



**TRANSPORT
SCOTLAND**
CÒMHDHAIL ALBA

Environmental Impact Assessment Record of Determination

**A83 Rest and Be Thankful
Phase 3A/3B Channel Slope
Works**

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Project Details

Description

Introduction

BEAR Scotland has been commissioned by Transport Scotland to carry out a suite of works to address landslide risk on the A83 Trunk Road at Rest and be Thankful (RaBT) between Tarbet and Cairndow, which has been identified as an area of high risk for landslides. The proposed works form part of an overall strategy for landslide mitigation on this section of the A83 and will be constructed in line with previous phases of works in the area.

The largest recorded landslide on the A83 occurred in August 2020, with the catchment drained by two channels/watercourses above and below A83 which are known as 3A and 3B (Figure 1). The channelised debris flow caused structural damage to the A83 Trunk Road adjacent to the 3B channel culvert. Debris from the landslide artificially diverted all water flow down the 3B channel. A second debris flow within the same catchment occurred in September 2021. The two failures caused the 3B channel above and below the A83 to become deeply incised.

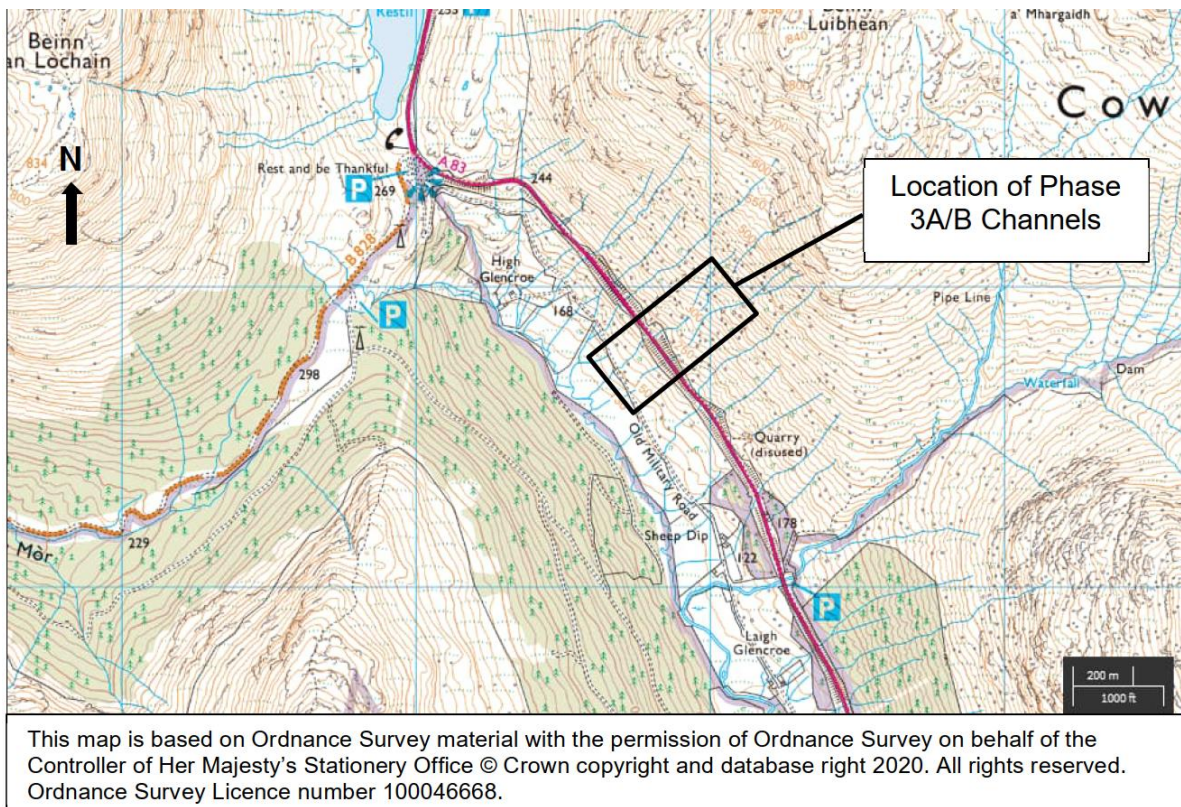


Figure 1: Location of 3A and 3B channels

The proposed scheme which is the subject of this Record of Determination (RoD) comprises modifications to the 3A and 3B channels. The proposed works include:

- Realignment of Channel 3A to straighten the flow path of the channel above the A83, thus removing the change in flow direction and providing a straightened realignment that passes into the channel, which has better protection in place to protect the A83 when compared to Channel 3B
- Scour protection of the steep channel side slope and the channel directly below the existing 3A culvert (located below the A83).
- Increasing the extent of the existing scour protection at the outfall of 3B, below the A83.

The realignment works are currently programmed to commence in October 2022, and the scour protection works are currently programmed to commence in early 2023.

Construction method

The realignment of Channel 3A is anticipated as a seven-stage process as follows:

Stage 1: Mobilise equipment and materials to the Watercourse Diversion Works area.

Stage 2: Install silt control measures within 3A Channel.

Stage 3: Install temporary anchors to secure the sluicing system on the slope.

Stage 4: Excavate new channel. Excavated material shall either be used to infill the existing channel or sluiced down the slope into the 3A catchpit.

Stage 5: Sluiced material that is collected in the catchpit shall be excavated and taken offsite for disposal.

Stage 6: Biodegradable geotextile shall be placed on the surface of the new banks to encourage vegetation growth.

Stage 7: Following completion of the sluicing operations, material and equipment shall be removed from the hillside.

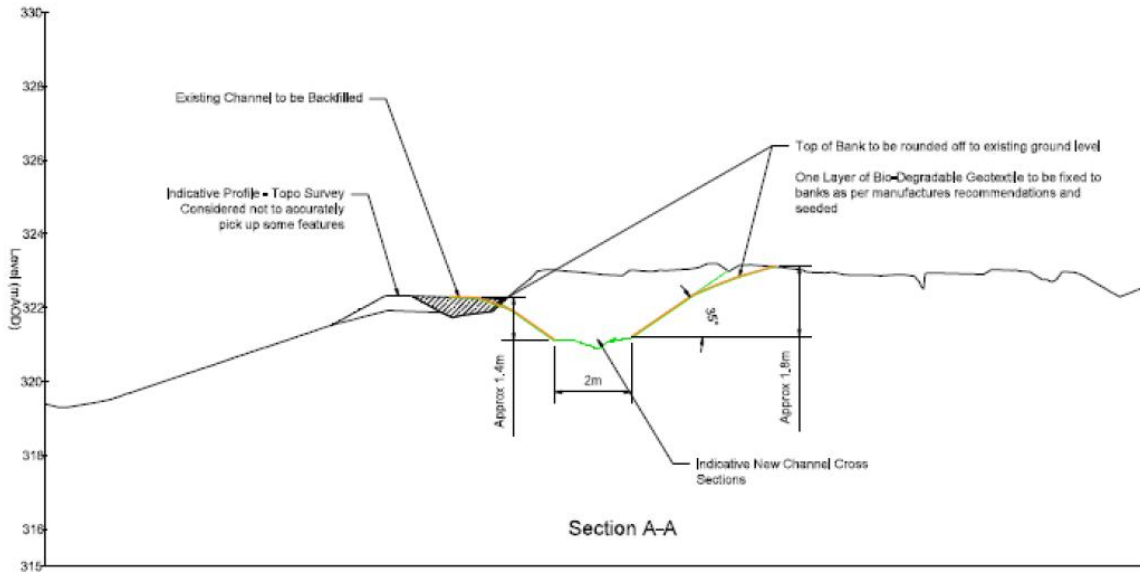


Figure 2: Section through proposed artificial diversion channel

Site compounds may be set up at existing sites at the small quarry immediately south of the RaBT.

Traffic management will be via two-way traffic lights with a 30mph speed restriction in place.

The scour protection works are anticipated as a five-stage process as follows:

- Stage 1: Mobilise equipment and materials to the Scour Protection Works area.
- Stage 2: Manoeuvre boulders within channel and preparation of formation surface.
- Stage 3: Installation of steel ties.
- Stage 4: Installation of reinforcement mesh.
- Stage 5: Spraying of concrete onto mesh to create scour protection apron.

Use of helicopter transport

Given the steepness of the terrain, it is likely that helicopters will be required to transport plant and equipment (e.g. sluice pipe) to the appropriate works locations for the realignment works. Helicopters have been used extensively on other projects in the area and the likely flight path will be from lay-down areas located at the south of the Rest and Be Thankful rest stop on the B828 and on the eastern side of the A83 at the northern tip of Loch Restil (Figure 3). The former will require temporary red-lighting of both lanes of the A83 due to the flight path crossing the trunk road, whereas the latter consists of a flight path around Beinn Luibhean without intercepting the A83. The need for helicopter use and any consequent traffic management will be established by the appointed contractor during construction. It is anticipated that the helicopter would only be required one day during the first week of the works for mobilisation and one day at the end of the works for demobilisation.

Helicopter usage on these days is estimated to consist of a small number of flights (3-4) of short duration (approximately 5 minutes).

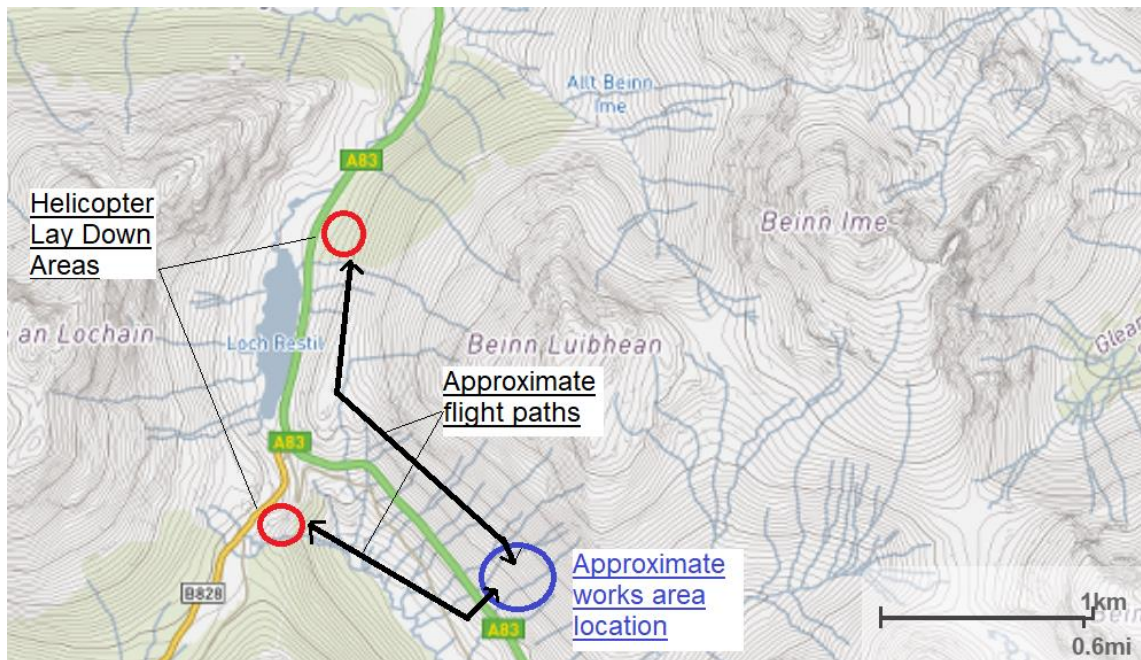


Figure 3: Approximate helicopter flight paths and proposed lay down areas

Risks during construction

Construction will be highly dependent on hillside conditions as a result of weather and associated surface water flows. Factors to be considered during construction include potential slope instability, and the topography of the area and the associated limitations placed on plant, materials and operatives.

Initial sluicing trials will be undertaken as part of the works for the sluicing activities to determine effective release volumes of water which reduce the risk of generating uncontrolled slope movements in the lower 3A channel.

Sluicing of the excavated material will require a period of wetter weather such that adequate amounts of water can be obtained from the watercourses on the slope, noting the very low flows that have been observed during extended periods of dry weather.

Construction activities are to be timed to avoid prolonged periods of heavy rainfall, high surface water flows, and significant hillside saturation. It is therefore essential that a suitable weather window is identified, considering overhead and underfoot conditions, so that works can be undertaken safely. This may require some intermittent working due to the sensitivity between having enough rainfall for sluicing and working safely, unless an alternative disposal method to sluicing is used. During sluicing operations it is proposed that road traffic will be prevented from moving through the site.

Through the excavation works it is likely that boulders may be encountered which are difficult to remove, and may require breaking up with an excavator, breaking with small pyrotechnics or nailing through to secure them to the slope.

Location

The proposed scheme is located above and below a section of the A83 carriageway near the RaBT junction as illustrated in Figure 4 below. The area is remote and set among steep hillsides in the rural area of Glen Croe, which lies to the north-west of Loch Lomond and Loch Long. The proposed scheme is located within Loch Lomond and the Trossachs National Park (LLTNP).

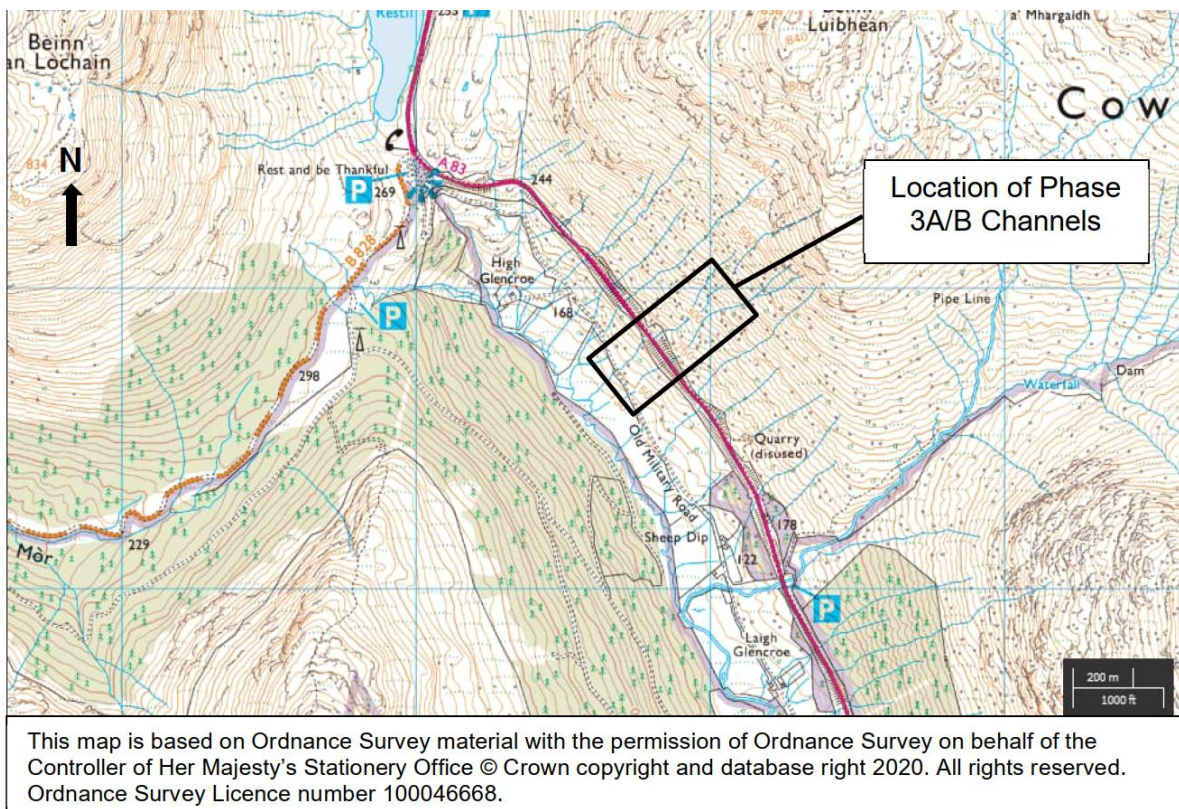


Figure 4: Site Location Plan

Description of local environment

Population And Human Health

Properties

The proposed scheme is in a rural setting, with the closest property (High Glencroe), which is understood to be ordinarily uninhabited, located approximately 500m to the west of the proposed scheme. There are several other agricultural buildings located approximately 1.4 km southeast of the proposed scheme, along the Old Military

Road. The settlement of Lochgoilhead is located approximately 5.5km to the southwest and Ardgartan Holiday Park is located approximately 5km to the east.

Land use

Livestock grazing is the dominant land use in the vicinity of the proposed scheme. The proposed scheme is located within non-prime agricultural land with a land capability for agriculture (LCA) classification of 6.1 (land capable of use as rough grazing with a high proportion of palatable plants) and 6.2 (land capable of use as rough grazing with moderate quality plants) ([Scotland's soils](#)).

The RaBT Viewpoint is located approximately 1km north-west of the proposed scheme, and provides several facilities including a catering van (summer only), bus shelter, car park and telephone box, and is therefore likely to support recreational activities in the area.

The area of Glen Croe is also a very important for informal recreation and provides access to a number of popular hill summits, munros, forest walks and Cowal Way, one of Scotland's Great Trails ([Forestry Land Scotland](#)).

Vehicle travellers

The A83 Trunk Road is one of only two east-west strategic trunk road network connections between Argyll and Bute and the central belt of Scotland. It is a key route for local, commuter and tourist traffic. The A83 provides the main link between Tarbet and Campbeltown. In recent years it has been affected by a number of landslide events, particularly in 2020, necessitating diversion routes along the Old Military Road through Glen Croe when the A83 is impassable.

There is a car park at RaBT which provides a parking area and viewpoint for visitors to the area.

Vehicle count data taken from the nearest point on the A83 (ID: 764), located approximately 710m to the north-west of the proposed scheme, shows an average annual daily flow (AADF) count of 3,160 vehicles, with a heavy goods vehicle (HGV) percentage of 11% (count data taken in 2020) ([Road Traffic Statistics](#)).

Non-motorised users

A Loch Lomond and the Trossachs National Park Authority (LLTNPA) core path is located approximately 650m south of the scheme within the Ardgartan Forest ([Scotland's Environment Webmap](#)). There are some other informal paths to the south including the former military road, which is located approximately 90m south of the proposed scheme.

Air Quality

The proposed scheme is not located within an air quality management area (AQMA) ([Air Quality Scotland](#)). No air quality monitoring stations are located within proximity

to the scheme, with the closest being located approximately 31km south in Greenock ([Air Quality Scotland](#)). Air quality at the scheme location is expected to be better than the air quality in Greenock due to the more rural surroundings of the scheme location.

The scheme is located within a rural landscape where vehicular traffic travelling along the A83 and agricultural activities are anticipated to be the dominant impacts to local air quality. The prevailing wind direction is from the southwest with 408 hours per year where wind speeds are at or above 12mph which is generally considered capable of mobilising and transporting dust ([Meteoblue](#), [IAQM](#)).

Cultural Heritage

There are no designated cultural heritage assets within 300m of the proposed scheme ([PastMap](#)). Other cultural heritage assets located within 300m of the scheme include three features noted on the Historic Environment Record, including the 18th Century Dumbarton - Tarbet - Inveraray - Tyndrum Military Road (Canmore Number: 126550) (see Table 1 below). This asset, which was a reconstruction of the original military road, can be seen at a lower level to the west of the present A83 trunk road. The old road was superseded by the present road in the 1930s.

Table 1 Cultural Heritage assets within 200m of scheme

Name of the Feature	Dataset	Dataset ID	NGR	Description	Distance from proposed scheme
Dumbarton – Tarbet – Inveraray – Tyndrum Military Road	Historic Environment Record	21653	NN 23727 06657	Military Road	To the immediate south of Channel 3B
Walkover Survey: Rest and Be Thankful, Argyll	Historic Environment Record	6350	NN 23934 06788	Archaeological Event Record (an archaeological survey, comprising a rapid desk-based assessment and walkover conducted over a parcel of land at the Rest and Be Thankful which identified 12 sites of archaeological or historical significance within the given boundary)	50m north
Mid Glen Croe	Historic Environment Record	44649	NN 23678 06680	Sheepfolds; Buildings; Field-systems; Hut-circles (possible); Cairn (possible)	60m west

Biodiversity

Desk-based review

The main works area and a potential helicopter lay down area are located approximately 2.5km and 1.1km to the southeast of the Glen Etive and Glen Fyne Special Protection Area (SPA), respectively ([NatureScot Sitelink](#)).

The Beinn an Lochain Site of Special Scientific Interest (SSSI), which is designated for upland habitats (siliceous screes (includes boulder fields), upland assemblages and tall herb ledges) is approximately 800m to the west of the main works area ([NatureScot Sitelink](#)).

The following non-native species (NNS) ([NBN Atlas](#), [BSBI Atlas](#)) have been recorded (within the last 10 years) within 2km of the scheme extents:

- Rhododendron (*Rhododendron* sp.)
- Japanese knotweed (*Reynoutria japonica*)
- Giant rhubarb (*Gunnera tinctoria*)

Survey data

Surveys for protected species and invasive species were undertaken in May 2022. A brief summary of the survey results are as follows:

Habitats

The land immediately surrounding Channel 3A is sporadically vegetated due to the previous landslip. However, the predominant surrounding habitat within the upper slope surrounding the channels is grassland comprising tufted hair grass (*Deschampsia cespitosa*), sweet vernal grass (*Anthoxanthum odoratum*), Yorkshire fog (*Holcus lanatus*), sheep's fescue (*Festuca ovina*), common bent (*Agrostis capillaris*), bracken (*Pteridium aquilinum*), purple moor grass (*Molinia caerulea*), tormentil (*Potentilla erecta*), and common dog violet (*Viola riviniana*). The lower slope, between the bund and the A83, was also grassland, however it is dominated by purple moor grass with occasional wild primrose (*Primula vulgaris*) along the fringes of the channels with young birch (*Betula* sp.) and willow (*Salix* sp.) to the north-west of Channel 3A.

Birds

Suitable habitat for breeding birds is located in the surrounding survey area and in the immediate vicinity of Channels 3A and 3B.

Evidence of old nests within Channel 3B on the lower slope were observed but no birds were seen at the time of the survey, with bird scarers, installed by BEAR in March 2022, likely to be preventing any further nesting.

Other birds were recorded during the survey (including chaffinch (*Fringilla coelebs*), grey wagtail (*Motacilla cinerea*), stonechat (*Saxicola torquata*), wheatear (*Oenanthe oenanthe*), carrion crow (*Corvus corone*) and woodpigeon (*Columba palumbus*)); however, none were found to be nesting, with most flying through or being heard singing only.

Bats

The majority of the survey area comprises grassland with some small willow trees and no buildings or structures with suitability for roosting bats.

Aquatic species

Upstream of the A83, Channel 3B is very steep with predominantly boulder substrate and was dry at the time of the survey. Channel 3B does not provide suitable fish habitat for any fish species upstream of the A83.

Downstream of the A83, Channel 3B remains steep with very little water and flows to the HESCO bund before being diverted to the south-east and culverted beneath the Old Military Road to the Croe Water.

Neither Channel 3A nor 3B downstream of the Old Military Road provide supporting habitat for any fish species.

Other Protected Species

No evidence of otter (*Lutra lutra*) or water vole (*Arvicola amphibius*) was observed at the time of the survey.

The watercourses were very low, with most being devoid of water.

Channel 3A and 3B have limited suitability for water vole. No burrows or evidence of water vole were located during the survey.

The habitat surrounding the two channels are suitable for reptiles, particularly adder (*Vipera berus*) and common lizard (*Zootoca vivipara*), however none were seen during the survey.

No suitable red squirrel habitat was recorded during the survey.

Non-Native Species (NNS)

No NNS were observed during the survey.

Landscape and Visual

The proposed scheme is wholly located within the LLTNP ([NatureScot Sitelink](#)). The proposed scheme is not located within a National Scenic Area (NSA) ([Scottish Government](#)).

The Landscape Character Type in the scheme area is identified as Upland Glens – Loch Lomond & the Trossachs, the key characteristics of which are ([NatureScot](#)):

- Often narrow with little flat glen floor, strongly enclosed by steep hill slopes of the adjacent Steep Ridges and Hills and Highland Summits.

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

Visual receptors within the area include:

- residents of the Glen Croe area; and
- visitors to the RaBT Viewpoint and LLTNP, including those seeking access to a number of popular hill summits, munros, forest walks and the Cowal Way via the A83 and Glen Croe area.

Consultation was carried out with LLTNP to identify any concerns regarding visual impacts to the landscape as a result of works.

Geology And Soils

The National Soil Map of Scotland indicates that the scheme is underlain by peaty podzols ([Scotland's Soils](#)). Bedrock geology within the proposed works area comprises Beinn Bheula Schist Formation (Pelite, Semipelite and Psammite) ([British Geological Survey](#)). Superficial deposits within the proposed scheme location are recorded as Till – Diamicton ([British Geological Survey](#)).

The scheme is not located within a Geological Conservation Review (GCR) site ([Scotland's Environment Webmap](#)).

Road Drainage and the Water Environment

The proposed works will take place within existing minor, unnamed channels referenced as Channel 3A and 3B for the purposes of the scheme.

One watercourse, the Croe Water (ID: 10215), is located approximately 260m to the south of Channel 3B. This watercourse was classified by SEPA as having an overall status of “Moderate” in 2020 ([SEPA Water Classification Hub](#)).

The proposed scheme is located within the Cowal and Lomond (ID 150689) groundwater body, which was classified by SEPA as having an overall status of ‘Good’ in 2020. This groundwater body is a Drinking Water Protected Area (Ground Water) ([Scottish Government](#)). The scheme is also located within a Drinking Water Protected Area (Surface Water) ([Scottish Government](#)).

The scheme is not located in an area at risk of flooding ([SEPA Flood Map](#)).

Consultation was carried out with SEPA to determine whether the works could be completed under the existing Controlled Activities Regulations (CAR) licence (CAR/S/11196837) issued to BEAR Scotland to permit channel re-sectioning works as part of the Phase 3B catchpit works at A83 RaBT.

Material assets and waste

The volume of material to be removed from the slopes is estimated to be 250m³. The waste which will be sluiced down the slope and removed from the catchpit will be superficial material which is present on the slope and is anticipated to be a mixture of silty sand and gravel with cobbles and boulders. Some of this material shall be used to infill the existing channel on the slope.

Noise and vibration

There are no designated Candidate Noise Management Areas (CNMAs) or Candidate Quiet Areas (CQAs) within proximity to the proposed works area ([Scotland’s Noise](#)).

There are no residential properties located within 2km of the works area, while agricultural buildings along the Old Military Road are occasionally used for agricultural purposes.

The scheme is located within a rural landscape where vehicular traffic travelling along the A83 is anticipated to be the dominant source of noise and vibration emissions.

Climate

The scope of this screening in relation to Climate focuses on the likely production of greenhouse gases as a result of the works. BEAR Scotland has a Carbon Management Policy in place with the core aim of reducing the carbon footprint that the company measures and reports annually.

Description of main environmental impacts and proposed mitigation

Introduction

Following desktop study and an ecological walkover survey, issues requiring consideration have been identified and the potential for significant effects based on the sensitivity of receptor and likely magnitude of impact during construction and operation considered. Each section provides appropriate mitigation that will be included in the Site Environmental Management Plan (SEMP) that will be prepared to inform the works.

The assessment is largely based on professional judgement and informed by consultation with suitably qualified experts and consultees. Prevailing policies and plans relevant to each environmental topic have been considered where applicable.

Population and human health

Construction of the proposed schemes are not anticipated to have an adverse effect on residents, properties or land use in the area. Pedestrians at the RaBT viewpoint and those using the Core Path or other routes in the vicinity are likely to be unaffected due to the distance from the works.

Certain work activities (e.g. helicopter transport, rock splitting or works of heightened landslip risk) may result in temporary road closures for periods 10 minutes or less. Reporting from similar works in the area indicate that it is unlikely diversions will be required.

Traffic management will be designed in line with Chapter 8 of the Traffic Signs Manual and will accommodate pedestrians and non-motorised road users, and all construction activities will operate in line with good practice measures for construction as outlined in the SEMF.

During operation, it is anticipated that there will be a slight to moderate beneficial impact on safety for non-motorised users of the trunk road at this location with infrastructure in place to reduce the risk of impact from landslide events.

Taking into account the nature and scale of the works and the good site practice mitigation measures to be adopted during the works (outlined in the SEMF), 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.

Air quality

During works, activities undertaken on site such as excavation, transportation of materials, the presence of construction traffic and vehicles idling on site have the potential to cause temporary impacts on air quality.

Provided the following mitigation measures, which will be included in the SEMP, are adhered to during the works, the likelihood of significant impacts on air quality is considered to be low:

- A designated laydown area will be established on level ground away from the excavation and works.
- All materials will be stored in the laydown area and only moved to site when required.
- Prolonged storage of debris on site exposed to wind should be avoided. Materials should be wetted down or covered when exposed to wind for lengthy periods of time.
- All delivery vehicles carrying material with dust potential will be covered when traveling to or leaving site, preventing the spread of dust beyond the work area.
- Material stockpiles will be reduced as much as reasonably practicable by using a 'just in time' delivery system. All material will also be stored on made ground (e.g. within the A83 carriageway boundary) and 10m away from potential pollution pathways such as drains and watercourses where feasible.
- Materials should be removed from site as soon as is practical.
- Vehicles removing excavation materials must have their loads effectively covered.
- All plant, machinery and vehicles associated with the scheme must be maintained to the appropriate standards and must switch their engines off when not in use.
- Where possible, materials are to be sourced locally to reduce greenhouse gas emissions associated with materials movement.
- Cement bags will remain closed when not in use to prevent cast off to the surrounding environment.
- The movement of dusty material will be minimised by appropriately planning material movements.
- Any stockpiled material on site, such as rock, will be monitored daily to ensure no risks of dust emissions exists.
- Good housekeeping will be employed throughout the works.

Taking account of the nature and scale of the works and the good site practice mitigation measures to be adopted during the works, it is unlikely that the works will have a significant impact on air quality.

Cultural heritage

It is assessed that the planned works will not adversely impact any nearby sites of cultural heritage interest as the works are not located within the proximity of any designated or undesignated cultural heritage sites. The following mitigation measures shall be included in the SEMP to address any potentially unforeseen impacts on cultural heritage during construction:

- If there are any unexpected archaeological finds, works will stop temporarily in the vicinity, the area will be cordoned off and a member of the BEAR Environment team will be contacted for advice.
- Laydown areas will be sensitively located to avoid areas of cultural heritage interest.
- There will be no storage of plant, materials or equipment against buildings, bridges, walls or fences.

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

Biodiversity

While the main works area is located approximately 2.5km to the southeast of the Glen Etive and Glen Fyne SPA, equipment may have to be transported by helicopter to the site from the laydown area located to the north of Loch Restil, which is approximately 1.1km from the southern boundary of the site. A high-level Habitats Regulations Appraisal (HRA) screening was undertaken and consultation with NatureScot was carried out to determine the risk of potential impacts on Glen Etive and Glen Fyne SPA as a result of works. Considering the programme timing and distance to historic nest locations, it was concluded that there would be No Likely Significant Effect on the Glen Etive and Glen Fyne SPA. NatureScot have confirmed that they are in agreement with this assessment.

Schedule 1 and 1A bird species are protected by the Wildlife and Countryside Act 1981; Schedule 1A birds are protected from harassment at any time. To avoid the risk of harassing any Schedule 1 and 1A bird species and as a general good practice measure, vantage point surveys will be undertaken within two weeks and within 24 hours prior to works commencing to establish sensitive bird species presence/activity in the area. A watching brief will be undertaken initially to observe the area for species prior to the helicopter being used. If birds are not observed during the initial watching brief, then the helicopter flights will start. The watching brief would continue whilst the helicopter is in use. If birds are then subsequently observed whilst the helicopter is in the air, then for health and safety reasons, the helicopter would need to complete that part of the flight. However, any further flights would be postponed until the birds had moved out of the area.

During works, activities undertaken on site have the potential to result in adverse impacts on species that may be active within proximity of the proposed works.

However, other than the potential for nesting sand martins – which will be checked prior to construction if the works commence prior to the end of the breeding bird season - ecological surveys have not identified any specific ecological features that require additional protection or licensing in advance of the proposed works.

Toolbox Talks will be prepared to inform workers what to do should protected species be encountered during works, and these will be included in the SEMP. Further measures to be included in the SEMP are as follows:

- Site personnel are instructed not to approach or touch any animals seen on site.
- Site personnel should remain vigilant for the presence of protected species throughout the works period. Should a protected species be noted during construction, works should temporarily halt, until such time that the species has sufficiently moved on.
- Measures to be implemented to protect the aquatic environment are detailed in the Road Drainage and Water Environment section below.
- Tracking of machinery through watercourses will not be permitted.
- No discharges into any watercourses or drainage systems are permitted.
- All construction operatives are to be briefed through toolbox talks prior to works commencing. The talks are to specifically cover ecology, field signs of protected species, and legislation. Briefings are to be clear and unambiguous, with all staff informed to stop works where a concern is raised. Works may not commence until advice from an appropriately qualified ecologist is sought and appropriate mitigation is in place, where required.
- A 'soft start' will be implemented on site each day. This will involve switching on vehicles and checking under/around vehicles and the immediate works 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 must be provided, allowing free passage for mammals and preventing entrapment.
- Artificial lighting used during hours of darkness should be restricted to the immediate working area and should be directed away from areas of suitable habitat (e.g. watercourses, woodland, shrubs) as far as is safe and reasonably practicable.
- If any vegetation clearance or tree trimming is necessary during the breeding bird season a nesting bird check will be carried out by the ECoW prior to vegetation clearance.
- If an active bird nest is found in the vicinity of works, all works within 30m of the nest must stop until the contractor's ECoW can provide advice.

There is potential for temporary, indirect impacts on fish during construction due to mobilisation of sediment as a result of construction works, particularly as the works are being carried out during the most sensitive period for salmonids, which may be present in Croe Water below the site. With the following mitigation in place, impacts are not anticipated to be significant:

- Mitigation measures described in the Water Section will be followed to minimise potential impacts on the water environment.
- Pollution prevention measures will be in place for the duration of construction.

The proposed works will result in some loss of habitats which are ubiquitous in the wider area. Therefore, the loss of small areas of these habitats compared to the wider area is not expected to be significant. During the operational phase, the works are not expected to significantly impact surrounding habitats as no on-going activities or maintenance of the catch pits is expected except following a landslide event.

The following mitigation measures shall be adhered to during construction to ensure potential impacts on habitats are not significant and minimised where possible:

- Construction methods will take place sensitively to reduce as far as possible encroachment of plant and machinery on habitats outside of the work footprint.
- All culvert and drainage construction will be as per the design to avoid altering water flows into or out of surrounding habitats.
- Material storage areas and site compound will be sited sensitively to avoid requirement for further land take. Where practical, this will be in existing hardstanding areas on level ground.
- Mitigation measures described in the Landscape Section will be followed to reinstate habitat.
- Mitigation measures described in the Water Section will be followed to minimise potential impacts on the water environment.
- Mitigation measures described in the Geology and Soils Section will be followed to minimise potential impacts on habitats.

Taking into account the nature and scale of the works and the good site practice mitigation measures which will be adopted during the works, it is anticipated that any biodiversity effects associated with the proposed works will not be significant. This receptor is not considered further in this RoD.

Landscape and visual effects

The works are predicted to have a negligible adverse impact on the landscape character during construction and no effect once constructed. Consultation with LLTNP has been undertaken, in which LLTNP responded that they had no major comments to make and appreciated that due to the fragility of the geomorphology the options are very limited. LLTNP did request that if any vehicle access is required to the site of the realignment works, this should be micro-sited where possible.

Works will be carried out in line with good practice measures for managing the construction environment as outlined in the SEMP as follows:

- Throughout all stages of the works, the site must be kept clean and tidy, with materials, equipment, plant and wastes appropriately stored, minimising the landscape and visual effects.
- Works are to avoid encroaching on land and areas where work is not required or does not have permission to do so. This includes general works, storage of equipment/containers and parking.
- Mitigation measures described in the Biodiversity: Habitats Section will be followed to reduce potential impacts on the landscape.
- The colour palette for the shotcrete will be chosen to blend into the surrounding landscape.
- Spillways should be landscaped with a degree of roughness and unevenness to allow scrub to colonise.

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.

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 GCRS and any excavations will be carried out with good practice measures detailed in the SEMP as follows:

- Excavated soil and rock 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 grass verges) should 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.

Road drainage and the water environment

The channel realignment is required to reinstate the former drainage regime that was significantly altered as a result of landslide events in 2020, which caused flows normally directed down Channel 3A to enter Channel 3B. Reinstating the former

drainage regime will reduce the heightened risk of landslides resulting from increased flows in Channel 3B. It is therefore considered that the realignment works should be treated as re-establishment of the previous natural watercourse and not an engineered design to standards.

There is potential for an impact on water quality during construction as a result of potential spillage of fuels, oils and mobilisation of silt. Consultation with SEPA has confirmed that the proposed works require an amendment to an existing CAR Simple Licence (CAR/S/1196837) to regulate the works and ensure standard procedures and conditions are in place to mitigate impacts on the water environment.

Provided the following mitigation measures are adhered to throughout the works, impacts during the construction phase are not predicted to be significant:

- All relevant conditions of the CAR Simple Licence (CAR / S / 1196837) and amendment are to be complied with, a copy of which will be supplied to the contractor.
- A copy of the relevant parts of the CAR Simple Licence and amendment must also be kept on-site at all times.
- No discharges into any watercourses or drainage systems are permitted.
- All plant and equipment must 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.
- All on-site activities should operate in accordance with relevant SEPA Pollution Prevention Guidelines (PPGs) and Guidance for Pollution Prevention (GPPs).
- All hazardous material utilised on site is required to undergo assessment under the Control of Substances Hazardous to Health (COSHH) Regulations 2002. These assessment(s) will contain a section on environment which highlights any precautions and mitigation requirements.
- All hazardous material will be stored in line with COSHH data within a designated COSHH storage area at least 10m from watercourses, drains, or waterbodies. Oils and chemicals will be stored in appropriately bunded storage cabinets. The COSHH store will be locked with only appropriate personnel having access and an inventory register being maintained.
- The designated storage area must be on impermeable ground and fully bunded.
- Where applicable and practicable, bio-degradable hydraulic fluids and oils should be utilised in machinery.
- Where fuel is stored on site and refuelling activities are undertaken, the following will apply:
 - Only suitably bunded fuel bowser(s) or tank(s) in line with General Binding Rules the Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended) will be utilised on site.
 - The fuel bowser(s) and/or tank(s) must be stored at least 10m away from any watercourses, waterbodies or drains and away from being struck by plant and machinery.

- All distribution and fuelling nozzles will be fitted with a shut-off valve.
- All refuelling activities are to be undertaken in a designated site with a drip tray positioned underneath the nozzles when not in use.
- All fuel containers and nozzles are to be secured, for example with a lock when not in use.
- All staff undertaking refuelling activities are to be appropriately trained and undertake these activities in line with site refuelling procedures.
- During refuelling of smaller mobile plant, a funnel and drip trays must be used.
- Spill kits must be quickly accessible to capture any spills should they occur.
- The ground / stone around the site of a spill must 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 must have bunding with a capacity of 110%. If these are not available, then drip trays with a capacity of 110% should be placed beneath the equipment.
- A spillage control procedure will be in place in which all staff are to be trained.
- Suitable spill kits are to be available on site with all staff to be trained in their use.
- All spills must be logged and reported. In the event of any spills into the water environment, all works must stop, and the incident reported to the project manager and the BEAR Scotland Environment Team. SEPA must be informed of any such incident as soon as possible using the SEPA Pollution Hotline.
- Mitigation detailed in Biodiversity Section will be strictly adhered to.
- Pollution prevention measures will be installed to prevent sediments from reaching the Croe Water.
- Pollution prevention measures will be checked daily and more regularly during periods of heavy rainfall.

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.

Material assets and waste

During construction, there will be a temporary impact as a result of material consumption and waste production. While the final destination for these wastes is yet to be confirmed, all relevant SEPA exemptions and consents will be in place to ensure the material is suitable for its given purpose and that all appropriate regulatory processes have been followed.

Provided the following mitigation measures are followed during works, impacts during construction are not anticipated to be significant:

- The waste hierarchy (Reduce, Reuse, Recycle and Dispose) will be employed throughout the construction works.
- Where possible, waste production will be minimised. For example, the provision of reusable cutlery, crockery and water bottles to all on-site staff is strongly encouraged.
- Bulk material will be delivered to site without packaging where possible.
- Supplies are to be requested to minimise all packaging where possible.
- Care is to be taken to only order the correct quantity of required materials, preventing disposal of unused materials.
- Materials should be reutilised where possible.
- Facilities on site will be provided in a designated area to enable the correct segregation of waste, maximising recycling on site. These are to be clearly marked and labelled.
- Wastes not suitable for recycling will be sent to landfill or special waste treatment facilities, depending on the nature of the waste.
- All waste stored on site will be adequately protected against the elements and vermin.
- All appropriate waste documentation must be present on-site and be available for inspection.
- All wastes and unused materials will be removed from site in a safe 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 retained by BEAR Scotland. A copy of the waste transfer is also to be provided to BEAR Scotland as early as practicably feasible and retained.
- If required, an exemption from SEPA will be secured to allow for the reuse of materials.
- During the site induction, all staff are to be informed that littering will not be tolerated. Staff are also encouraged to collect any litter seen on site.
- Where applicable, all temporary signage will be removed from site on completion of the works.
- All hazardous material will be stored in line with Section 10.0: Road Drainage & Water Environment.
- A copy of the duty of care paperwork should be provided and filed appropriately in accordance with the Code of Practice (as made under Section 34 of Environmental Protection Act 1990 as amended).
- Any contaminated ground as a result of the works should be removed and transferred off site as special waste.
- Any special waste should be removed from site by a licenced waste carrier. Special waste should not be mixed with general waste and/or other recyclables.

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

With the implementation of the following mitigation, noise and vibration impacts during the construction phase are not predicted to be significant:

- The best practice means, as defined in Section 72 of the Control of Pollution Act 1974 and BS5228-1:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites, will always be employed to reduce noise to a minimum.
- All construction operatives will be briefed through toolbox talks prior to works commencing using the Being a Good Neighbour toolbox talk template.
- Where possible, inherently quiet plant should be selected for construction works.
- All plant, machinery and tools will be well maintained, including parts relating to noise minimisation.
- All plant, machinery, and vehicles will be switched off when not in use.
- Where ancillary plant such as generators are required, they will be positioned so to cause minimum noise disturbance. Where deemed necessary, acoustic screens will be utilised.
- Movement of plant onto and around the site will have regard to minimising noise and will not be left running if not required for immediate use.
- All plant must be operated in a mode that minimises noise emissions and must have been maintained regularly to comply with relevant national and international standards.
- Where possible all car parks will still remain open for the travelling public and visitors.

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.

Climate

During the works there is potential for impacts as a result of the emission of greenhouse gases through the use of equipment, vehicles, material use and production and transportation of materials and wastes. However, considering the nature, short-term duration, size and scale of the scheme, and the mitigation detailed below, the risk of significant impacts to climate are considered to be low.

Proposed climate mitigation measures:

- All mitigation measures detailed within 'Air Quality' and 'Material Assets and Waste' will be adhered to.
- BEAR Scotland will adhere to its Carbon Management Policy.
- Where possible, materials will be sourced locally to reduce greenhouse gas emissions associated with materials movement, and waste will be disposed at local landfill, where required.

Risk of major accidents or disasters:

A SEMP will be put in place which will set out a framework to reduce adverse impacts from construction activities on sensitive environmental receptors. The SEMP will set out the commitments and constraints and will identify the procedures and measures that will be used to manage and control these aspects. The Contactor will be required to comply with all conditions of the SEMP.

The scheme is not located in an area at risk of flooding.

Traffic management consists of two-way traffic lights with a 30mph speed restriction in place. Traffic management will ensure any potential impacts on traffic accident risk are negligible.

The management of site works and road operations will be largely driven by estimates of soil saturation and current and/or forecasted rainfall, which will provide an indication of landslide risk. Saturation hazard charts will be updated on a daily basis and, when it is deemed that there is a heightened risk of a landslide, the works and the operation of the A83 will be altered or suspended accordingly.

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

Assessment cumulative effects

Works are currently underway at RaBT Phase 3B catchpit works and Glen Kinglas bunds. Any future BEAR Scotland schemes will be programmed to take into account already programmed works and traffic management arrangements. As detailed in the Landscape and Visual section above, landscape and visual effects associated with the proposed works are unlikely to be significant. No cumulative landscape and visual impacts are expected. Additional ground investigation works are programmed within the next year to inform subsequent phases of landslip protection works. There are no other known projects currently planned or recently completed that have the potential to contribute to in-combination or cumulative effects on the nearby designated sites or protected species in the vicinity of Glen Croe.

The proposed works will improve the condition of the road and protect against future landslides. Consequently, carrying out these works now will reduce the risk that additional major works will be required in the future. This in turn will reduce the amount of work required at this location. Therefore, it is not expected that the works will contribute to long-term significant cumulative effects on the environment in the vicinity of Glen Croe.

Likewise, the in-combination effect of all potential environmental impacts are not considered to be significant.

Assessment 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. Consultation has been undertaken with LLTNP and comments received have been taken into account. A high-level HRA screening was undertaken and consultation with NatureScot was carried out to determine the risk of potential impacts on Glen Etive and Glen Fyne SPA as a result of works. NatureScot is in agreement with the conclusion of no Likely Significant Effect on the Glen Etive and Glen Fyne SPA.

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

This is a relevant project in terms of section 55A(16) of the Roads (Scotland) Act 1984 as it is a project for the improvement of a road and the completed works together with any area occupied by apparatus, equipment, machinery, materials, plant, spoil heaps, or other such facilities or stores required during the period of construction are situated in whole or in part in The Loch Lomond and 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 e 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:

The proposed scheme involves the realignment of a minor, unnamed watercourse (hillside drainage channel) and scour protection works in the vicinity of an existing road (A83). The scale of the works is therefore considered to be very small and will involve minor alterations to rock/scree slopes to mitigate potential land-slide impacts on road users and erosion. The works will last up to 12 weeks depending on the local geotechnical conditions and prevailing weather.

Location of the scheme:

While located within LLTNP, the works do not involve any significant changes to the land form or vegetation, and they are predicted to have a negligible effect on its special landscape qualities. The works area does not lie within a densely populated area, any sites of historical, cultural or archaeological significance, or sites designated for their geology or soils.

Characteristics of potential impacts of the scheme:

The following points are considered:

- No impacts on any features of cultural heritage interest are anticipated.
- Any impacts on air quality or noise levels are temporary during the construction period. Due to the distance of the works from sensitive receptors and with mitigation measures in place, impacts are minor and not significant.

- Any short-term impacts on vehicle travellers, pedestrians, cyclists or equestrians are considered negligible, particularly as works will be completed outside of the key tourist period.
- There will be a minor loss of some habitats which are ubiquitous in the wider area.
- There is potential for an impact on water quality during construction as a result of potential spillage of fuels, oils and mobilisation of silt. However, with pollution prevention measures in place and with all relevant conditions of the CAR licence being complied with, this risk is considered to be negligible.
- Consultation has been carried out with the LLTNP and comments received have been taken into account.
- No impacts on biodiversity are expected due to lack of protected species in proximity of the works.
- No impacts on breeding birds are anticipated due to works commencing outwith the bird breeding season (March to August inclusive).
- A high-level HRA screening was undertaken alongside consultation with NatureScot, who confirmed that they are in agreement with the conclusion of no Likely Significant Effects (LSE) on the Glen Etive and Glen Fyne SPA.
- With pollution prevention measures in place, there are no risks to human health from water contamination or air pollution.
- No change in land use is anticipated, but a minor loss of low quality hillside grazing land, ubiquitous to the wider area, is expected.
- No impacts on geology and soils are anticipated.
- During construction, there will be a temporary impact as a result of materials and waste.



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