



A90/A937 Laurencekirk Junction Improvement Scheme
Environmental Impact Assessment Report
Volume 1 - Non-Technical Summary
December 2019



Hill of Garvock
The Hill of Garvock is a prominent landmark in the area, offering panoramic views of the surrounding landscape. It is a popular spot for walking and enjoying the fresh air. The hill is situated on the edge of the town, providing a unique perspective of the urban environment and the natural surroundings. The sign also includes a map showing the location of the hill and surrounding areas, and a list of nearby points of interest.

Smeco

PREFACE

This document is a Non-Technical Summary of the Environment Impact Assessment Report (EIAR) for the A90/A937 Laurencekirk Junction Improvement Scheme. The project is proposed by Transport Scotland, an agency of the Scottish Government.

Copies of the EIAR and draft Road Orders are available for inspection during normal office hours at the following locations.

- Transport Scotland, Buchanan House, 58 Port Dundas Road, Glasgow, G4 0HF;
- Aberdeenshire Council Headquarters, Woodhill House, Westburn Road, Aberdeen, AB16 5GB; and
- Mearns Community Campus Library, Mearns Community Campus, Aberdeen Road, Laurencekirk, AB30 1ZJ.

The documents may be viewed online on the Transport Scotland website:

<https://www.transport.gov.scot/projects/a90a937-laurencekirk-junction-improvement-scheme/>

Any person wishing to express an opinion on the EIAR should write to Transport Scotland at the address above. The statutory period to make representations following the publication of the EIAR and draft Road Orders will end on 14 February 2020.

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INTRODUCTION



Background to the scheme

The A90 is the main strategic link between Dundee and Aberdeen; the settlement of Laurencekirk is situated approximately 40km south of Aberdeen and is located to the north west of the A90.

Need for the scheme

The A90 at-grade junctions at Laurencekirk have historical issues relating to safety and delay, and the junctions have been subject to a range of measures aimed at reducing accident frequency and severity. Safety improvements were undertaken in 2005 on the A90 on the approaches to the south junction with the A937, which included the introduction of a 50mph speed limit and the installation of speed cameras.

A long running campaign, led by the local community, resulted in a petition (PE1236) to the Scottish Government being lodged in February 2009 seeking the construction of a grade separated junction at the A90/A937 southern junction. The Scottish Parliament Public Petitions Committee has considered this petition on several occasions and formally closed the petition in April 2017.

In January 2016, the Scottish Government announced £24 million for the design and

construction of a new grade-separated junction at Laurencekirk as part of a package of additional investment alongside the Aberdeen City Region Deal. In September 2016 Amey were commissioned by Transport Scotland to undertake the design and assessment for the Laurencekirk upgrade scheme.

Scheme Objectives

The scheme was designed to achieve the following objectives in line with Government policy and Transport Planning Objectives:

- To achieve a reduction in accidents at the A90 Laurencekirk junctions as a result of traffic turning or crossing at the junctions.
- To achieve an improvement in network efficiency experienced by traffic travelling on the A90.
- Reduce delays accessing and crossing the A90 at the A937 south junction.
- Support the potential for sustainable economic growth in the south of Aberdeenshire and the north of Angus.
- To enable safe crossing of the A90 by active travel users.
- Mitigate adverse impacts of the scheme on the environment and work with Aberdeenshire Council to mitigate impacts on the local community.

Scheme Location



Environmental Impact Assessment

The requirement for an Environmental Impact Assessment (EIA) is determined by the EIA (Scotland) Regulations 1999, as amended by the EIA (Scotland) Amendment Regulations 2006 and implemented for road schemes in The Roads (Scotland) Act 1984 (Environmental Impact Assessment) Regulations 2017. The updated Regulations in 2017 introduced new environmental topics to be considered within EIA, namely, climate change, population and human health and major accidents or disasters.

The purpose of an Environmental Impact Assessment (EIA) is to ensure that the environmental effects of a proposed scheme are fully considered and to propose mitigation to reduce environmental impacts. The findings for the environmental impact assessment are presented within the Environmental Impact Assessment Report (EIAR).

The EIAR is presented in four volumes with this standalone Non-Technical Summary being Volume 1. Volume 2 is the Main Text, Volume 3 presents the Figures and Volume 4 is a compilation of the Technical Appendices associated with relevant chapters of the EIAR.

The general methodology and guidance for the EIA for this scheme is set out in the Design Manual for Roads and Bridges (DMRB), with Volume 11 Environmental Assessment providing relevant guidance on the topics to be contained within the assessment. EIA provides a process whereby environmental constraints and impacts are incorporated into the iterative design of a scheme, to reduce impacts and identify mitigation measures. Information to inform the assessment was derived from a combination of desk top study, consultation with statutory and non-statutory bodies and scheme specific surveys.

In line with the DMRB the following environmental topics were assessed:

- Air Quality;
- Cultural Heritage;
- Landscape and Visual;
- Nature Conservation and Biodiversity;
- Noise and Vibration;
- Road Drainage and the Water Environment;
- People and Communities;
- Geology and Soils;
- Materials.

Climate change impacts, relating to greenhouse gases and flood risk are considered within air quality and road drainage and the water environment chapters. Given that the scheme is for junction improvements in a rural environment, on the outskirts of Laurencekirk the requirement for an assessment of the impact of the scheme in relation to major accidents or disasters is not considered to result in significant effects or be relevant to the scheme. This topic was therefore scoped out of the assessment.

The significance of environmental effects is determined based on the magnitude of impact and the environmental value or sensitivity of the receptor.

Environmental impacts are assessed taking into account design mitigation. For this scheme, this includes the incorporation of sustainable drainage systems, oil interceptors in gullies and landscape design to minimise visual impacts on local receptors.

Looking south onto existing A90/A937 southern junction



Consultation

Since 2016, consultation has been ongoing with a wide range of stakeholders including:

- Aberdeenshire Council;
- Auchenblae Heritage Society;
- Historic Environment Scotland; and
- Scottish Environmental Protection Agency.

The project team has worked closely with the key stakeholders including landowners to develop a scheme that aims to reduce the overall environmental effects, by avoiding sensitive features and through careful design. Stakeholder feedback was reviewed by the project team and incorporated into the assessment and design process where appropriate.

Alternatives considered

The Stage 2 EIA considered 13 options to improve safety and reduce delay at the junctions in Laurencekirk. Within the assessment, each option was ranked against a wide range of environmental criteria with Option 1A emerging as preferred in environmental terms, ranking first in five of nine environmental criteria considered. This option was a grade-separated junction positioned at the location of the existing junction of the A937 single carriageway with the A90 dual-carriageway to the south-west of Laurencekirk.

Consultation Event



Consultation Display



At Stage 3 this preferred option was further developed as part of an iterative design process between the design team, consultees and Transport Scotland to provide a scheme that meets the necessary objectives and minimises environmental impacts. The development of the scheme included incorporation of the access track and non-motorised route from Johnston Lodge and inclusion of a Sustainable Drainage System (SuDS).

GENERAL DESCRIPTION



The existing environment

Farmland around Laurencekirk – west of the A90



The area surrounding Laurencekirk and the scheme is predominantly rural with properties generally set back from the road, although there are several residential properties which access directly on to the A90.

The surrounding area consists of high quality arable agricultural land and earthworks associated with the existing road network. The topography over the area is gently rolling lowland farmland.

There are pockets of mixed woodland and trees around farms and around Laurencekirk. The largest and most significant area is the Community Woodland Denlethen Wood, which is located approximately 400m to the north west of the proposed scheme, as shown on **NTS Figure 1**.

The Edinburgh to Aberdeen (railway) Line passes through the study area. The A90 crosses the railway to the south of the scheme.

Denlethen Wood



Gaugers Burn



Description of the scheme

Indicative Visualisation 1



The A90/A937 Laurencekirk Junction Improvement Scheme comprises a new grade-separated junction located at the existing at-grade south junction into Laurencekirk from the A90. The scheme design is shown in **NTS Figure 1**.

The grade-separated junction is a full-diamond layout with dumb-bell roundabouts. The layout comprises local realignment of the A937 carriageway on a bridge over the A90 with four slip-roads to the A90 from two roundabouts on either side of the overbridge.

The A937 realignment will tie into the existing road near Mains of Newton Farm on the southbound side of the A90 and tie into the existing road at the Laurencekirk 30mph limit on the northbound side of the A90. The A937 carriageway will be 7.3m wide with 1m hardstrips and 2.5m wide verges.

A 3m wide shared-use footpath/cycletrack will run along one side of the A937 (separated from it by a 2m wide strip) from tie-in to tie-in including over the bridge. The slip road carriageways will be circa 7.7m or 9.3m wide depending on whether they are one or two lanes with 2 to 2.5m verges. A smaller local access road will connect to the roundabout on the southbound side of the A90 to the existing access road for the Johnston Lodge property.

An alternative means of access is provided for Johnston Lodge which also comprises a shared use Non-Motorised User (NMU) track.

The construction programme for assessment purposes, is assumed to start in 2022 and anticipated to last for approximately 12 - 15 months, this will allow the construction of the structure, traffic management and phasing for the embankments and road construction.

Indicative Visualisation 2



Indicative Visualisation 3



Indicative Visualisation 4



ENVIRONMENTAL ASSESSMENT



Air Quality

The proposed scheme is located within Aberdeenshire and enjoys good air quality with no exceedances of the national air quality objectives monitored within the administrative area. Therefore, the Council do not currently have any Air Quality Monitoring Areas declared within their administrative area. No representative local air quality monitoring is currently undertaken by the Council.

NO₂ diffusion tube monitoring, lasting over 10 months, was undertaken at seven representative locations with NO₂ concentrations ranging from 7.6 to 27.5 µg/m³.

Background air quality data for NO_x, NO₂ and PM₁₀ was obtained from Defra and the Scottish Government national background mapping which showed that air quality in the area is generally very good, with background concentrations no more than 70% of the Air Quality Strategy objective at their highest (PM₁₀).

Cultural Heritage

There are 2 no. Listed Buildings within the study area and 4 no. undesignated buildings and structures in the ACAS SMR. There are no World Heritage Sites, Scheduled Monuments, Gardens and Designed Landscapes or Conservation Areas within the study area.

West Lodge entrance



The predicted impact on local air quality was found to be negligible at worst-case receptor locations and the regional air quality and greenhouse gas effects are insignificant. Standard mitigation has been recommended to reduce dust impacts during construction.

No exceedance of Air Quality Standards was predicted at sensitive receptors. Therefore, considering the recommended mitigation measures, the calculated impact on local air quality at key receptors were all found to be negligible. The impact on local air quality is considered to be not significant.

When compared to the carbon budget level, the cumulative difference (between do-minimum and do-something) in tonnes of carbon dioxide equivalent (tCO₂e) was less than 0.0002%, therefore, it was determined that greenhouse gas effects are insignificant.

Some recorded archaeological assets were identified;

- 8 no. sites recorded as archaeological remains or archaeological investigations
- findspots of 4 no. unstratified Roman coins, including a denarius of Otho, an Alexandrian bronze of Aurelian, and an Alexandrian bronze of Diocletian.

There may be a potential early hunting lodge in Garvock Parish, 2 no. respective holy wells known only as Laurencekirk and St Medan's Well, and the possible site of a manor house at the Mains of Newton. There is the potential for unrecorded features and artefacts to be present within the scheme footprint which consequently may be disturbed, damaged or destroyed by the scheme.

The assessment concluded that 1 no. Category C Listed Building and 2 no. areas of historic landscapes could potentially experience a slight adverse effect during construction through tree and vegetation removal and construction works and plant. However, these impacts were determined to be mainly temporary in nature.

There is significant potential for unknown subsurface archaeological remains to survive

within the footprint of the scheme, particularly in the agricultural fields that comprise much of the rural setting within which the offline elements of the scheme are situated. For that reason, it is recommended that a written scheme of investigation (WSI) is produced to propose mitigation measures, including advanced trial

trenching in agreement with Aberdeenshire Council Archaeology Service (ACAS).

The operational assessment found the proposed scheme to have neutral or negligible effects on all Cultural Heritage assets and is therefore considered not significant.

Landscape and Visual

Hill of Garvock Viewpoint



Minor Road Viewpoint



There are no designated landscapes of national, regional or local landscape importance within the 2km study area. There are no Conservation Areas within the study area. There are areas of woodland at Gaugers Burn that may be affected by the proposed scheme through vegetation clearance.

The proposed scheme is located in the Landscape Character Type (LCT) 22 Broad Valley Lowlands – Aberdeenshire with a small area located within LCT 24 Coastal Farmed Ridges and Hills – Aberdeenshire.

The large fields, post and wire fences and low topography with a backdrop of distant hills gives a large-scale landscape with generally open views across it. A stand of Ancient Woodland along Gaugers Burn, crosses the landscape in a north west to south east axis breaking up views

from some locations. Laurencekirk is the main settlement in this part of Aberdeenshire. The A90 passes immediately to the east of the town before topography begins to rise to the east.

Several visual receptors were identified including; residential properties, recreational, motorist and public transport, community and worker receptors.

The receiving environment is low lying with sparse planting characterised by large agricultural fields. The A90 is a dominant feature within this landscape. The proposed development, an elevated structure that will require embankments, will be out of character within the receiving landscape. At a local level there will be a large significance of effect that diminishes to neutral or slight at the landscape level.

Given the close proximity to the settlement of Laurencekirk and the relatively flat and open character of the landscape the assessment found that there were some visual receptors with views of the proposed scheme. There are a few significant residual effects that cannot be removed with the proposed planting due to the nature of the proposal and characteristics of this low-lying area sparse of screening vegetation.

The Landscape Visual Impact Assessment (LVIA) concludes that the proposed scheme, given the scale and nature, can be integrated into the landscape, however its implementation will be a change to the landscape and visual characteristics of the area.

Noise and Vibration

The local noise environment is dominated by road traffic on the A90. Due to the proximity of the Laurencekirk settlement, there are many noise sensitive receptors located within the vicinity of the scheme. All receptors were assessed against DMRB comparing Do-Minimum and Do-Something scenarios.

The operational assessment found that adverse impacts were expected. In the short-term, a number of receptors were predicted to experience a moderate/large significance of effect while the remaining receptors are predicted to experience a slight/moderate or slight adverse effect.

Noise levels during construction are not predicted to be significant if works take place during the daytime. However, some representative receptors are expected to experience significant effects if works take place in the evening or at night. Best practice methods are recommended to ensure noise levels will be kept to a minimum where possible, this includes limiting construction work to the daytime where possible.

In the long-term, a number of receptors are predicted to experience a slight/moderate significance of effect while the remaining receptors are predicted to experience a slight significance of effect.

Due to the level of significance predicted, low noise surfacing will be used along the A90 to reduce these effects.

Ground investigation works adjacent to the A90



Nature Conservation and Biodiversity

There is one statutory designated site within the study area; West Bradieston and Craig of Garvock Site of Special Scientific Interest (SSSI), which is located 1.7km to the south east of scheme, which has no ecological connection with the scheme and will not be affected by it.

The area consists of a range of habitats including, a section of priority woodland, arable land, semi-improved poor grassland, semi-natural mixed woodland, dense and scattered scrub, scattered trees, planted mixed woodland, running water, standing water, buildings, hedgerows, improved grassland, amenity grassland, tall ruderal and fence line.

Mitigation has been incorporated to avoid or reduce the potential adverse effects of the scheme on ecological receptors during construction, which includes, restriction of felling

and vegetation clearance activities, use of unidirectional lighting only and pollution prevention and sediment control measures.

Post construction, mitigation and compensation planting for habitats will be implemented and street lighting design will be in accordance with the Bat Conservation Trust and Institute of Lighting Professionals guidance. Sustainable Urban Drainage Systems will be used to maintain water quality and create additional habitats for aquatic invertebrates.

The scheme is not expected to have significant effects on species or habitats of high conservation concern. The inclusion of the landscape design and effective Sustainable Urban Drainage Systems is likely to overall be beneficial for local wildlife.

Habitats in the vicinity of the scheme



Road Drainage and the Water Environment

Gaugers Burn



The scheme is located within the River North Esk (Tayside) catchment. There are a number of surface waterbodies located within this catchment, some of which flow directly through the study area, including; Gaugers Burn, Kirk Burn, Luther Water, River North Esk and a number of minor unnamed streams/ drainage channels that flow sporadically throughout the study area

The study area lies within the Whitehillocks drinking water regulation zone. There are no Type A private water supplies located within the 600m study area, however, there are a number of Type B private water supplies located within the study area.

There are no designated sites or wetlands within 600m of the scheme.

Mains of Newton



There are limited areas at risk of river flooding and surface water flooding within the study area. Several areas were identified to be at risk of surface water flooding. There are no areas of groundwater flooding present within the study area.

A Construction Environmental Management Plan will be applied which will include adherence to best practice methods and pollution prevention. Mitigation will reduce the significance of effects on surface water, aquatic ecology, groundwater and flood risk to slight adverse.

The scheme design incorporates Sustainable Urban Drainage System (SuDS) basins, filter drains and swales which results in no significant effects on surface water, ground water and flood risk.

The general level of driver stress experienced by drivers along the A90 is considered to be high in both rural and urban environments. Access to and from side roads along the study area is a significant problem for both mainline A90 and side road traffic from the A937 and B9120. A review of accident data indicated that accidents primarily occur at the junctions and most commonly involve right turn manoeuvres crossing the carriageway.

During construction, mitigation will involve informing land owners and community users of construction in advance, reducing visual impacts

and phasing of construction. Operational mitigation is to be included in the scheme design by the inclusion of a new footpath along the junction.

With mitigation in place the residual effects of the scheme on NMUs or vehicle travellers are not significant and will result in an overall beneficial effect. Effects on agricultural land remain of moderate significance due to the loss of high-quality agricultural land post construction.

Geology and Soils

The desk top study found that there are no areas designated for their geological features within the study area.

The underlying solid stratum within the study area is the Cromlix Mudstone Formation, a sedimentary bedrock. Superficial deposits to the north of the scheme comprise the Mill of Forest Glacial Till Formation. There are also localised pockets of alluvium recorded along Gaugers Burn.

The scheme lies within the vicinity of two moderately productive aquifers, the Strathmore Group and the Arbuthnott-Garvock Group.

These are both moderately productive aquifers with ground water flow virtually all through fractures and other discontinuities.

The majority of soils within the study area are either noncalcareous gleys poorly drained soils, or iron podzols freely drained soils. The land capability for agricultural land maps show much of the land within the study area to be class 2, arable agriculture, land capable of producing a wide range of crops; with class 3.2, mixed agriculture, land capable of average production though high yields of barley, oats and grass, found along Gaugers Burn.

A937 at Mains of Newton



The current agricultural, woodland and naturalised areas surrounding the scheme have a medium sensitivity for being able to store carbon as would the road side verges and hedgerows. The developed areas have a negligible potential, as once land has been developed, it is likely to remain in use through redevelopment which would prevent the soil carbon stock being increased.

From the site walkover, historical map review and public database searches, potential contamination sources within 200m of the study area include a mill pond, skate pond, reservoir, cemetery, roads, railway and made ground.

Materials

The current A90 within the study area comprises a dual carriageway with typical standard road markings and road studs. There are no street lights illuminating the route or the junctions. Road drainage throughout the A90 study area is provided by top and side entry road gullies.

The junction is approximately 31m wide at the scheme with the northbound carriageway bounded by approximately 7m of flat grass verge with a variable restraint system. The southbound carriageway to the south of the junction is bounded by approximately 4m of flat grass verge with filter drainage.

There are seven active quarries within 30km of the scheme.

Projected quantities of waste are expected to include small quantities of hazardous waste produced during the works. This may include but is not limited to paints and solvents, admixtures,

With adherence to best practice guidance, construction effects on soils, geology and land contamination are assessed to be not significant.

Construction of the scheme will result in a slight or neutral significance on all geology and soil receptors. The operation of the scheme will result in the loss of agricultural land, resulting in a moderate adverse effect upon high quality agricultural soils. There remains a low risk to the environment associated with potential contamination of soil and groundwater associated with the existing A90 and associated infrastructure and the existing railway line.

spill absorbent materials, waste lubricants, oil filters, waste electrical and electronic equipment, batteries and fluorescent light tubes.

Based on the scheme design projected quantities of likely materials needed were predicted for earthworks, fencing, drainage, pavement road signs and lighting.

The significance of effects on materials and waste is predicted to be slight or neutral. Impacts will be managed through a Site Waste Management Plan, a Materials Management Plan and a Soils Resource Plan by the reuse of excavated materials therefore reducing the volume of virgin materials required by the scheme. Whilst the majority of materials will be reused on site to minimise the volume of imported materials, it is anticipated that some material will require disposal to a suitably licenced landfill.

Dykelands



Policies and Plans

The scheme was assessed against local and national planning policy. The Aberdeenshire Local Development Plan 2017 identified the need for an improved junction at the A90/A937 outside Laurencekirk. The scheme is generally in compliance with plans and policy, by making more efficient use of the transport network and improving road safety, as well as improving connectivity at a local level. Areas of conflict with policy were identified for some of the environmental topics.

Where non-compliance with policy objectives has been identified, mitigation measures have

been developed throughout an iterative design process to address topic specific impacts. The mitigation measures proposed will address the environmental impacts and ensure compliance with local policy.

The scheme will provide benefits by improving safety at the junction, providing increased connectivity for pedestrians and cyclists, and contributing to improved access to development areas around Laurencekirk, in line with local policy.

Cumulative Effects

Intra-project (numerous different impacts affecting a single receptor from the scheme) and inter-project (impacts from different project(s) in combination with the scheme) cumulative effects have been assessed.

Local residents will be impacted by increased noise from construction and nuisance from dust and from the visual intrusion of machinery. These impacts are predicted to be minor adverse; however, they will be temporary. Construction may impact water quality and aquatic wildlife through sedimentation and pollution. With appropriate mitigation these effects are not considered significant.

The receptors within the study area will experience cumulative effects when the road is in operation, from increased noise and visual intrusion from the proposed scheme. Overall, assuming that recommended mitigation has been implemented, it is assessed that the cumulative effects on these properties are locally significant and therefore of minor significance.

There will be additional cumulative effects on Mains of Newton as the majority of the farmland required for the scheme belongs to this property. As well as noise and visual impacts, the productivity of the holding will be reduced through the loss of good quality agricultural land which is assessed to be of moderate significance. The combined effect from reduced amenity from noise, loss of land and visual intrusion from the junction on the property is considered to be of moderate significance.

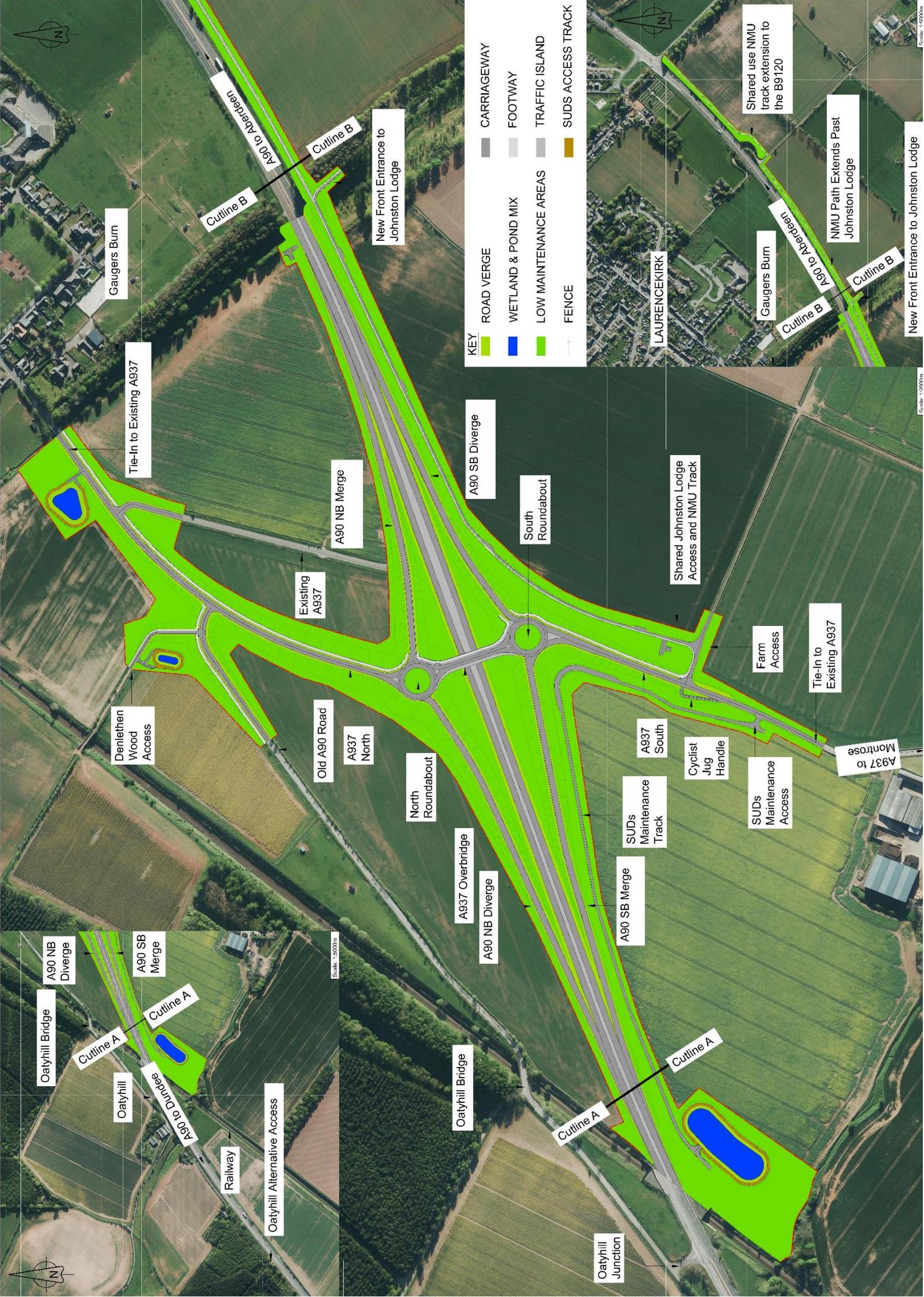
Due to the size and location of developments most were scoped out of the inter-project assessment with the exception of development at Blackiemuir Avenue, Conveth Mains and land south of High Street.

During construction, impacts will be managed through construction Environment Management Plans for development at Blackiemuir Avenue and Conveth Mains while construction effects at land south of High Street were scoped out as it was considered to be not significant.

During the operational phase, the loss of agricultural land at each development was considered to have moderate significance. There is potential for in-combination effects on water quality; however, with mitigation incorporated into each scheme it was assessed to be of no significance. There was deemed to be potential for an in-combination visual impact on residents of Gardounston Street from the additional housing and the views of the grade separated junction. However, the proposed development will include landscaping around the site boundary to minimise visual impacts. The existing screening along Gaugers Burn will be retained where possible and overall visual effects are considered to be not significant.

SCHEME DESIGN







ameyconsulting