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Environmental Impact Assessment Record of Determination

A90 Finavon Bridge Scour Repairs

Contents

Project Details

Description

Scour repair works are required at the A90 Finavon Bridge (Structure 510), hereafter referred to as the Bridge, a three span structure that carries the A90 (northbound) dual carriageway over the River South Esk.

Background to the Works

Storm Babet (October 2023) generated extreme river flows across Scotland, particularly in areas in the northeast. Gauges in the South Esk Catchment observed record river levels and significant flooding occurred. Following the storm, inspections were carried out on trunk road structures to assess for damage. An inspection found considerable scour and damage had occurred along the riverbed and foundations of the Bridge. Such damage impacted the structural stability of the Bridge and as a result, emergency measures were put in place to temporarily protect the structure from further damage, until a longer-term solution could be put in place.

Emergency repair works consisted of the placement of rock mattresses and rock bags to reinstate the eroded riverbed levels and scour holes on the northwest bank. The undermined section of the north abutment was infilled using flowable concrete. Rock bags were placed to protect the north side abutment from increased water levels, and additional rock bags placed over the north underpass to stabilise the ground slip failure surfaces and improve the bearing capacity of the Bridge's abutment.

Permanent works are therefore now required to repair and provide long-term protection of the Bridge. Failure to undertake the works would further compromise the structural stability of the Bridge and its use as a key network route.

Proposed Works

Grey Bank Reinforcement

Permanent repair and scour protection designs involve the installation of concrete retaining walls adjacent to the north and south abutments of the Bridge. These will be concrete secant pile walls and will stretch a total of 44m along the riverbank, with 22m on each bank.

Bed Reinforcement

To protect the Bridge foundation from future high flow events, a concrete mattress will be installed slightly below the existing bed level and supplemented by rock nets at the termination points. The mattresses will have baffles to help control the flow of the channel. Rock mattresses and rock nets will be installed over the mattress and covered over with excavated riverbed material. The bed reinforcement activity also includes the reuse of suitable, undamaged rock nets and rock mattress units already on site from the previous temporary works. Bed reinforcement activities will cover a maximum length of 63m measured parallel to the riverbanks, with the area of bed affected being 1,722m^2.

Sediment Management

To facilitate bed reinforcement, sediment management activities will also be required, which involves excavation of the riverbed to the desired formation level. Reintroduction of this removed sediment will be undertaken following the bed reinforcement, with 300mm of excavated sediment deposited over reinforcements to reduce the likelihood of localised scour and overall improving the effectiveness of the scour protection measures. The sediment will also help support the re-establishment of aquatic habitats within this highly sensitive water environment.

Removal of Bank Modifications

To facilitate the bed and bank reinforcement, historic gabion baskets along the north and south banks are required to be removed. The total length of modification removed as measured along the banks will be 53m.

To enable installation of the retaining wall along the north bank, the existing, failed wall will need to be removed. The maximum length of bank affected for this removal will be up to 16m of the north bank.

Other Construction Activities

Other site works include repairing of guardrail along the Bridge's underpass. Additionally, vegetation cut back will be required to facilitate the works and provide access routes to the riverbank and works area.

Programming and Traffic Management

The works are anticipated to be undertaken in two phases, due to seasonal ecological constraints with the in-water working window between June and September.

Phase 1 includes works to the north abutment and will commence in mid-June 2026, for a three-month period. Phase 2 includes works to the south abutment and is expected to commence in 2027 during the in-water working window (start month to be confirmed).

The works will be undertaken during day-time working hours only, with a reduced traffic flow required during the construction period. Traffic management (TM) will be a contraflow system, ensuring that either the A90 Finavon northbound, or A90 southbound bridge remain open at all times, with traffic temporarily diverted over the opposite bridge. This will maintain traffic flow along this route, with no diversion routes required.

Construction Methodology

An ingress/egress ramp will be formed on the upstream side of the north abutment to allow plant and machinery to access the river channel. This will require localised vegetation clearance and excavation of the riverbank to create a stable working slope. A site compound will be established in the northwest field, making use of existing matting from the 2024 emergency works.

To create a dry working area at the north abutment, a temporary cofferdam using either portadam units or bulk bags lined with plastic sheathing will be installed, diverting flow to the south channel. Depending on water levels and velocities, additional plastic sheeting may be required along the channel edge to manage flow around the temporary works.

Once the dry zone is established, the riverbed and adjacent footpath material will be levelled to form a platform for the piling rig. A secant pile will then be installed between the failed retaining wall and the north abutment, followed by excavation of up to 2m in front of the existing wall to allow its removal. Where full removal is not feasible, the remaining section will be partially removed and buried.

The riverbed will be excavated to the required formation level for the new scour protection measures, including removal of historic gabion baskets and mattresses downstream of the Bridge. An in-situ concrete pile cap and retaining wall will be cast along the top of the secant pile line to provide a sealed interface for the scour protection.

The riverbed will then be prepared for installation of the concrete mattresses. A fabric formwork will be laid out on the riverbed and pumped with concrete to form the mattress, which will be installed across the north half of the channel during Phase 1, and the south half in Phase 2. Mattress levels will be locally adjusted to avoid obstructing existing outlet pipes and the protection will extend approximately 12m upstream and 20m downstream. At both upstream and downstream extents, the mattress will be recessed into the bed to prevent undermining.

Rock mattresses and nets will be installed over the recessed edges and tied into the existing riverbanks using suitable as-dug material. Approximately 300mm of acceptable riverbed material will be placed over the concrete mattress to restore a naturalised bed surface. Along the temporary edge of the concrete mattresses between Phase 1 and 2, a geotextile membrane and rock nets will be installed to protect the exposed edge until the second phase is completed. Undamaged rock nets and rock mattress units already on site, used for the holding repairs will be re-used where possible. The nets will be covered over with suitable as-dug riverbed material.

On completion of all works, the cofferdams will be removed, the access ramp reinstated and the site compound returned to its previous condition.

Engagement with affected landowners regarding land access and compound arrangements is ongoing. Amey has made enquiries; however, the Contractor is responsible for securing all necessary access permissions.

The following plant, machinery and materials will be required:

- Crane;
- Large lorries and Heavy Goods Vehicles (HGVs);
- Excavators (various sizes);
- Dumpers and tracked dumpers;
- Concrete mixer;
- Concrete pump;
- Vibrating soil compactors;
- Piling rig;
- Water pumps;
- Generators; and
- Hand tools.

Location

Finavon Bridge is located along a rural stretch of the A90 carriageway, at Finavon, Angus at the following National Grid Reference (NGR) NO 49305 57263. The scheme extents and location map is presented in Figure 1.

The scheme area is less than one hectare (ha).

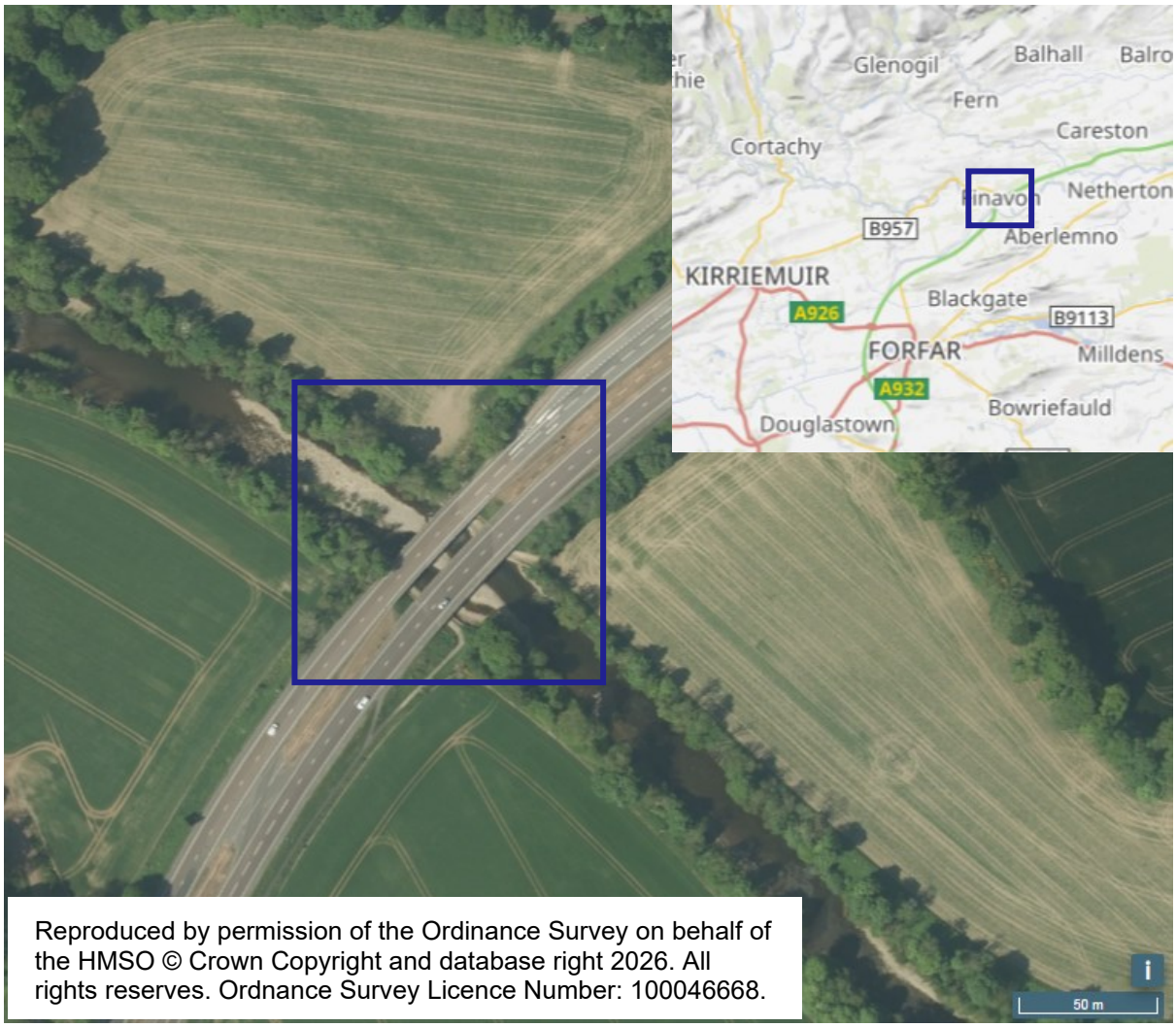

Figure 1. Scheme Location Map

Description of local environment

Air quality

The scheme is located within a largely rural area of Angus, within Finavon. The A90 is a major north-to-south carriageway within eastern Scotland, running from Edinburgh to Fraserburgh. Baseline air quality is likely to be influenced primarily by traffic flow along the A90, with secondary sources from surrounding agricultural activities.

Annual Average Daily Flow (AADF) in 2024, along the A90 just north of the Bridge (site number: 80383) was counted at 21,160 total vehicles, with 15.6% (3,033) Heavy Goods Vehicles (HGVs).

Angus Council has not declared any Air Quality Management Areas (AQMAs) and there are no real-time air quality monitoring stations (Air Quality in Scotland) or any sites on the Scottish Pollutant Release Inventory (SPRI) located within 1km of the scheme extents. The closest air quality monitoring station is located in Forfar, approximately 8km from the scheme extents. Pollution levels in the general vicinity of the works are anticipated to be lower than that at the monitoring station due to its rural location.

No air quality receptors are located within 200m of the scheme.

Cultural heritage

A desktop study using PastMap has been undertaken, where an asset has been listed more than once, its highest statutory designation has been recorded. This refers to designations including World Heritage Sites, Scheduled Monuments, Battlefields and Listed Buildings. No designated assets are located within the scheme extents however; four Category B Listed Buildings are located within 300m:

- Tannadyce House Lodge (LB17727) located 220m northwest.
- Tannadyce House Lodge Gates (LB17728) located 220m northwest.
- Finavon Castle - Doocot (LB17724) located 300m southwest.
- Finavon, Former Blacksmith's Workshop and Dwelling (LB44942) located 290m northeast.

Historic Environment Records (HERs) and National Record of the Historic Environment (NRHE) provide local and national level information on Scotland’s

historic environment. Six HERs and NRHEs are located within 200m, with two located within the scheme extents:

- Finavon HER (Reference: NO45NE0036) located northwest of the Bridge, within the field where the site compound and access track will be located. This record is recorded as cropmarks - Indeterminate marks recorded during aerial reconnaissance in 1981.
- Finavon Bridge is a HER (Reference: NO45NE0114) and NRHE (Reference: 173469). The current road bridge replaced the previous Finavon Bridge, carrying the carriageway over the River South Esk.

Landscape and visual effects

Landscape

The scheme lies within a rural setting, characterised by grazing and arable agricultural land, riparian vegetation and dispersed residential and agricultural properties.

The scheme falls within the Broad Valley Lowlands - Tayside Scottish Landscape Character Type (LCT) (LCT 384), defined by extensive agricultural land, broad straths, and lower local hills. The general site topography beneath the Bridge is a slight slope towards the River South Esk, with semi-mature and mature riparian vegetation along the River South Esk.

No areas designated for landscape quality such as National Scenic Areas, National Parks, National Nature Reserves, Conservation Areas, Garden and Designed Landscapes, or locally-designated areas such as Local Nature Reserves and Country Parks are located within 500m of the scheme, or within the zone of visual influence (Sitelink and Historic Scotland Designations).

There are no areas of Ancient Woodland or trees designated under a Tree Preservation Order directly lining the A90 carriageway, or riverbanks along the scheme extents.

Visual

No stationary visual receptors of the scheme are identified, owing to the general landscape arrangement with natural screening, and distance from surrounding properties.

Transient receptors include road users (motorists, public transport users) travelling along the A90, and Walker, Cyclist and Horse-rider (WCH) users of the following routes:

- A footway travelling along the A90 carriageway, over the Bridge and above the scheme extents.
- An underpass is located beneath the Bridge, adjacent to the River South Esk and within the scheme boundary.
- A footway located along the southbound carriageway, adjacent to the scheme extents.

Biodiversity

The structure spans the River South Esk, a Special Area of Conservation (SAC) (NatureScot Site Code: 8364).

There are no locally or nationally designated biodiversity sites located within 300m of the scheme (such as Sites of Special Scientific Interest (SSSIs), or National Nature Reserves) (Sitelink).

Refer to *Landscape and Visual Effects* section for details on ancient woodland and TPOs.

A series of ecological surveys and assessment have been undertaken with this information being utilised to inform ecological sensitivities and requirements relevant to the works.

A Preliminary Ecological Walkover (PEW) was completed by Amey Ecologists in October 2024.

Giant hogweed *(Heracleum mantegazzianum)* and Himalayan balsam *(Impatiens glandulifera*), Invasive Non-Native Species have been recorded within the general working area, and upstream of the structure. An INNS method statement has been undertaken, detailing INNS management and biosecurity protocols.

Consultation has been undertaken with NatureScot and the Esk District Salmon Fishery Board.

As the works lie within the River South Esk SAC, a Stage 2 Habitats Regulations Appraisal (HRA) has been undertaken to assess potential impacts on qualifying interests of the European site.

Geology and soils

Geology

Bedrock geology comprises sedimentary sandstone of the Scone Sandstone Formation. Superficial deposits comprise sedimentary deposits of alluvium (clay, silt, sand and gravel) (British Geological Survey Geology Viewer).

No Geological Conservation Review Sites (GCRS), Local Geodiversity Sites (LGS) or SSSIs designated for geological features are located within 200m of scheme extents (Sitelink).

The scheme is located within a moderately productive aquifer with the geological formation including locally flaggy sandstones, with siltstones, mudstones, conglomerates and lavas which yield moderate amounts of groundwater (GeoIndex British Geological Survey).

Soils

Underlying soils comprise alluvial soils (National Soil Map of Scotland). The site compound is located within an agricultural field, with a Land Capability for Agriculture of 3.1, inferring land is capable of producing consistently high yields of a narrow range of crops and/or moderate yields of a wider range.

Contamination

Desk-based investigations undertaken by Amey's Geotechnical Team have indicated no significant historical development within the site beyond the construction of the bridge and associated embankments, which are anticipated to be constructed of made ground.

The site is designated as a British Drilling Association (BDA) 'Green' Site for the purpose of the contract due to the lack of historical land uses in and directly surrounding the Site.

The scheme is not located within a coal mining area as defined by the Coal Authority and Mining Remediation Authority.

Material assets and waste

Materials

Materials required are as follows:

- Concrete (inside the mattresses) - C28/35.
- Reinforced concrete for piles, pile cap and retaining wall - C32/40.
- Steel grade S500 for reinforcement.
- Fabric formwork for the concrete mattress: The fabric used in the manufacture of fabric formwork units shall be a specially woven polyamide/polypropylene fabric that is designed to avoid entrapped water voids and allow for bleeding during the concrete curing.
- 4-tonne and 8-tonne rock nets.

Materials will be obtained from recycled, secondary, or re-used origin as far as practicable within the design specifications to reduce natural resource depletion and associated emissions. For example, the rock nets and mattresses that previously were installed on site will be reused, as practically as possible, as part of the permanent works. However, where not feasible, 2-tonne rock nets and mattresses will be required.

Wastes

Wastes are anticipated to be:

- Excavated riverbed material;
- Rock bags (removed from the temporary works, which are not being reused on site); and,
- Vegetation.

Excavated riverbed material will be reused on site. This as-dug material will be placed as a layer (300mm) over the concrete scour protection measures.

Noise and vibration

The scheme is located within a largely rural area of Angus, within Finavon. The A90 is a major north-to-south carriageway within eastern Scotland, running from Edinburgh to Fraserburgh. Baseline noise levels are likely to be influenced primarily by traffic flow along the A90, with secondary sources from surrounding agricultural activities. For AADF details, please refer to the Air Quality section above.

Modelled day-evening-night (L_{den}) noise levels along the scheme range between >65 to 70dB, and night noise levels (L_{night}) for the period 23:00-07:00 range from >55 to 60dB (Scotland's Noise Map).

There are approximately 16 noise sensitive receptors (NSRs) within 300m of the scheme extents, with the closest approximately 205m south at NO 49231 57047. NSRs include residential properties and business and community facilities including a cafe and hotel, the Red Lion Inn Finavon. At the nearest receptor, L_{den} is identified at >55 to 60dB.

The works are not located within a Candidate Noise Management Area (CNMA) as defined by the Transportation Noise Action Plan 2024-2028 (Road Maps) (TNAP).

Population and human health

The scheme lies within a rural area of Angus, within Finavon, with several residential, community and business properties located within proximity to the works:

- 15 residential properties are located within 300m, the closest lies approximately 205m south at NO 49231 57047.
- The Red Lion Inn and café is located approximately 210m northwest of the Bridge.

No medical, religious, or recreational community facilities are located within 300m.

There are no Angus Council Core Paths located along the scheme extents, however, the following non-designated Walker, Cyclist, Horse-rider (WCH) routes are:

- A footway travelling along the A90 carriageway, over the Bridge and above the scheme extents.
- An underpass is located beneath the Bridge, adjacent to the River South Esk and within the scheme boundary.
- A footway located along the southbound carriageway, adjacent to the scheme extents.

No access points are directly along the bridge extents, however, local road access off the A90 is within 300m of the Bridge, including the B957 local road, providing access to residential and agricultural land. Site access, including where the site compound is established is located within agricultural land to the northwest of the Bridge. Engagement with affected landowners regarding land access and compound arrangements is ongoing. Amey have made enquiries; however, the Contractor is responsible for securing all necessary access permissions.

Two bus stops are located within 300m, approximately 210m north along the A90 north and southbound carriageways. The A90 carriageway above the scheme extents is not street-lit.

Road drainage and the water environment

Surface water

The River South Esk (ID: 5799) a Water Framework Directive (WFD)-classified watercourse flows beneath the Bridge and will be directly affected by in-channel working. It exhibits a 'Moderate' overall status under SEPA's 2024 data (SEPA Water Classification Hub. This watercourse forms part of the River South Esk SAC, with further details on this European site and regulatory requirements provided in the Biodiversity section.

Lenmo Burn (ID: 5806), also within the River South Esk catchment, is located approximately 430m south of the scheme extents and is classified with a 'Moderate' overall status under the WFD. No other classified or unclassified watercourses lie within 500m of the scheme extents.

Drainage from the A90 carriageway is conveyed through top-entry gullies.

The scheme is not located within a surface water Drinking Water Protected Area (DWPA).

Groundwater

The scheme lies within the South Esk Valley and Montrose Coastal groundwater body (ID: 150806), with a 'Good' overall condition under the SEPA's 2024 classification (SEPA Water Classification Hub).

The scheme is not located within a groundwater DWPA, however, falls within the Strathmore, Fife and Angus Nitrate Vulnerable Zone (NVZ), designated by the Scottish Government.

Underlying geology compromises a moderately productive aquifer, characterised by locally flaggy sandstones, with siltstones, mudstones, conglomerates and lavas capable of yielding moderate amounts of groundwater (GeoIndex British Geological Survey).

Flood risk

The River South Esk presents a 'High' likelihood of fluvial flooding, with SEPA's Flood Map indicating an annual probability of approximately 10% (1 in 10-year event). The surrounding floodplain and adjacent agricultural land are also identified as having a 'Medium' to 'High' likelihood of fluvial flooding, with an estimated probability of between 0.5% (1 in 200-year event) and 10% (1 in 10-year event).

The scheme does not fall within a currently designated Potentially Vulnerable Area (PVA) for the 2022-2028 cycle. However, it is located within the 2028-2034 PVA 451, Finavon, reflecting the recognised flood risk within this risk of the River South Esk.

Climate

Carbon Goals

The Climate Change (Scotland) Act 2009 Scottish Carbon Budgets Amendment Regulations 2025 sets out the statutory framework for reducing greenhouse gas (GHG) emissions in Scotland. The prior annual and interim targets have been replaced by five-year carbon budgets, which sets limits on the amount of GHGs that can be emitted in Scotland.

The proposed carbon budgets are aligned with advice from the UK Climate Change Committee (CCC) and calculated in accordance with the 2009 Act. The 2025 Regulations define the baseline years for emissions reductions as 1990 for greenhouse gases including carbon dioxide, methane, and nitrous oxide, and 1995 for others such as hydrofluorocarbons, perfluorocarbons, and sulphur hexafluoride (as set out in Section 11 of the Act). The budgets are as follows:

- 2026 - 2030: Average emissions to be 50% lower than baseline.
- 2031 - 2035: Average emissions to be 60% lower than baseline.
- 2036 - 2040: Average emissions to be 80% lower than baseline
- 2041 - 2045: Average emissions to be 94% lower than baseline

These budgets are legally binding and will be supported by a new Climate Change Plan, which will outline the specific policies and actions required to meet the targets.

Transport Scotland remains 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, representing for 37% nationwide, and Transport Scotland are committed to reducing their emissions by 50% by 2030. To support this, Transport Scotland's Fourth Carbon Management Plan is committed to reaching Net Zero emissions across corporate activities by 2027. This will contribute to achieving 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 NE NMC network by 2028. Amey have set carbon goals for the NE 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 – North East.

Policies and Plans

This Record of Determination (RoD) has been undertaken in accordance with Roads (Scotland) Act 1984 (Environmental Impact Assessment) Regulations 2017 (RSA EIA Regulations) along with Transport Scotland's Environmental Impact Assessment Guidance (Guidance – Environmental Impact Assessments for road projects (transport.gov.scot)). Relevant guidance, policies and plans accompanied with the Design Manual for Roads and Bridges (Design Manual for Roads and Bridges (DMRB)) LA 101 and LA 104 were used to form this assessment.

Description of main environmental impacts and proposed mitigation

Air quality

There is the potential for temporary increases in levels of deposited dust and surface soiling due to factors including earthworks for site preparation and during the construction period. This may impact sensitive receptors such as ecological (woodland, watercourses) and human receptors (residential and non-residential receptors) up to 200m from the scheme. Construction activities such as piling, earthworks, excavating and other works in dry working areas will contribute to this impact.

Works resulting in bank and soil erosion (combined with construction activities including excavation and piling) have the potential to enhance dust emissions enhanced by factors including dry weather and wind. Plant and vehicles (site vehicles, piling rigs etc.) will emit pollutants, with such emissions also having the potential to impact local air quality.

Any temporary TM or lane closures required during the scheme may result in an increase in associated vehicle emissions through idling vehicles and increased congestion.

Please see section Road Drainage and the Water Environment for dust-related impacts on the water environment.

No likely significant effects are anticipated, with all air quality effects localised, temporary and managed through best practice measures. Following completion of the works, there will be no changes to traffic flow characteristics (composition, speed or flows).

Mitigation measures will follow best practice guidance from the Institute of Air Quality Management (IAQM), from the 'assessment of dust from demolition and construction (January 2024)' including:

- Materials that have a potential to produce dust will be removed from site as soon as possible, unless being re-used on site. Where materials are to be re-used on site, such as excavated riverbed material this will be covered to prevent wind whipping.
- Drop heights from conveyors and other loading or handling equipment will be minimised.

- Vehicles entering and leaving the work area will be covered to prevent escape of materials during transport.
- Equipment will be readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.

Further measures to minimise emissions will also be followed, such as:

- All plant and fuel-requiring equipment utilised during construction will be well maintained to minimise emissions.
- When not in use, plant and vehicles will be switched off and there will be no idling vehicles.
- Green driving techniques will be adopted, and effective route preparation and planning undertaken prior to works.

No significant air quality effects are anticipated. Therefore, in accordance with DMRB Guidance document LA 105: Air quality no further assessment is required for the works.

Cultural heritage

There are no statutory cultural heritage assets located within the scheme extents, with four Category B Listed Buildings are located within 300m, the closest situated 220m from the works. As the works are highly localised and confined to the area beneath the Bridge and adjacent access field, there is no potential for direct physical impacts on any identified designated cultural heritage features. Additionally, the surrounding topography and existing vegetation provide natural visual screening meaning no indirect impacts to setting or the wider zone of visual influence are anticipated.

There remains a low potential for the discovery of previously unrecorded archaeological remains during construction, due to the nature of the works, with excavations within the riverbed and previously undisturbed areas.

The Bridge and access field are listed on HER and NRHE databases, however, do not have statutory protection. As such, the overall risk of significant cultural heritage impacts is considered low.

The following mitigation measures will be in place:

- Should the works encounter any archaeological or heritage features, the Amey Environment Team will be notified.

- Plant and machinery will be stored within the designated site compound and storage areas when not in use.

No significant effects are predicted on cultural heritage. Therefore, in accordance with DMRB Guidance document LA 106: Cultural heritage assessment, no further assessment is required.

Landscape and visual effects

The works will introduce temporary construction activity into the local landscape, including plant, machinery and a site compound. This will result in a short-term adverse impact on the local landscape character and visual amenity. However, impacts are expected to be limited as the works are located beneath the Bridge, within the channel, banks, and temporary works in adjacent land. Visual receptors are only transient, and as such no significant temporary visual effects are anticipated.

Minor vegetation clearance will be required for access to the works area and riverbanks; however, this will not alter views to or from the Bridge or affect the wider landscape character.

Operationally, there will be a visual change, from the installation of scour protection measures including retaining walls and rock nets. These features are expected to integrate naturally, with reinstated vegetation and natural regrowth helping to enhance the visual amenity over time. The completed works will not alter the local LCT and given the confined nature of the works beneath the structure, no significant operational landscape or visual impacts are expected.

The following mitigation measures will be in place:

- Throughout all stages of the works, the site will be kept clean and tidy, with materials, equipment, plant and wastes appropriately stored to minimise any potential impacts upon landscape and visual effects.
- Works will avoid encroaching on land and areas where work is not required or not permitted. This includes general works, storage of equipment, plant and parking.
- Upon completion of the works, the land where the site compound is located will be returned to its previous state and bank used for the ingress/egress ramp will be reinstated, such as through the use of suitable grass seed mix and local species.

No significant effects are anticipated upon the landscape and visual effects. Therefore, in accordance with DMRB Guidance document LA 107: Landscape and visual effects no further assessment is required.

Biodiversity

Construction activities have the potential to have a temporary adverse impact on biodiversity primarily through disturbance associated with construction noise (piling and excavation) and prolonged three-month construction presence. These activities may temporarily disturb protected species within the wider area. To minimise these risks to terrestrial species, the following mitigation will be implemented:

- General construction safeguards will be implemented to protect mammals that may be using the site.
- Artificial lighting will be minimised as the works will occur during daytime working hours in summer. If required, it will be directional and task-specific to avoid disturbance.
- Pre-construction bird surveys will be undertaken prior to the works. If nesting birds are identified within the works area, appropriate species-specific mitigation will be implemented, such as protection of any active nests.

Giant hogweed and Himalayan balsam are recorded within and upstream of the works area. In the absence of mitigation, construction activities could lead to the accidental spreading of INNS. An INNS Method Statement has been prepared to manage this risk, where works within 7m of the identified INNS can't be avoided. This details biosecurity measures and general construction safeguards to mitigate against the disturbance and spread of such species such as:

- 'Check, Clean, Dry' protocol prior and after any in river works.
- An Environmental Briefing on Invasive Plants and Giant Hogweed will be delivered to site operatives prior to the works commencing.
- If any member of the site team identifies previously unrecorded stand of INNS or protected species, it will be reported to the Ecological Clerk of Works (ECoW) immediately.

Works within the River South Esk SAC have potential to impact aquatic species through disturbance, changes in flow conditions and potential pollution events. To minimise the risk:

- Ongoing engagement with the Esk Rivers and Fisheries Trust and Esk District Salmon Fishery Board has informed the recommended in-water working window (1st June to 30th September) to avoid the sensitive period (1st October to 28th February inclusive).
- Works will be undertaken within a dry working area, with flow maintained in the adjacent channel to ensure upstream and downstream fish migration.

- A fish rescue will be undertaken by the Esk District Salmon Fishery Board prior to dewatering for the cofferdam installation.
- The appointed contractor will implement a Pollution Prevention Plan, including silt control, spill response measures and appropriate storage of fuels and chemicals.
- Appropriate protection of the pump inlet to avoid drawing in aquatic life and other debris will be in place during dewatering.

Under the HRA process, a Stage 1 Screening and Stage 2 Statement to Inform Appropriate Assessment have been completed for the scheme and its impact on the integrity of River South Esk SAC, in line with NatureScot consultation. The HRA concluded that the works have potential for Likely Significant Effects (LSE) on the qualifying features of the SAC, however with mitigations applied, the overall integrity of the River South Esk SAC and conservation status will be maintained.

An ECoW, appointed by the Contractor and independently of Amey will be present on site during the works to ensure compliance with working methodologies and authorisations and licences. An Amey Ecologist will also undertake ad-hoc site visits basis throughout the construction period to provide additional ecological oversight.

With mitigation measures in place, no significant effects are precited for biodiversity. Therefore, in accordance with DMRB Guidance document LA 108: Biodiversity no further assessment is required.

Geology and soils

Construction activities have the potential to result in localised disturbance to soils and superficial deposits, through excavation of the riverbed and banks and piling works. These activities will temporarily expose the riverbed and soil material, before scour protection measures are installed.

There is a risk of sediment mobilisation during excavation and riverbed preparation, which could impact downstream water quality once normal channel flow is returned to normal. In addition, there is potential for pollution and contamination of soils and from accidental spills, or leaks of fuel from plant and machinery during construction.

Excavation and piling activities may disturb soils along the riverbank, potentially leading to localised soil erosion. Temporary disturbance to the topsoil may reduce soil structure and fertility until reinstatement is complete. In addition, removal of the retaining wall is likely to generate concrete dust, which may cause minor short-term adverse impacts on surrounding soils.

Site access, and the compound will be located within the northwest field, with the prolonged (approximately three-month) presence of the compound and storage

areas having potential to compact soil within the grassed area. However, the area already contains matting from previous works (2023) and full reinstatement will be undertaken post construction.

The following mitigation measures will be implemented:

- The appointed contractor will implement a Pollution Prevention Plan, as reviewed by Amey, including silt control, spill response measures and appropriate storage of fuels and chemicals.
- Appropriate handling and storage of soils and handling material, with stockpiles located at least 10m from the River South Esk.
- Plant and machinery will be restricted to designated access routes and working areas to minimise unnecessary ground disturbance.
- Appropriate reinstatement of the landscape, including site compound and storage areas will be undertaken post-construction.
- The local weather forecast will be monitored throughout the construction period, with construction activities temporarily halting in the event of high rainfall or wind.

Further mitigation measures in relation to pollution prevention and control measures are detailed within the Road Drainage and the Water Environment section below.

With mitigation measures in place there is no significant effect anticipated on geology and soils. Therefore, in accordance with DMRB Guidance document LA 109: Geology and soils no further assessment is required.

Material assets and waste

Construction of the scour repair works will require the use of materials such as concrete, steel, rock nets, rock mattress and geotextiles. Plant, machinery and vehicles will be required during the construction period, with fuel and oil required. There is potential for resource depletion through the use of primary materials such as aggregates, and transportation of other materials required.

Excavation of the river bed will produce waste material, where it is unsuitable to be reused on site. This material will require off-site disposal at SEPA-authorised facilities. Where materials are not reused throughout the scheme or recycled locally there is potential to increase waste to landfill and contribute to additional pressure on landfill sites, however, the volume of waste produced on site is not anticipated to be significant to contribute to landfill pressure.

Where feasible, the existing rock bags and mattresses from temporary works will be re-used on site to aid with the scour protection designs, thus reducing the quantity of new materials required. Other 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.

The scheme will likely require future maintenance, which may result in the generation of waste and requirement for materials. However, it is anticipated that minimal maintenance will be required, with the scheme designed to a high specification with specialist scour mitigation products with a long design life.

A Site Waste Management Plan (SWMP) will be prepared as the scheme value exceeds £350,000. This will detail how resource use and waste arising from the works will be managed throughout the scheme. This will help control and reduce the amount of waste produced, resulting in less landfilled waste. Furthermore, waste materials will primarily be recycled at a licenced facility, thereby reducing the amount sent to landfill and promoting circular economy practices. All waste will be transported by suitable licenced contractor and have a valid Waste Transfer Note (WTN).

Sampling and testing of materials will be undertaken in accordance with the requirements for Waste Acceptance Criteria (WAC) to ensure compliance with the Criteria and Procedures for the Acceptance of Waste at Landfills (Scotland) Direction 2005. WAC testing helps determine the suitability of the excavated material for reuse or disposal, ensuring compliance with environmental regulations and preventing potential contamination.

The following mitigation measures will be implemented:

- Waste will be stored in suitable, covered containers, and segregated at the source where possible.
- Waste will be taken off site in a timely manner and will not be allowed to accumulate in large quantities.
- The waste hierarchy (Reduce, Reuse, Recycle and Dispose) will be employed throughout the construction works.
- Good materials management methods (e.g., ‘just-in-time’ delivery) will be used to minimise and prevent the disposal of unused materials.
- Containment measures will be in place to prevent debris or pollutants from entering the surrounding environment, such as netting.
- Operators will have a duty of care ensure the safe handling, storage, and transfer of waste. This includes maintaining proper documentation and ensuring that waste is only transferred to licensed carriers.
- The waste hierarchy (Reduce, Reuse, Recycle and Dispose) will be employed throughout the construction works.

With best practice mitigation measures in place, no significant effects are predicted for materials and wastes. Therefore, in accordance with DMRB Guidance document LA 110: Material assets and waste no further assessment is required.

Noise and vibration

Construction activities, including excavation, piling and the movement of plant and machinery will generate temporary increases in noise and vibration. Plant and machinery such as excavators, piling rigs, soil compactors and dumpers will be used, with soil compactors and piling rigs typically producing the highest vibration levels. These activities have the potential to cause short-term disturbance to NSRs.

The nearest NSR is located over 200m from the works. At this distance, and given the screening effect of the bridge structure, carriageway, topography and vegetation, noise and vibration levels are not likely to exceed baseline noise levels at the surrounding receptors. All works will be carried out during day-time working hours, further reducing the potential for disturbance.

TM may also contribute to short-term increases in traffic noise, particularly during peak periods if congestion occurs.

Given the distance to receptors, localised and temporary nature of the works, no significant noise and vibration impacts are anticipated.

Mitigation measures during the construction period will follow Best Practicable Means as outlined in British Standard (BS) 5228:2009+A1:2014. The standard provides specific detail on suitable measures for noise control in respect to construction operations; for example:

- Quiet working methods will be employed, including use of the most suitable plant, reasonable hours of working for noisy operations, and economy and speed of operations.
- Effects from noise will 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.
- Operations will be sequenced to minimise simultaneous use of high-noise equipment, such as piling rigs, and a ‘soft start’ to works will be in place, whereby plant, machinery and vehicles are started sequentially as opposed to simultaneously.
- Plant and machinery will be regularly maintained to prevent excessive noise from worn parts or inefficient operation.

The following further mitigation measures related to noise and vibration will be in place:

- The delivery of Amey's Noise and Vibration environmental briefing to site operatives prior to works.
- Pre-notification of the works through appropriate signage, and social media to inform local residents and road users of the upcoming works.

No adverse operational noise or vibration impacts are anticipated. The scour repair works are confined beneath the Bridge, and will not alter the traffic speed, flows or composition of the A90 carriageway, and ambient noise levels are expected to return to pre-construction conditions.

With best practice mitigation measures in place, no significant effects on noise and vibration are predicted. Therefore, in accordance with DMRB Guidance document LA 111: Noise and vibration no further assessment is required.

Population and human health

During construction, temporary impacts may arise from increased noise, vibration and construction traffic, as well as short-term disruption to WCH routes and agricultural land. Temporary land take will be required for access to the site from adjacent farmers' fields, with contact details of the affected landowners supplied to the Contractor prior to commencement of the works. Amey will make initial enquiries for access, however, it is the Contractor's responsibility to obtain access permissions, where required.

The contraflow system is likely to temporarily impact the bus stops located north of the scheme extents, and they will likely be temporarily closed during the works, however, alternative provisions will be implemented, with no permanent change to access or provision post-construction.

Human health determinants such as noise, and air quality will likely experience temporary increases, however, due to the nature and scale of the works no discernible health impact is expected.

The following mitigation measures will be implemented:

- Where WCH routes are affected by the works, alternative provisions or clearly signposted alternative routes will be provided.
- Due to the prolonged nature of the works (three-months), the works, including TM arrangements and programming will be advertised in advance through signage and online communication release.

- Access and egress for local residents, landowners and agricultural operations will be maintained throughout the construction period.
- Discussions with local transport operations will be undertaken where bus stop alterations are required.

Please see the Landscape and Visual Effects section above for an assessment of the visual impacts to visual receptors.

With best practice mitigation measures in place, no significant effects on population and human health are anticipated. Therefore, in accordance with DMRB Guidance document LA 112: Population and human health, no further assessment is required.

Road drainage and the water environment

Construction works have the potential for temporary adverse impacts on the water environment, particularly with works to occur within the River South Esk. Silt pollution caused by working in the water environment will be minimised or prevented by keeping water out of the working area using appropriate isolation techniques, through the use of a coffer dam. In addition, appropriate pump rates will be used to avoid disturbance of the river bed.

Pollution incidents, such as accidental spills of fuels, oils, concrete washout or mobilisation of sediments could directly or indirectly impact the River South Esk and its designated features.

The scheme is located within an NVZ; however, works do not require the use of nitrate-rich materials and is not expected to pose a risk to nitrate pollution. Site controls will be in place, including the secure storage of materials, wastes, chemicals and soils to prevent runoff from the site compound and minimise the risk of such materials entering surface or groundwater.

Exposure of the riverbed within the dry working area may result in localised sediment disturbance during activities such as removal of rock bags, excavation and regrading. When the flow is reintroduced upon completion of the works, there is potential for sediment remobilisation which could temporarily affect water quality. The works will be undertaken in a phased programme, limiting the extent of riverbed exposure at any one time and reducing the potential disturbance during construction.

The installation of cofferdams will temporarily divert and constrict flow, increasing velocities within the remaining open channel. Hydraulic modelling undertaken by Amey's Flooding and Water Team modelled the expected flow velocities during the temporary works, with the potential for increased scour and erosion during the construction period. To mitigate this, temporary scour protection will be installed to

stabilise exposed areas, minimise steps in the river and prevent scour during construction.

The Contractor will be responsible for design of the temporary works however; Amey are operating as the Principal Contractor and Temporary Works Coordinator and therefore will review all information relating to the temporary works designs to ensure they are suitable for site and flow conditions.

From the 1st of November 2025, SEPA regulates water environment activities under the Environmental Authorisations (Scotland) Regulations 2018 (EASR). At the time the application for the works was submitted (October 2025), engineering works in the water environment were authorised under the Controlled activities (Scotland) Regulations 2011. As such, the authorisation will be transferred by SEPA from a CAR licence to an EASR permit.

The following mitigation measures will be implemented:

- A copy of the granted EASR permit, and its supporting application documents will be kept on site and all conditions and measures stated within the authorisation will be adhered to.
- The appointed contractor will implement a Pollution Prevention Plan, including silt control, spill response measures and appropriate storage of fuels and chemicals.
- Silt mitigation measures will be implemented, including:
  - Cleaning rock bags/nets prior to installation.
  - Installing rock bags/nets with limited drop heights to minimise sediment disturbance.
  - Any site compounds will have appropriate pollution prevention measures, such as silt netting.
- Spill kits will be available at all times on site, with all operatives trained in their use. Regular inspections of the spill kits will be undertaken to ensure they are fit for use.
- All debris which has the potential to be suspended in surface water and wash into the local water environment will be cleaned from the site throughout and following the works.
- Operatives will be aware of the environmental risks and sensitivities associated with the scheme, including:
  - European designated status, and senility of the River South Esk SAC.
  - INNS biosecurity measures.
  - Pollution prevention measures.
- Regular environmental briefings will be delivered on water pollution prevention.

- All operatives will be aware of SEPA's Guidance for Pollution Prevention (GPP) documents, including GPP 1, 5, 6, 8, 13, 21, 22 and 26.
- The Amey control room will be contacted if any pollution incidences occur (24 hours, 7 days a week), and in the event of a pollution incident SEPA will be notified without delay.
- Where possible, biodegradable lubricant and biodegradable hydraulic oil in plant will be used.
- Prior to cofferdam removal and rewatering, the dry working area will be fully cleared of materials, debris, plant and equipment and will be checked for any pollution sources.
- Weather conditions will be monitored throughout the works, with activities halted during adverse of flood events. The Contractor will maintain a contingency plan in if damage to the dry working area occurs.
- Concrete mixing and washing areas will be located within a designated, impermeable area within the site compound, and at least 10m from the River South Esk. Where a concrete pump must be positioned within 10m of the river, for example for concrete mattress installation, this will only occur after dewatering and the pump will be placed on hardstanding to prevent ground contamination.

With adherence to SEPA's GPPs, EASR permit conditions and the above mitigation measures, significant effects on road drainage and the water environment are not anticipated. In accordance with DMRB Guidance document LA 113: Road drainage and the water environment no further assessment is required.

Climate

Construction activities associated with the proposed works have the potential to generate greenhouse gases (GHGs) through the use of construction plant, vehicles and machinery, transportation of materials and wastes to and from site, and from embodied carbon within construction materials.

Minor, temporary air quality impacts may also arise from vehicle movements and machinery exhaust emissions. However, given the nature of the scheme, the volume of materials required to be imported on site is not significant. Where possible, existing materials such as suitable rock bags will be reused on site, reducing the need for new materials and associated emissions.

The River South Esk catchment is located within a future Potentially Vulnerable Area, where the highest flood risk is projected to occur during the 2028-2034 cycle. This reflects the increasing likelihood of more and intense flood events within the catchment attributed to climate change. The proposed scour protection works will enhance the long-term resilience of the Bridge by reducing vulnerability to future high-flow events, erosion and scour. The scheme therefore supports the continued

safe and reliable operation of the asset under future climate scenarios. This aligns with Transport Scotland's Approach to Climate Change Adaption & Resilience, contributing to the wider objective of ensuring that critical infrastructure can respond to, withstand and recover from weather-related impacts.

The following mitigation measures will be in place:

- Where possible, materials and suppliers will be sourced locally to reduce transport-associated emissions.
- Where waste is to be disposed of, this will be disposed at local waste management facilities where possible.
- Plant, machinery and vehicles will not be left idling when not in use.
- Further actions and considerations for this scheme are detailed in the above Material Assets and Waste and Air Quality section.

With best practice mitigation measures in place, no significant effects are anticipated on Climate. Therefore, in accordance with DMRB Guidance document LA 114: Climate, no further assessment is required.

Vulnerability of the project to risks

The River South Esk at the scheme location falls within an area at a high risk of annual fluvial flooding and is located within a future PVA. These conditions reinforce the need for the proposed scour protection works, which are required to prevent further scour and reduce the associated risk to the A90 carriageway, a key transport route.

Construction activities will be programmed as far as reasonably practicable to avoid periods of adverse weather. With the works programmed for summer months, the flows are likely to be lower than other times of the year. Weather forecasts and river conditions will be monitored throughout the works.

Assessment of cumulative effects

During construction, the works may result in minor, temporary disturbances such as short-term, changes to noise, vibration and air quality. However, given the limited scale, duration and localised nature of the scheme, no significant environmental impacts are anticipated.

A review of Angus Council's Planning Portal has not identified any extant planning permissions that will result in cumulative effects. Similarly, the Scottish Road Works

Commissioner's Interactive Map has not identified any works on the A90 or surrounding road network that would result in cumulative effects.

At present, Amey's programme of works for the North East has not identified any other schemes that will be undertaken concurrently or in conflict with the proposed works at Finavon. All works are programmed in line with appropriate guidance and contractual requirements. with consideration given to existing and future planned activities.

The scheme is not anticipated to have significant environmental effects having regard to its nature, scale and location. The residual impacts arising from the works can be mitigated and thus no cumulative or in-combination effects are anticipated.

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 works.

Under the HRA process, a Stage 1 Screening and Stage 2 Statement to Inform Appropriate Assessment have been completed for the scheme and its impact on the integrity of River South Esk SAC, in line with NatureScot consultation. The HRA concluded that the works have potential for LSE on the qualifying features of the SAC, however, the works will not result in any adverse effects on site integrity with appropriate mitigation measures implemented.

Consultation has also been undertaken with fisheries stakeholders, including the local District Salmon Fishery Board and Fisheries Trust. Discussions have focused on regulatory requirements, working windows, and fish rescue requirements, which has been incorporated into the construction programme and ecological requirements.

The works require a SEPA EASR permit for engineering activities within the water environment, with the application submitted in October 2025. Engagement with SEPA has been ongoing throughout the design and authorisation determination period.

Preliminary Ecological Walkovers and dedicated protected species surveys have been undertaken throughout the design stage, and an INNS Method Statement has been prepared by Amey's Ecology Team to ensure biosecurity measures are appropriately managed.

An Environmental Scoping Assessment and consultation with Angus Council has been undertaken in May 2026 by Amey's Environmental Team.

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 within the River South Esk SAC 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

The overall footprint of the works is small and localised, occupying less than 1ha within the area beneath the Bridge. The risk of major accidents or disasters is low, and by undertaking the works the risk of further scour and structural accidents or structural failure of the Bridge and A90 carriageway will be reduced. No environmental impacts are anticipated during the operational phase.

Location of the scheme

The scheme is located within the River South Esk SAC, with an HRA undertaken to assess potential effects on the qualifying features of the European site. The HRA concluded that the works have potential for LSE on the qualifying features of the SAC, however, the works will not result in any adverse effects on site integrity.

The works do not lie within any areas designated for historical, cultural or landscape significance. The surrounding area is rural, with residential receptors set back from the scheme and screened by vegetation and topography.

Characteristics of potential impacts of the scheme

Potential impacts during construction will be controlled through appropriate mitigation measures. These include appropriate removal and disposal of waste, containment of the working area to prevent debris or pollutants entering the environment and phased working, with cofferdam sequencing to maintain river flow and fish passage throughout the construction period. A fish rescue will be undertaken prior to in-channel works where dewatering for the cofferdam temporary works is required, ensuring protection of species. Additionally, an ECoW will be present to oversee environmental compliance, pollution prevention and adherence to mitigation measures. Measures to prevent the spread of INNS will be implemented, as detailed within a Method Statement. Additionally, pollution prevention measures will be implemented within a Pollution Prevention Plan, as prepared by the appointed contractor.

References of supporting documentation

- An Environmental Screening Assessment completed in 2026.
- An INNS Method Statement completed in 2025.
- An HRA completed in 2026.
- Preliminary Ecological Walkovers, and associated reporting undertaken in 2024 and 2025.
- A Hydraulic Modelling Report completed in 2025.

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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