water Protected Area (DWPA).

A search of SEPA Flood Map did not identify surface water flooding on the A84 carriageway at the scheme extents (SEPA Flood Maps). The banks of the Loch Lubnaig and Garbh Uisge/River Leny and a number of minor waterbodies which are culverted beneath the scheme extents are identified as having a high likelihood of surface water flooding and fluvial flooding (10% chance of flooding each year) (SEPA Flood Maps).

Climate

The Climate Change (Scotland) Act 2009 sets out the target and vision set by the Scottish Government for tackling and responding to climate change (The Climate Change (Scotland) Act 2009). The Act includes a target of reducing CO2 emissions by 80% before 2050 (from the baseline year 1990). The Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 amended the Climate Change (Scotland) Act 2009 to bring the target of reaching net-zero emissions in Scotland forward to 2045 (Climate Change (Emissions Reduction Targets) (Scotland) Act 2019).

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

Transport Scotland is committed to reducing carbon across Scotland's transport network and this commitment is being enacted through the Mission Zero for Transport (Mission Zero for transport | Transport Scotland). Transport is the largest contributor to harmful climate emissions in Scotland. In response to the climate emergency, Transport Scotland are committed to reducing their emissions by 75% by 2030 and to a legally binding target of net-zero by 2045.

Policies and plans

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

Description of main environmental impacts and proposed mitigation

Air quality

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

- 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.
- Materials that have a potential to produce dust will be removed from site as soon as possible, and vehicles that remove cold-milled material from site will have sheeted covers.
- Ancillary plant, vehicles and non-road mobile machinery (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).
- Cutting, grinding, and sawing equipment (if required) will be fitted or used in conjunction with suitable dust suppression techniques e.g., local exhaust ventilation system that fits directly onto tools.
- Regular monitoring (e.g., by engineer or Clerk of Works) will take place when activities generating air pollution are occurring. In the unlikely event that unacceptable levels of air pollution 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.

- All delivery vehicles carrying material with dust potential will be covered when travelling to or leaving site, preventing the spread of dust beyond the work area.
- Material stockpiles will be reduced as 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 risk of dust emissions exists.
- Materials will be removed from site as soon as is practicable.
- Good housekeeping will be employed throughout the work.

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

Landscape and visual effects

The works lie within the boundary of the LLTNP. However, the works are like-for-like general maintenance of the trunk road surface and its drainage system and as such the works will not have an impact of landscape character associated with the LLTNP. Though, the National Park Authority will be notified of the works prior to the construction commencing.

There will be a short-term impact on the landscape character and visual amenity of the site as a result of the presence of construction plant, vehicles, and TM. However, the works are of a short duration (up to twelve nights), undertaken during the nightime hours (19:00 – 06:00) and restricted to the A84 carriageway boundary and generally screened from a wider landscape by woodland and roadside tree shelterbelts. 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.

In addition, the following mitigation measures will be put in place during works:

- Throughout all stages of the works, the site will be kept clean and tidy, with materials, equipment, plant and wastes appropriately stored, reducing the landscape and visual effects as much as possible.
- LLTNP advice, if received, will be complied with.
- Works will avoid encroaching on land and areas where work is not required or 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

The works lie within 10m of the River Teith SAC. BEAR Scotland produced a Habitats Regulations Appraisal (HRA) Proforma to assess potential effects of the proposed resurfacing and drainage works on the SAC. The HRA Proforma concluded that the works would not result in any Likely Significant Effects on the qualifying species within the River Teith SAC due to the localised nature of the works, standard measures for pollution prevention and the lack of the in-stream works.

No invasive non-native species (INNS) were noted in proximity to the scheme extents by AMPS and NBN Atlas. Although there are records of rosebay willowherb in proximity to the scheme, the works will be restricted to the carriageway and its drainage system and as such it is unlikely that any injurious or invasive weeds will be encountered during the works. Furthermore, noted injurious plant species will be controlled/treated by cultural methods and/or chemical weed control as per the NW Annual Landscape Management Plan.

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. However, works are restricted to the A84 carriageway and its drainage system and the number of construction vehicles and construction operatives required onsite is low given the scale and scope of works. In addition, any species in the area are likely to be accustomed to noise and visual disturbance pertaining to vehicle movements on the A84 and the scheme is of short duration (12 nights) and will be undertaken on a rolling programme. The potential for significant species disturbance within the area of likely construction disturbance is therefore considered to be low.

Although the majority of the scheme extents is flanked by areas of ancient woodland; however, no tree felling is planned for the works.

Pollution controls and good practice measures to reduce impacts of works on the local environment will be detailed in the SEMP and adhered to on site. Therefore,

with the following mitigation measures in place, the risk of significant impacts on biodiversity are considered to be low:

- Works will be strictly limited to areas required for access and to carry out the works. Unnecessary encroachment onto terrestrial or aquatic areas will not be tolerated.
- All construction operatives will be briefed through toolbox talks prior to works commencing, which will be included in the SEMP. The toolbox talks will provide information on the legislation, general ecology, and best practice measures for relevant protected species.
- Site personnel will remain vigilant for the presence of any protected species throughout the works period. Should a protected species be noted during construction, works will temporarily halt until the species has sufficiently moved on. Any sightings of protected species will be reported to the BEAR Scotland Environmental Team. If required, NatureScot will be contacted for advice.
- Artificial lighting will be directed away from areas of woodland and waterbodies as far as is safe and reasonably practicable.
- Personnel will remain vigilant for the presence of INNS or injurious weeds in road verges throughout the works period. Should any INNS be identified in working areas, works will be restricted to a 7m buffer of any growth where reasonably practicable.
- A ‘soft start’ will be implemented on site each day. This will involve switching on vehicles and checking under/around vehicles and the immediate work area for mammals prior to works commencing to ensure none are present and that there is a gradual increase in noise.
- Any excavations, exposed pipes/drains, or areas where an animal could become trapped (e.g. storage containers) will be covered over when not in use, at the end of each shift, and following completion of the works to avoid animals falling in and becoming trapped.
- If fencing is utilised at any point during the works, a gap of 200mm from ground level will be provided, allowing free passage for mammals and preventing entrapment.

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

Geology and Soils

The works will have a negligible adverse impact on geology and soils based on the fact that the scheme is not located within a geologically designated SSSI or GCRS and excavation works are limited to silted material within the A84 roadside drainage system. In addition, any excavations will be carried out with good practice measures detailed in the SEMP as follows:

- Excavated material will be stored in a designated area on level ground where practicable.
- If the soil is to be re-used on site, then it will be wetted (if necessary) during periods of dry weather to prevent drying out.
- Upon completion of the works, any damage to the local landscape (i.e. damage to the road verges) will be reinstated as much as is practicable.
- Mitigation measures to prevent contamination of soils through loss of containment are discussed in the Water Section.
- Mitigation measures described in the Biodiversity: Habitats Section will be followed to reduce potential impacts on soils.

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

Material assets and waste

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

- Materials will be sourced from recycled origins as far as reasonably practicable within design specifications.
- Care will be taken to order the correct quantity of required materials to prevent the disposal of unused materials.
- Where possible, minimal packaging will 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 Waste Acceptance Criteria (WAC) testing report will be submitted to the potential waste receiver(s) to confirm their ability to legally receive the waste and their acceptance of the waste assessment and the European Waste Catalogue (EWC) code. The report will be forwarded to the preferred waste receiver for review, and confirmation of acceptance received, prior to material being removed from the site.
- 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.
- Planings will be re-used or recycled under a SEPA Paragraph 13(a) waste exemption and in line with BEAR Scotland's procedure 126: The Production of Fully Recovered Asphalt Road Planings.
- All wastes and unused materials will be removed from site in a safe and legal manner by a licensed waste carrier upon completion of the works. The appointed waste carrier 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 will be available for inspection. A copy of the Duty of Care paperwork must 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 undertaken where possible, 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 also be completed over up to twelve nights with the aim being to complete the noisiest works by 23:00 where possible.

Due to the short duration and localised nature of the works, the proposed scheme is anticipated to result in temporary minor noise impacts during the construction programme.

Approximately five residential properties lie within 300m of the scheme, however these are suitably set back and screened from the scheme extents by tree belts. As such, no significant impact to these receptors is predicted.

The road surface is in a poor condition with a series of defects. Replacing the life-expired surface course 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.

The following mitigation measures will be put in place:

- The Best Practicable 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.
- Affected local residents and the Environmental Health Officer (EHO) for Stirling Council will be notified of works.
- All site staff will receive the ‘Being a Good Neighbour’ toolbox talk.
- The noisiest works (e.g. planing) will be programmed to be completed by 23:00 where possible.
- Drop heights from vehicles and NRMM will be kept to a minimum to minimise noise when unloading.
- All plant, machinery and vehicles will be switched off when not in use.
- On-site construction tasks will be programmed to be as efficient as possible, with a view to limiting noise disruption to local sensitive receptors.
- All site personnel will be fully briefed in advance of works regarding the need to minimise noise during works and of the site-specific sensitivities.
- All plant will be operated in such a way that minimises noise emissions and will have been maintained regularly to the appropriate standards.
- Where fitted, and where permitted under Health and Safety requirements, white noise reversing alarms will be utilised during construction.
- Where ancillary plant such as generators are required, they will be positioned so as to cause minimum noise disturbance. Where deemed necessary, acoustic screens will be utilised.

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

Population and human health

During construction, activities undertaken on site have the potential to have temporary adverse impacts on vehicle travellers. There is potential for impacts on human receptors due to lane closures and traffic restrictions/delays on the A84 carriageway. No significant congestion issues are envisioned due to the proposed off-peak construction hours. Increased journey times may occur, but these are considered insignificant considering the relatively low traffic count during the night-time programming. There are no designated pedestrian routes or NMU facilities which lie within the scheme extents, however access for pedestrians and NMUs will be maintained, and the works are being undertaken at night when footfall and NMU count is at its lowest.

Five residential properties and one business premise are located within 300m of the scheme; however, all of these are suitably set-back and have a level of screening from the works provided by tree belts, therefore potential for significant disturbance from noise, vibration and construction lighting is reduced.

With the following mitigation measures in place, the risk of significant impacts on population and human health is considered to be low:

- Notification will be issued to local residents and local public transport operators prior to commencement of the works, advising of any proposed works and expected restrictions.
- Local access will be granted as required.
- Any changes of schedule (e.g. change from nighttime works to daytime works) will be communicated to travelling public throughout the programme.
- Appropriate provisions / measures will be implemented within the TM to allow the safe passage of NMUs of all abilities through the site (if required).
- 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.

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

There is potential for temporary impacts on the water environment due to operation of plant within and within proximity to watercourses and/or drainage systems, which may lead to 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). No in-water works within natural watercourses will take place and there is no requirement for the abstraction or transfers of water from, or discharges to, a waterbody. As such, the potential for a direct pollution incident within a waterbody is unlikely. Experience gained from BEAR maintenance schemes elsewhere on the network has shown that where standard good working practice is adopted (e.g., adherence to SEPA good practice guidance, utilisation of drain covers or similar, etc.), water quality is protected.

The works may result in potential direct or indirect effects on surrounding waterbodies. The following mitigation measures will be put in place to reduce the risk of pollution incidents as a result of works:

- The scheme will not entail any in-stream works within natural waterbodies.
- The works will follow BEAR Scotland's Procedure 112: Sustainable Urban Drainage System (SUDS) Feature Maintenance Operations.
- Standard working practices to comply with The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended) for works in or near water are detailed in the SEMP and will be adhered to on site.
- No discharges into any watercourses or drainage systems are permitted. Appropriate containment measures will be in place to prevent any loss of construction materials into the water environment.
- Appropriate measures will be implemented during resurfacing operations to limit the potential for wastes (i.e. road planings) and materials (i.e. new asphalt) to enter any gullies present on site. On completion of resurfacing operations, any gullies present on site should be visually checked to ensure they have not become blocked as a result of the scheme.
- 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 will be fully bunded. This will be distanced more than 10m from any watercourses.
- During refuelling of smaller mobile plant, a funnel will be used, and drip trays will be in place. Care will be taken to reduce the chance of spillages. Spill kits will be quickly accessible to capture any spills should they occur. The ground / stone around the site of a spill will be removed, double bagged and taken off site as special contaminated 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 must 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.
- Local contractors and suppliers will be used as far as practicable to reduce fuel use and greenhouse gas emitted as part of the works.
- Where possible, materials will be sourced locally to reduce greenhouse gas emissions associated with materials movement, and waste will be removed to a local facility.

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.

Vulnerability of the project to risks

Small areas of the A84 carriageway within scheme extents are recorded as being at high (10% chance) risk of fluvial flooding. Works will be programmed as far as is reasonably practicable to avoid periods of adverse weather or heavy rainfall.

Works are restricted to the made ground of the A84 carriageway and its drainage system; TM will be designed in line with existing guidance. TM will consist of nightshift lane closures with temporary traffic lights and convoy working. Where required, alternative NMU provisions/routes will be included in the traffic management setup, to minimise impact of the works on NMUs.

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 cumulative effects

The proposed works are not anticipated to result in significant environmental effects. Due to the nature of the proposed works, no cumulative effects are anticipated with any other developments in the vicinity.

A search of the Stirling Council Planning Portal (Stirling Council Planning Portal) and LLTNP Planning Portal (Loch Lomond and Trossachs National Park) identified no approved planning applications within 300m of the scheme, in the last 6 months.

A search of the Scottish Roads Works Commissioner website (Map Search) has identified that no other roadworks are currently ongoing, or noted as being planned, on the trunk road in proximity to the scheme extents 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 programme all of their proposed works in line with appropriate guidance and contractual requirements. All schemes are programmed to take into account existing and future planned works, with a view of limiting any cumulative effects relating to TM. As a result of this exercise, where a potential for cumulative impacts is identified, BEAR will reprogramme schemes to avoid / limit any cumulative effects or will utilise existing TM to complete multiple schemes at once. This

approach allows BEAR Scotland to effectively manage the potential cumulative effects as a result of TM, resulting in minimal disruption to users of the Scottish trunk road network.

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. A Habitat Regulations Appraisal has determined that the works will not result in Likely Significant Effects on designated features of the River Teith SAC.

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

This is a relevant project in terms of 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) is situated in Loch Lomond and the Trossachs National Park which is a sensitive area within the meaning of regulation 2(1) of the Environmental Impact Assessment (Scotland) Regulations 1999.

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

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

Characteristics of the scheme:

- Works are restricted to like-for-like replacement of worn road surface and maintenance of road drainage system, with all works restricted to the man-made ground on the A84 carriageway surface.

- Construction activities are restricted to 609m, 925m and 680m long sections along the A84 trunk road with working area of 0.43ha, 0.62ha and 0.45ha respectively.
- The works will be temporary, transient, localised, and completed during night-time hours on a rolling programme over twelve nights.
- Works are not expected to result in significant disturbance to protected species that may be present in the wider area.
- No INNS have been recorded within the scheme extents.
- The risk of major accidents or disasters is considered to be low.
- The filter drain material will be tested prior to the drainage works.
- By removing the carriageway defects this will provide this part of the A84 carriageway with another life cycle, and significantly improve the ride quality, which will result in safer conditions for road users.
- 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.

Location of the scheme:

- The scheme will be located within the existing A84 road boundary and as such, no land take will be required.
- The works will not result in any change to the qualifying features of the Loch Lomond and the Trossachs National Park in which the scheme is situated.
- The River Teith SAC is located in proximity to the scheme. The HRA Proforma completed by BEAR Scotland did not identify any LSE on the qualifying features of the nearby River Teith SAC as a result of works.
- There are six residential properties located within 300m of the scheme, however these are set-back and screened from the works.
- No features of Cultural Heritage are located within the trunk road boundary at the scheme extents. Furthermore, construction of the A84 trunk road is likely to have removed any archaeological remains that may have been present.

Characteristics of potential impacts of the scheme:

- Any potential impacts of the works are expected to be temporary, short-term, non-significant, and limited to the construction phase.
- Measures will be in place to ensure appropriate removal and disposal of waste.

- 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, ecological and human receptors during the operational phase.
- As the works will be limited to the like-for-like replacement of the carriageway surface and maintenance of road drainage system; 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.
- Works are programmed to be of short duration and nighttime works will be completed on a rolling programme, with the aim being to complete the noisiest works by 23:00.
- Mitigation measures detailed above (and in the SEMP) will be put in place with the objective to prevent and, if required, subsequently control any potential impacts on sensitive receptors.
- In the event that INNS are found on site, measures to prevent potential INNS spread will be implemented.

Annex A

"sensitive area" means any of the following:

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

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Published by Transport Scotland, June 2025

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