



**TRANSPORT
SCOTLAND**
CÒMHDHAIL ALBA

Environmental Impact Assessment Record of Determination

A77 Ballantrae to Benanne

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Project Details

Description

Works are required to maintain the safety and integrity of an approx. 2.9km stretch of the A77 carriageway North of Ballantrae, as the existing surface course has reached the end of its serviceable life.

Works will involve carriageway resurfacing of both northbound (NB) and southbound (SB) lanes utilising TS2010 surface course to varying depths dependent on condition, ranging from 30mm to 60mm depths across the length of the scheme.

The proposed construction activities are likely to involve the following:

- Milling of existing bituminous material by road planer;
- Hand-held jackhammer and compressor for breaking up surfaces not accessible by planer;
- Loader/excavator used to collect and move excess material;
- Base/binder material laid and compressed (where required);
- New bituminous material laid by a paver;
- Material compacted using a heavy roller;
- Mechanical sweeper to collect loose material;
- HGV for removal and replacement of material; and
- Road markings replaced using an extrusion tool.

The total area of the works is approximately 33,000m² (3.3ha) across the NB and SB lanes

The works are currently programmed to commence October 23rd 2022. Duration and timings are yet to be determined, however working hours are likely to be daytime.

Traffic management (TM) is expected to consist of a daytime convoy system. The A77 carriageway will remain open throughout the works.

Location

The Scheme is located on the A77 carriageway within a rural setting just north of Ballantrae, South Ayrshire. The scheme has the following National Grid References (NGR):

- Scheme Start: NX 08514 83152
- Scheme End: NX 09352 85923

Figure 1: Scheme location



Description of local environment

Air quality

The scheme is located within a rural setting north of Ballantrae, South Ayrshire, predominately surrounded by agricultural fields and small areas of scrub/woodland. A small area of residential properties can be found at the southern extent of the scheme in Ballantrae village, with a small number of residential properties being located sporadically throughout the scheme.

[Average Annual Daily Flow](#) (AADF) in 2020 for the A77 carriageway 8km south of the scheme accounted for 2,474 vehicles, with an average of 20% heavy goods vehicles (HGV).

The scheme location does not fall within any [Air Quality Management Areas](#) (AQMAs) declared by South Ayrshire council.

Cultural heritage

A desktop study using [PastMap](#) has identified Ballantrae 1 Conservation Area within the village of Ballantrae approximately 300m from the southern scheme extent.

All works will be located within the existing carriageway boundary and will not impact any areas of land that have not previously been subjected to engineering activity.

It has been determined that the proposed project does not carry the potential to cause direct or indirect impact to cultural heritage.

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

Landscape and visual effects

A desktop study using [NatureScot Sitelink](#) and [PastMap](#) online interactive map has not highlighted any areas designated for landscape character within 300m of the works.

Historic Environment Scotland's [HLAMap](#) has highlighted the surrounding landscape to consist of a combination of fields, farmland, managed woodland and an urban area.

Works will be restricted to the existing carriageway boundary and will not impact upon the surrounding landscape. Views of, and from, the road will be temporarily affected during construction due to the presence of works, traffic management and plant. As the works are operating on a like-for-like basis, no permanent changes to landscape features are predicted.

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

Biodiversity

The scheme is located within a rural setting north of Ballantrae, South Ayrshire, predominately surrounded by agricultural fields and small areas of scrub/woodland.

A desktop study using [NatureScot's Sitelink online interactive map](#) has not identified any designated European sites within 2km, or any locally designated sites within 300m.

Amey's Animal Roadkill Database (2013-2022) did not identify any protected species roadkill within 300m of the scheme.

Amey's Invasive Non-native Species (INNS) Database has not identified any invasive plant species within the scheme extents.

Geology and soils

The [National Soil Map of Scotland](#) has identified the local soil type as brown soils.

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

- Bedrock Geology: Corseclays Sandstone Formation - Sandstone. Sedimentary bedrock formed between 298.9 and 272.3 million years ago during the Permian period.
- Superficial Deposits: Blown Sand - Sand. Sedimentary superficial deposit formed between 2.588 million years ago and the present during the Quaternary period.

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

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

Material assets and waste

Key Materials Required for Activities

The following materials will be required for the works:

- TS2010 surface course
- AC32 Base
- AC20 Binder
- Bitumen
- Road paint
- Road studs

A proportion of reclaimed asphalt pavement (RAP) is used in asphalt production. Typical RAP values for base and binder are 10% -15% with up to 10% in surface course.

TS2010 Surface Course allows a wider array of aggregate sources to be considered when compared to typical SMA. As a result the use of TS2010 will reduce the usage of imported aggregates, and increase the use of a wider range of sustainable aggregate sources.

Key Waste Arising from Activities

Road planings and road studs will be produced as waste from the works.

Coal tar is not present within the layers of surface course to be replaced. As such, all planings generated as a result of the works may be recovered in accordance with the criteria stipulated within SEPA document 'Guidance on the Production of Fully Recoverable Asphalt Road Planings'.

Road studs should be recycled and reused where possible.

Noise and vibration

The works are located on a rural stretch of the A77 carriageway north of Ballantrae, surrounded by agricultural land and small areas of scrub/woodland.

[Average Annual Daily Flow](#) (AADF) in 2020 for the A77 carriageway within the scheme extent accounted for 2474 vehicles, with an average of 20% heavy goods vehicles (HGV). Baseline noise level is likely to be primarily influenced by vehicle traffic from the carriageway, with secondary sources likely deriving from nearby agricultural and urban activities.

A number of residential properties are located within close proximity to the scheme, the closest of which is at the outskirts of Ballantrae 20m north from the southern scheme extent and another 20m west of the scheme just before the B734 junction. Further properties on the A77 are located within approx. 150m of the works.

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

Population and human health

The A77 is a major road in Scotland which runs from Glasgow down the west coast to the village of Portpatrick on the Irish Sea.

A footway exists adjacent to the A77 carriageway in Ballantrae for the first 20m of the scheme adjacent to the SB carriageway.

One [Core Path \(ID: SA2\)](#) runs adjacent to the carriageway approximately 60m west of the A77 carriageway for the full length of the scheme.

No cycleways exist within the scheme extents.

Several access roads to residential properties exist within the scheme extents.

Road drainage and the water environment

A desktop study using the Scottish Environment Protection Agency (SEPA) [River Basin Management Plan Interactive Map](#) has identified Ballantrae, a coastal water body (SEPA ID: 200506) which flows approx. 100m west of the works location. This watercourse has been given an overall status of 'Good'.

Duhorn burn, Red burn and Balig burn flow perpendicular to the A77 carriageway and eventually pass underneath it to flow out into the Ballantrae coastal water body. These burns are unclassified by SEPA.

The drainage for the scheme consists of top entry gullies and filter drains and a culvert.

Areas of the A77 carriageway are at risk of surface water flooding within the scheme extents, as displayed on the [SEPA Flood Map](#).

Climate

Carbon Goals

The Climate Change (Scotland) Act sets out the target and vision set by the Scottish Government for tackling and responding to climate change. The Act includes a target of reducing CO2 emissions by 80% before 2050 (from the baseline year 1990).

The Scottish Government has since published its indicative Nationally Determined Contribution (NDC) to set out how it will instead reach net-zero by 2045, working to reduce emissions of all major greenhouse gases (GHG) by at least 75% by 2030. By 2040, the Scottish Government is committed to reduce 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, this commitment is being enacted through the Mission Zero for Transport. Transport is the largest contributor to harmful climate emissions in Scotland. In response to the climate emergency, TS are committed to reducing their emissions by 75% by 2030 and to a legally binding target of net-zero by 2045.

Amey's Company Wide Carbon Goal is to achieve Scope 1 and 2 net-zero carbon emissions, with a minimum of 80% absolute reduction on our emissions by 2035. Amey is aiming to be fully net-zero, including Scope 3 emissions, by 2040.

Amey are working towards a contractual commitment to have carbon neutral depots on the SW NMC network by 2028. Amey have set carbon goals for the SW NMC contract as a whole to be net-zero carbon by 2032.

Monitoring, Management and Opportunities

To support our journey towards carbon neutral and zero waste we include potential opportunities for enhancement utilising circular economy principals within assessment of material assets.

Amey (working on behalf of Transport Scotland) undertake carbon monitoring. Emissions from our activities are recorded using Transport Scotland's Carbon Management System.

Further information identifying how Amey will obtain the above Carbon Goals can be viewed within the Carbon Management and Sustainability Plan Roadmap to net-zero: STRNMC – South West.

Description of main environmental impacts and proposed mitigation

Air quality

Impacts

- The use of vehicles, plant and generators emitting carbon emissions may temporarily affect air quality and will require the use of finite resources.
- On site construction activities carry the potential to produce airborne particulate matter and generate emissions that may have a slight adverse impact on local air quality levels.

Mitigation

- All works shall operate in accordance with current best practice as outlined in the Guidance on the assessment of dust from demolition and construction (2014) published by the IAQM, which includes the following mitigation relevant to this scheme:
 - When not in use plant and vehicles will be switched off; there will be no idling vehicles.
 - All plant and fuel-requiring equipment utilised during construction shall be well maintained in order to minimise emissions, as per manufacturing and legal requirements.
 - Green driving techniques will be adopted, and effective route preparation and planning shall be undertaken prior to works.
 - Planing operations will be wetted to reduce dust arising.
 - Drop heights to haulage vehicles and onto conveyors will be minimised.
 - Lorries will be sheeted when carrying dry materials.
 - Surfaces will be swept where loose material remains following planing.

Providing all works operate in accordance with current best practice, the residual impact for air is considered no change.

It has been determined that the proposed project will not have direct or indirect significant effects to local air quality.

Biodiversity

- Protected species may be active within the local area and may be subject to a minor degree of light/noise disturbance from the works if present.

- No carriageway lighting is present throughout the scheme extents. The addition of any temporary lighting for the works may affect the foraging or commuting routes of nocturnal protected species which may be active in the surrounding area.

Mitigation

- Operatives will remain vigilant for the presence of protected species within or near the works. If an animal is spotted, all works shall temporarily halt until the animal has moved on, and any sightings shall be reported to the E&S Team.
- Oil, fuels and other potential pollutants or poisonous materials will be stored safely on site.
- On site light sources will be kept to a minimum, and only used as required:
 - When in use, any artificial site lighting will be kept directional to the works area as far as reasonably practicable, reducing any light spill into the wider surroundings, and potentially sensitive habitat (e.g. woodland).
 - When not in use or required, light sources shall be switched off to reduce impact on nocturnal species.
- Effects from noise will be kept to a minimum through the use of appropriate mufflers and silencers fitted to machinery. All exhaust silencers shall be checked at regular intervals to ensure efficiency.
- See additional noise mitigation measures in *Noise and Vibration and Road drainage and the water environment*.

On the condition that best practice is adhered to, residual impact to local biodiversity is considered no change as a result of the works.

It has been determined that the proposed project will not have direct or indirect significant effects to biodiversity

Material assets and waste

Impacts

- The design life for the TS2010 surfacing proposed is estimated to be 20 years. This will reduce the requirement for maintenance to this section of road over the period.
- The works will result in contribution to resource depletion through use of virgin materials.
- Greenhouse gas (GHG) emissions will be generated by material production and transporting to and from site.
- Transportation and recovery of materials/waste will require energy deriving from fossil fuel, a non-renewable source.

Mitigation

- Materials will be derived from recycled, secondary or re-used origin as far as practicable within the design specifications to reduce natural resource depletion and associated emissions.
- Road planings arising from the works will be fully recycled in accordance with guidance on the Production for Fully Recovered Asphalt Road Planings.
- The disposal of special waste is also subject to obtaining a SEPA consignment note and providing advance notice of at least three days prior to any waste movement.

Temporary impact during construction is considered negligible adverse, with residual impact considered no change.

It has been determined that the proposed project will not have direct or indirect significant effects to the consumption of material assets or creation of waste.

Noise and Vibration

Impacts

- TS2010 road surfacing will be utilised, which should reduce mid to high frequencies of traffic noise levels. Nearby receptors may benefit from improved reduced noise as a result of the scheme.
- Works will likely be undertaken during day-time programming. As such, any residential properties in proximity are not likely to experience significant disturbance due to increase in baseline noise levels, such as potential disruption to sleep.

Mitigation

- In the event of night-time programming, South Ayrshire Council's Environmental Health Department will be notified in advance of the works by the E&S Team.
 - This will be undertaken during weekly notification issue to all Local Authorities for the upcoming Amey programme of works.
- Effects from noise shall be kept to a minimum through the use of appropriate mufflers and silencers fitted to machinery. All exhaust silencers will be checked at regular intervals to ensure efficiency.
- Plant and machinery will be switched off when not in use to reduce noise disruptions to the surrounding environment.
- Engine exhaust and vent silencers shall be used where possible.
- The delivery of materials to the scheme extents shall be made during daytime and early evening hours where reasonably practicable, to reduce delivery trips required and noise associated by traffic.

Provided that best practice measures are followed, it is predicted that residual impact from noise will be negligible beneficial, with temporary minor adverse impact predicted during construction.

It has been determined that the proposed project will not have direct or indirect significant effects to local noise and vibration.

Population and human health

Impacts

- TM is expected to consist of single lane closures of the A77 carriageway, facilitated by a convoy system. The A77 carriageway will remain open throughout the works.
 - Use of a lower speed limit through this section of carriageway may cause minor delays to road users of the A77 carriageway.
- Dependent on presence of TM/plant, there is potential for closure of or restrictions to pedestrian footways.
- Local accesses may be temporarily obstructed due to presence of works/TM.
- Access or use of Core path SA2 may be restricted dependent on presence of works/TM.
- TS2010 road surfacing will be utilised. TS2010 can improve the skid resistance of the road.
- The use of TS2010 is shown to have superior durability to standard road mixes as such this will extend the life span of the carriageway preventing the need for reoccurring routine maintenance and associated levels of disruption.

Mitigation

- Advance traffic signs will be placed prior to works in an effort to minimise disturbance to vehicular travellers, and will inform road users of expected duration, timings, and any temporary traffic management arrangements/restrictions.
- Access points will be left un-obstructed where this is reasonably practicable. Where obstruction occurs, any local access will be granted as required.
- In case of footway closures, operatives will have measures in place to allow pedestrians of all abilities to safely pass by the works. Any pedestrian diversions for the works will be clearly signed and accessible.

Provided that best practice measures are followed, it is predicted that residual impact to population and human health will be no change, with temporary minor adverse impact predicted during construction.

It has been determined that the proposed project will not have direct or indirect significant effects to local population and human health.

Road drainage and the water environment

Impacts

- Potential for spills, leaks or seepage of fuels and oils associated with plant to escape and reach drainage systems and watercourses if not controlled, which may affect the water environment if not effectively controlled.
- If not appropriately controlled, debris, sediment and run off from the works has the potential to enter nearby drains and watercourses and could detrimentally impact water quality.
- In the event of a flooding incident, debris may be mobilised and could enter the road drainage having a detrimental effect on the surrounding local water environment.

Mitigation

- Best practice, as detailed by SEPA Guidance for Pollution Prevention (GPPs), will always be followed onsite. This will ensure that any potential sediments/spills are not allowed to enter road drainage unchecked.
- Appropriate measures shall be implemented onsite to prevent any potential pollution to the natural water environment (e.g. debris, dust and hazardous substances). This will include, but will not be limited to, spill kits being present onsite at all times, and the use of funnels and drip trays when transferring fuel, and utilisation of drain covers/shielding boards.
 - Any pollution incidences will be reported to the Amey control room.
- Operatives will conduct regular checks of the surrounding ground/drains for any spillages/leakage regularly, especially in periods of heavy wind and rainfall.
- All debris which has the potential to be suspended in surface water and wash into the local water environment shall be cleaned from the site following the works.
- Weather reports shall be monitored prior to and during all construction activities. In the event of adverse weather/flooding events, all activities will temporarily stop, and only reconvene when deemed safe to do so, and when run-off/drainage can be adequately controlled to prevent pollution.

Providing all works operate in accordance with site control measures and SEPA Guidance for Pollution Prevention (GPP) the residual impact for water is considered no change.

It has been determined that the proposed project will not have direct or indirect significant effects to the water environment.

Climate

Impacts

- Greenhouse gas (GHG) emissions will be emitted through the use of machinery, vehicles and materials used (containing recycled and virgin materials) and transporting to and from site.

Mitigation

- Local suppliers will be used as far as reasonably practicable to reduce travel time and GHG emitted as part of the works.
- Vehicles/plant shall not be left on when not in use to minimise and prevent unnecessary emissions being emitted.
- Further actions and considerations for this scheme are detailed in the above *Material assets and waste* section.

It has been determined that the proposed project will not have direct or indirect significant effects to climate.

Vulnerability of the project to risks

As the works will be limited to the like-for-like replacement of the carriageway structure, there will be no change in vulnerability of the road to risk, or in severity of major accidents/disasters that would impact on the environment.

It has been determined that the proposed project is not expected to alter the vulnerability of the existing trunk road infrastructure to risk of major accidents or disasters.

Assessment cumulative effects

The [Scottish Road Workers Commission](#) Interactive Map does not highlight any other works in the area at the time of construction.

[South Ayrshire Council's Planning Alert Portal](#) does not highlight any proposed developments or planning applications on the A77 carriageway within proximity to the scheme.

Amey's current [programme of works](#) has highlighted ongoing works comprising essential maintenance on the A77, north of Stranraer, from Friday 16th September to Sunday 2nd October 2022.

Although the works north of Stranraer are likely to be finished before the Ballantrae works commence, due to location of both schemes on the A77 carriageway it is possible that, in the event of a delay to commencement, users of this route will encounter both schemes during construction times. Where this arises, cumulative effects are not expected to be of a significant or disruptive nature for users of the A77 carriageway due to use of a daytime convoy system.

No other nearby schemes which may result in a combined effect on nearby receptors have been identified.

Any future schemes will be programmed to take into account already programmed works, and as such any effect (such as from TM arrangements and potential construction noise) will be limited.

Assessments of the environmental effects

Following assessment as detailed within this Record of Determination, and provided that mitigation measures are in place and best practice is followed, the residual impact is deemed neutral and there will be no significant effects on the environment.

The following environmental surveys/reviews have been undertaken:

- A design Initial Environmental Review of the scheme, undertaken by the Environment and Sustainability Team at Amey in September 2022.

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

This is a relevant project in terms of section 55A(16) of the Roads (Scotland) Act 1984 as it is a project for the improvement of a road and the completed works (together with any area occupied by apparatus, equipment, machinery, materials, plant, spoil heaps, or other such facilities or stores required during the period of construction) exceed 1 hectare in area.

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:

- Construction activities are restricted to the approximate 33,000m² (3.3ha) area of existing carriageway.
- At end of life, components can be recycled, reducing waste to landfill.
- Road planings will be recycled in accordance with Guidance on the Production for Fully Recovered Asphalt Road Planings.
- Materials will be derived from recycled, secondary or re-used origin as far as practicable within the design specifications.
- The chosen material TS2010 Surface Course allows a wider array of aggregate sources to be considered when compared to typical SMA.
- The design option conveys sustainability benefits by significantly reducing the quantity of maintenance interventions required at the location.

Location of the scheme:

- The scheme will be confined within the existing carriageway boundaries and as a result will not require any land take and will not alter any local land uses.
- The scheme is not situated in whole or in part in a “sensitive area” as listed under regulation 2 (1) of the Environmental Impact Assessment (Scotland) Regulations 1999 (as amended).

Characteristics of potential impacts of the scheme:

- 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.
- The successful completion of the scheme will afford benefits to carriageway users and residential properties in proximity, due to improved condition and ride quality of the carriageway surface.
- The use of TS2010 road surfacing affords the benefits of a reduction in mid to high frequencies of traffic noise and a reduction in ground vibrations. As a result, ambient noise levels should decrease post construction.

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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