



A9 Dualling Programme: Pitlochry to Killiecrankie

DMRB Stage 3 Environmental Statement

Non-Technical Summary

December 2017

**JACOBS**<sup>®</sup>



# Section 1: Introduction



## Preface

This document is the Non-Technical Summary (NTS) of the Environmental Statement (ES) for the A9 Dualling: Pitlochry to Killiecrankie project. The project is proposed by Transport Scotland, an agency of the Scottish Government. Copies of the Environmental Statement and the draft Road Orders are available to view during normal office hours at the following locations:

### Transport Scotland

Major Transport Infrastructure Projects (MTRIPS)  
Buchanan House  
58 Port Dundas Street  
Glasgow  
G4 0HF

Telephone: 0141 272 7100

08.30 to 17.00 Monday to Thursday  
08.30 to 16.30 Friday

### Pitlochry Library

26 Atholl Road  
Pitlochry  
PH16 5BX

Telephone: 01796 474 635

Closed Monday, Tuesday and Sunday  
14:00 to 16:00 and 17:00 to 19:00 Wednesday  
10:00 to 12:00 and 14:00 to 19:00 Thursday  
14:00 to 16:00 Friday  
09:00 to 13:00 Saturday

The Environmental Statement (including NTS) and draft Road Orders may also be viewed online at: <https://www.transport.gov.scot/projects/a9-dualling-perth-to-inverness/a9-pitlochry-to-killiecrankie/>

A bound paper copy of the Environmental Statement may be purchased at a cost of £150 or in DVD format at a cost of £10 by writing to Transport Scotland at the address opposite. Copies of the NTS are available free of charge from the same address or by email to: [info@transport.gov.scot](mailto:info@transport.gov.scot).

Any person wishing to express an opinion on the Environmental Statement should write to Transport Scotland at the address opposite. The statutory six-week period of the Environmental Statement and Draft Orders has been extended to account for the festive break, and will therefore end on 09 February 2018.

### Introduction

### Background

The A9 Trunk Road forms a strategic link on Scotland's Transport Network, linking the Scottish Highlands and Central Scotland, and is vital to supporting the growth and development of the economy in the north of Scotland.

A Strategic Transport Projects Review (STPR) in 2009 set out the future investment programme for transport in Scotland over two decades including the proposed upgrade of the A9. Following this review the Scottish Government's 2011 Infrastructure Investment Plan (IIP) included the commitment to upgrade the A9 to dual carriageway standard between Perth and Inverness by 2025. The programme required to achieve this has been subject to Strategic Environmental Assessment (SEA) from 2012 to 2014 to consider the overall constraints, environmental sensitivities and opportunities for enhancement. The Pitlochry to Killiecrankie project forms part of the Southern Section (from Pass of Birnam to Glen Garry) of the A9 Dualling Programme.

The Pitlochry to Killiecrankie project (referred to in this NTS and in the ES as 'the proposed scheme') comprises dualling of approximately 6.5km of the A9, to be achieved through a combination of widening and upgrades to the existing A9 carriageway and a new offline alignment north of Loch Faskally as shown on Figure 1. The proposed scheme incorporates two new major structures (at the River Tummel and Loch Faskally), a number of underbridges, several culverts, retaining walls, upgrades to road drainage, provision of additional watercourse crossings, improvements to the footway and cycleway network, and revisions to local access. It also includes the provision of two grade separated junctions at Pitlochry South and Pitlochry North respectively and a combined use underpass for the Rob Roy Way.

The proposed scheme will be submitted for authorisation through the Roads (Scotland) Act 1984. If approved, it is anticipated that construction would be approximately 3 to 3.5 years.

### Environmental Impact Assessment

An Environmental Impact Assessment (EIA) of the proposed scheme is required under European and UK legislation. The ES reports the findings of the EIA work carried out on the proposed scheme.

The EIA has been undertaken in line with the guidance in the Design Manual for Roads and Bridges (DMRB) Volume 11: Environmental Assessment.

The purpose of the EIA is to investigate the likely significant effects of the proposed scheme on the biological, physical and historical environment, as well as on members of the public and on current or planned future use of the environment. This NTS presents a summary of the ES, including key aspects of the proposed scheme and the associated beneficial and adverse impacts considered to be of particular importance.

Further details about the likely significant impacts of the proposed scheme can be found within the full text of the ES. The ES documents have been subdivided into four volumes for ease of use:

- NTS;
- Volume 1: Main Report;
- Volume 2 (Part 1 and Part 2): Technical Appendices – Specialist Technical Reports; and
- Volume 3: Figures.

The EIA process provides a valuable opportunity to avoid or reduce potential environmental impacts through design refinement. Environmental constraints and issues were identified through consultation, extensive environmental surveys and technical assessments. The information gathered has informed decision-making throughout the design process, providing opportunities to address potentially significant impacts where practicable, for example by refinement of route alignment or by the incorporation of measures to avoid or reduce potential adverse impacts.

Impacts have been assessed by comparing the existing situation (the baseline conditions) to the conditions that could potentially occur with the proposed scheme in place.

# Section 2: The Proposed Scheme



## Need for the Scheme

The A9 is a vital route linking central Scotland to the north of Scotland used by both local and long distance traffic. It is a major bus route and is used by freight traffic supporting key industries, such as food and drink, oil, waste and construction. The route is used by tourists as a means of reaching locations in Perthshire and the Highlands. It is considered that the upgrade of the A9 to dual carriageway will help assist economic growth in the north of Scotland. Dualling of the A9 will improve journey times, potentially saving costs for businesses, reducing driver stress and improving safety, potentially making the surrounding areas a more attractive as a short-term tourism destination.

The need for the A9 dualling has been identified across a number of studies summarised in the table below.

Study	Purpose
The A9 Route Action Plan and Route Strategy (1995-97,1996)	Encouraged improvements such as carriageway dualling, junction improvements and overtaking lanes to improve safety and relieve driver stress.
A9 Route Improvement Strategy Study (2004)	Aimed to identify a route improvement scheme for the Perth to Blair Atholl section of the A9. Part of the emerging strategy was to undertake a programme of upgrading between Perth and Pitlochry.
The Strategic Transport Projects Review (STPR) (2009)	Undertaken to define the most appropriate strategic investments in Scotland's national transport network between 2012 and 2022. A number of targeted improvements were identified including full dualling of the A9 between Perth and Inverness to reduce accidents and improve journey time reliability.
Infrastructure Investment Plan (IIP) (2011)	Commits to upgrading the A9 between Perth and Inverness by 2025.
A9 Dualling: Case for Investment (2016)	The Case for Investment outlines strong road user, community, business and planning authority support for the A9 Dualling Programme. In particular, the commercial businesses along the A9 corridor are strongly in favour of the A9 Dualling Programme and the economic benefits it will bring. The report identifies there are five key sectors most likely to benefit from the proposed scheme; food and drink, tourism, energy, life sciences and forestry.

The Scottish Government further underlines this commitment through the National Planning Framework 3 (NPF3, 2014). The Framework is a long term strategy for Scotland which identifies national developments and other strategically important development opportunities to support and help deliver sustainable economic growth. In relation to the A9, it states:

*'We will complete dualling of the trunk roads between cities, with dualling of the A9 from Perth to Inverness complete by 2025....'*

*'The dualling of the A9 between Perth and Inverness and improvements to the Highland Mainline will provide a step change in accessibility across the rural north, increase business confidence and support investment throughout the region'.*

From a local perspective, concerns regarding safety and existing traffic conditions have contributed to the need for the proposed scheme.

In relation to safety there is existing driver frustration, a lack of safe overtaking opportunities and a high proportion of severe accidents. The majority of accidents on the A9 occur along sections of single carriageway, and generally near to junctions. Along the extents of the existing A9 from Pitlochry to Killiecrankie, there were 16 accidents between 2008 and 2013. Five of these accidents were fatal, four were serious and seven were slight in severity. In total, these 16 accidents resulted in a total of 25 casualties: eight fatalities, eight with serious injuries and nine with slight injuries. Average speed cameras were installed on the A9 in October 2014 as a measure to improve road safety.

The area surrounding the proposed scheme also offers a wide range of tourist attractions and recreational activities, which are supported by the A9. Perth & Kinross Council's (PKC) Local Development Plan seeks to enhance tourism facilities and provision, partly achieved by upgrading the A9 to dual carriageway.

### Scheme Objectives

The aim of dualling the A9 between Pitlochry and Killiecrankie is to improve the operational performance and level of service of this section, building on the objectives set for the A9 dualling as a whole.

The STPR assessment of issues and improvement opportunities along the existing A9 has led to the development of the A9 Dualling Programme objectives set by Transport Scotland, as follows:

1. To improve the operational performance of the A9 by:
  - reducing journey times; and
  - improving journey time reliability.
2. To improve safety for motorised and non-motorised users through:
  - reducing accident severity; and
  - reducing driver stress.
3. To facilitate active travel within the corridor.
4. To improve integration with Public Transport facilities.

The EIA process facilitates these objectives to be met whilst avoiding and/or reducing environmental impacts, enhancing the environment and improving sustainability where possible. This is done through the inclusion of appropriate environmental measures, adherence to best practice during construction and measures 'embedded' into the design such as new footways to improve existing facilities and connectivity.

### Alternatives Considered

As previously mentioned, an SEA of the A9 Dualling Programme was carried out from 2012 to 2014, comprising a route-wide assessment which considered environmental constraints, issues, risks and opportunities. The SEA was completed in parallel with a similar consideration of engineering constraints, issues, risks and opportunities as part of a Preliminary Engineering Services commission.

Three high-level, strategic alternative dualling options were considered within the SEA for the Pitlochry to Killiecrankie project, including: online widening;

online widening and offline dualling combination where constraints dictated; and dualling via alternative routes to the existing A9. The studies identified that online widening generally following the route of the existing A9 was the most suitable option for this section.



**Photograph 1: View north from Fonab Castle Hotel towards Pitlochry and Ben Vrackie**

An online corridor was identified and development of mainline alignment and junction options for DMRB Stage 2 assessment was progressed. Sifting Workshops and a technical meeting with Transport Scotland in May 2015 resulted in three options being taken forward for further consideration in the DMRB Stage 2 assessment: Route Options 1, 2A and 2B. Each of the Route Options incorporated a grade separated junction at both Pitlochry South and Pitlochry North. Side road options were also developed for each of the Route Options. The options were presented via public consultation events, local community events and with direct communication via mail/email.

Engineering, environmental, traffic and economic assessments were used to assess the options being considered. Feedback from the various public consultation exercises was also considered. An additional mainline option was

identified at a workshop in March 2016, a value engineered variation of Route Option 2B, named Option 2B (RW).

Finally, the assessment outcomes were analysed using the Government's appraisal criteria (economy, safety, environment and integration) for the assessment of trunk road schemes and the preferred option was identified.

Based on the above decision making process and DMRB Stage 2 assessment the preferred option selected was Route Option 2B (RW) with Side Road Option 2. This option was considered to have the least intrusive environmental impacts and was also of slightly lower cost than the other options. The preferred option was announced at a Public Exhibition held in November 2016.

Following this, Jacobs UK Ltd progressed with assessment of the preferred option, development of the engineering design through DMRB Stage 3 assessment, and undertaking an ES and draft Road Orders. The design of the preferred option has since been subject to ongoing design refinement informed by a range of inputs and considerations, including landowner and other stakeholder consultation, as well as EIA.

### Iterative Design Development

The DMRB Stage 3 design for the proposed scheme is the result of approximately 12 months of design development of the preferred option that was identified on completion of the DMRB Stage 2 assessment.

The project environmental team has influenced the design based on knowledge gained through the EIA process, working closely with the engineering teams, consultees, and Transport Scotland. Through this process, the design has been iteratively updated and refined to reach the final DMRB Stage 3 design assessed in the ES.

Some of the key design considerations during DMRB Stage 3 design development that avoided or reduced the potential for impacts include: a new underpass providing a grade separated safe crossing point of the A9 for users of the Rob Roy Way; reducing/avoiding where practicable the loss of native and ancient woodland through design and providing compensatory planting; avoiding loss of designated areas (River Tay Special Area of Conservation (SAC)), for example through the design of the Tummel Crossing avoiding permanent piers in the River Tummel and positioning of drainage outfalls; thereby reducing ecological impacts.

Other measures embedded in the proposed scheme include noise attenuation through the use of low noise road surfacing and noise barriers. The proposed scheme also includes woodland planting along the route in order to integrate the proposed scheme into the landscape and compensate for woodland loss as a result of the proposed scheme. Where planting is specified, native plant species will be used so as to re-establish or reinforce the character of the landscape.



Photograph 2: View of Dunfallandy Hill from A924, adjacent to the River Tummel



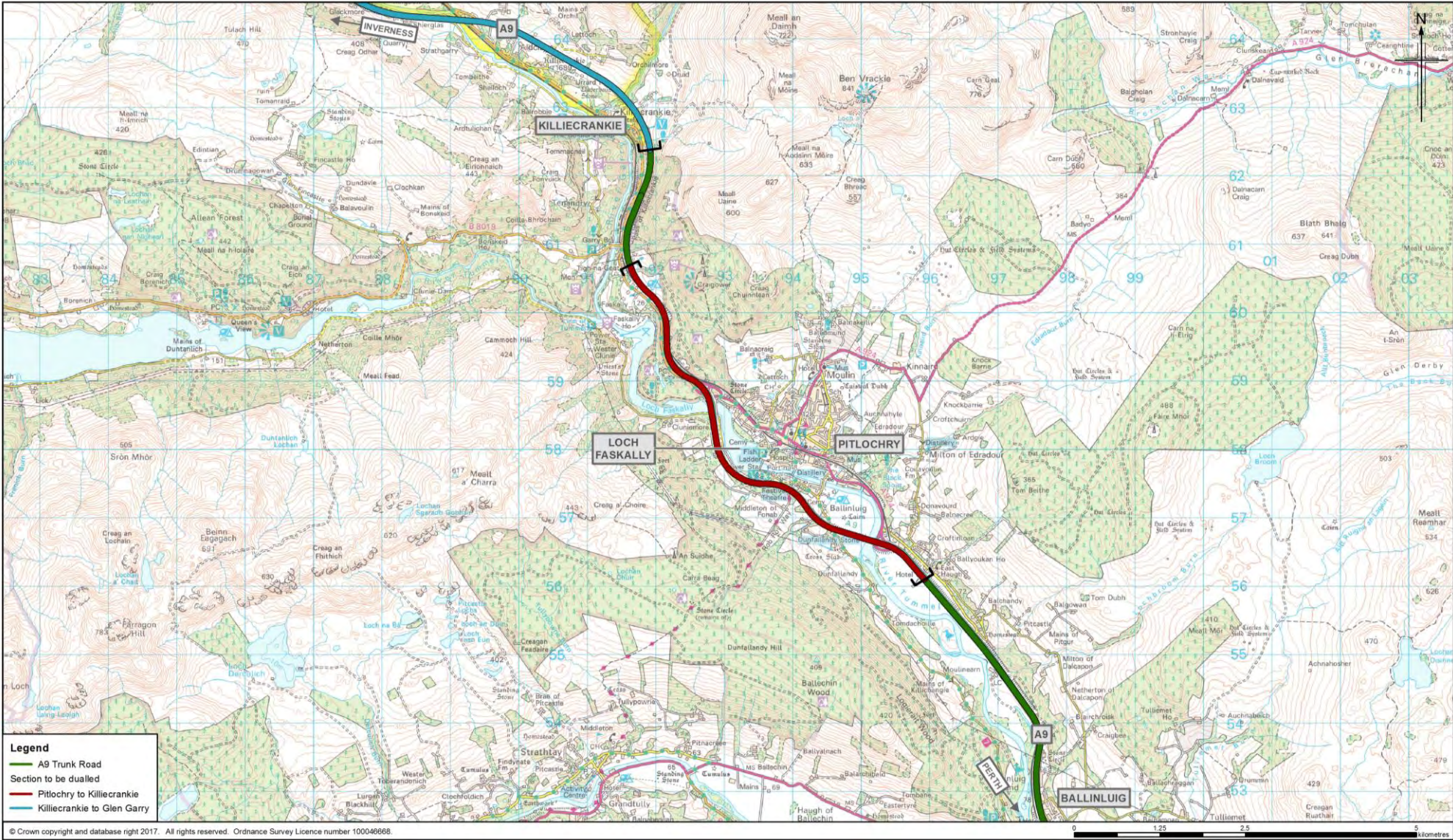


Figure 1: Proposed Scheme

### The Proposed Scheme

An outline design has been developed for the proposed scheme, which is referred to as the 'Stage 3 design'. This design would be used by the appointed contractor to prepare a detailed design for construction of the proposed scheme.

The proposed scheme commences approximately 1km south east of the existing A9 River Tummel Crossing and extends northwards for approximately 7km, terminating at the existing dual carriageway section at the A9 at the Pass of Killiecrankie. This section of the A9 is located within close proximity to a number of designated environmental sites, including watercourses forming part of the River Tay SAC which are crossed by the existing A9.

The proposed scheme is illustrated in Figure 1 of this NTS. Within the ES and the NTS references are made to chainage (shortened to 'ch', for example the River Tummel Crossing at ch900), which is a reference to the number of metres from the start of the proposed scheme, from south to north. The scheme starts approximately 600m south of the existing Pitlochry South Junction.

The proposed scheme involves widening of the existing single carriageway in three distinct sections:

- South of Pitlochry to north of A924 Pitlochry South Junction consists predominantly of northbound widening of the single carriageway and improvements to existing dual carriageway over approximately 700m.
- North of A924 Pitlochry South Junction to south of the C452 Clunie-Foss Road junction, a best-fit alignment consisting of northbound widening switching to southbound widening of the single carriageway.
- South of C452 Clunie-Foss Road junction to the existing dualled section at the Pass of Killiecrankie, consists of southbound widening, following the Clunie Underbridge across Loch Faskally. Upon reaching the northern side of Loch Faskally, there would be an offline alignment to the east of the existing A9 with lengths of large cutting on the east side and embankment on the west side. After the Allt an Aghastair watercourse crossing, the route would realign with the existing A9 and connect into the existing dualled A9 section at the Pass of Killiecrankie.

The mainline will comprise a dual carriageway with 2.5m verges and two lanes of 3.65m width in each direction, plus a 1m hard strip to both the inside and outside lanes in each direction and a central reservation 2.5m wide. The proposed scheme incorporates grade separated junctions, which are typically formed with slip roads and a bridge to separate conflicting traffic movements on the main road. The following two grade separated junctions are to be provided as part of the proposed scheme:

- Pitlochry South Junction involves improvements to the existing junction. It will allow northbound travellers to exit the A9 onto the A924 via an existing underbridge and for travellers heading south to join the A9 southbound carriageway from the A924.
- Pitlochry North Junction incorporates a grade-separated junction with the northbound and southbound slip roads forming a diamond arrangement. The northbound slip roads tie-in to the local road with a T-junction and the southbound slip roads tie-in to the local road via a roundabout.

Side roads will be upgraded to provide access from the existing road network to the mainline of the proposed scheme via the proposed junctions. This will include the closure of a number of direct accesses to the A9 improving safety. Upgrades may involve simple resurfacing or may require realignment and other improvements.

A number of rural properties, including farms, are located along the proposed scheme. Through consultation with residents and landowners, revised accesses are proposed to tie into the existing road network or onto the A9 carriageway via junctions/accesses. There are four at-grade left-in left-out junctions/accesses to be provided as part of the proposed scheme.

The proposed scheme incorporates the provision of two new major underbridges; Tummel Crossing and Clunie Underbridge. An underbridge is the term used to describe a bridge built to allow vehicles to pass over a road, railway or watercourse. The design of the proposed scheme retains the existing A9 crossing of the River Tummel as the southbound carriageway while a new proposed bow string arch structure (Tummel Underbridge) would be used as the northbound carriageway (refer to Image 2 and the Artists Impression in this NTS). Further north, the existing Clunie Underbridge crossing of Loch Faskally would be retained as the northbound carriageway, while a proposed new structure would be constructed to accommodate southbound traffic.

In addition, a number of existing structures would also be replaced and/or upgraded as part of the proposed scheme. These include numerous watercourse crossings via culverts, and carriageway drainage through the implementation of new Sustainable Drainage Systems (SuDS) developed in consultation with Scottish Environment Protection Agency (SEPA).

### Delivering the Proposals

The ES presents the results of the EIA of the proposed scheme. The design of the project may be refined further by a contractor that will be appointed by Transport Scotland. The contractor that delivers the proposed scheme must meet the requirements of the EIA documented in the ES. Should the contractor refine the design which has been assessed by this EIA, then an environmental review of those refinements will be undertaken to assess whether the residual impacts of the refinement could be greater than those reported in the ES, and as such if additional mitigation is required.

Construction is subject to completion of the statutory process, however, for the purpose of the EIA it has been assumed that the first full year of operation is 2026 and the design year is 2041 with the construction anticipated to take approximately 3.5 years.

### Overview of the Environmental Impact Assessment Process

The EIA has been undertaken as an integral part of the design process, informing decisions on the proposals as they were developed. Environmental constraints and issues were identified and incorporated into the decision-making process throughout. Information gathered through the extensive surveys undertaken for the proposed scheme was used in the assessment.

The aims of the EIA are to:

- gather information about the environment, identify environmental constraints and opportunities which may influence, or be affected by the proposed scheme;
- identify and assess potential environmental impacts;
- identify and incorporate into the proposed scheme design, features and measures to avoid, reduce or offset adverse impacts, and where possible enhance beneficial effects; and

- assess the proposed scheme's residual impacts (those remaining after measures are implemented to avoid or reduce potential impacts).

### Consultation and Scoping

As part of the design development and assessment process, a comprehensive consultation has been carried out with numerous stakeholders including PKC, Historic Environment Scotland (HES), SEPA and Scottish Natural Heritage (SNH). In addition, potentially affected landowners have also been consulted. Public exhibitions, community engagement events and drop-in sessions were held in July 2015, September 2015, February 2016, November 2016 and March 2017, as part of a programme of ongoing public engagement and consultation for the proposed scheme.

The purpose of the consultation was to:

- ensure that members of the public, statutory consultees, and other bodies with a particular interest in the environment were informed of the proposals and provided with an opportunity to comment;
- collate baseline information regarding existing environmental site conditions;
- obtain input to the identification of potential impacts and the development of appropriate mitigation;
- inform the scope of the assessments being undertaken; and
- seek consultee input to the proposed scheme design.

The project team has worked closely with key stakeholders to develop a proposed scheme that aims to reduce the overall environmental impact, for example, 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.

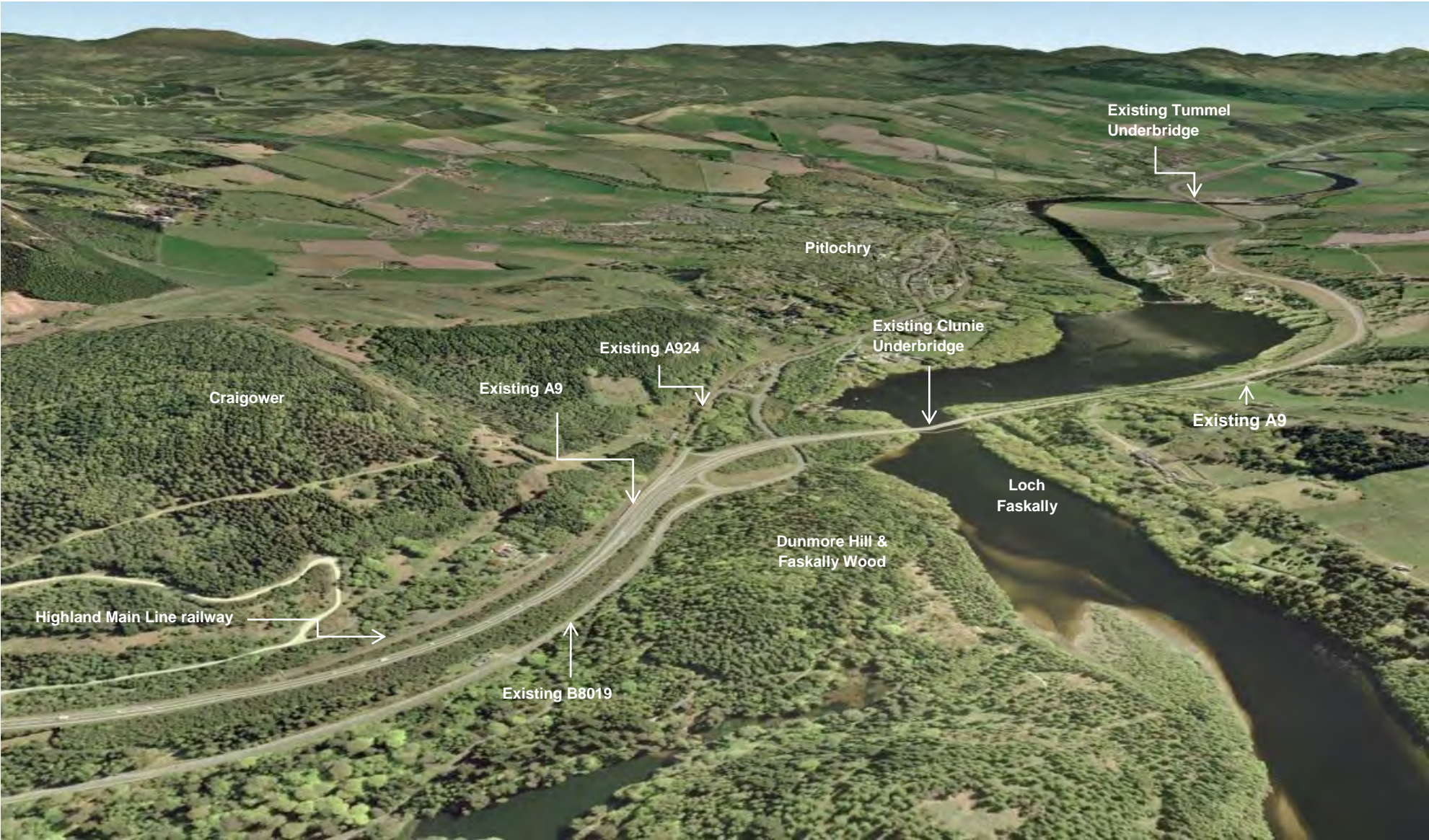


Image 1: View looking south overlooking the existing A9, Dunmore Hill and Loch Faskally (Source: Getmapping plc, Data SIO, NOAA, US Navy, NGA, GEBCO, Google Earth)

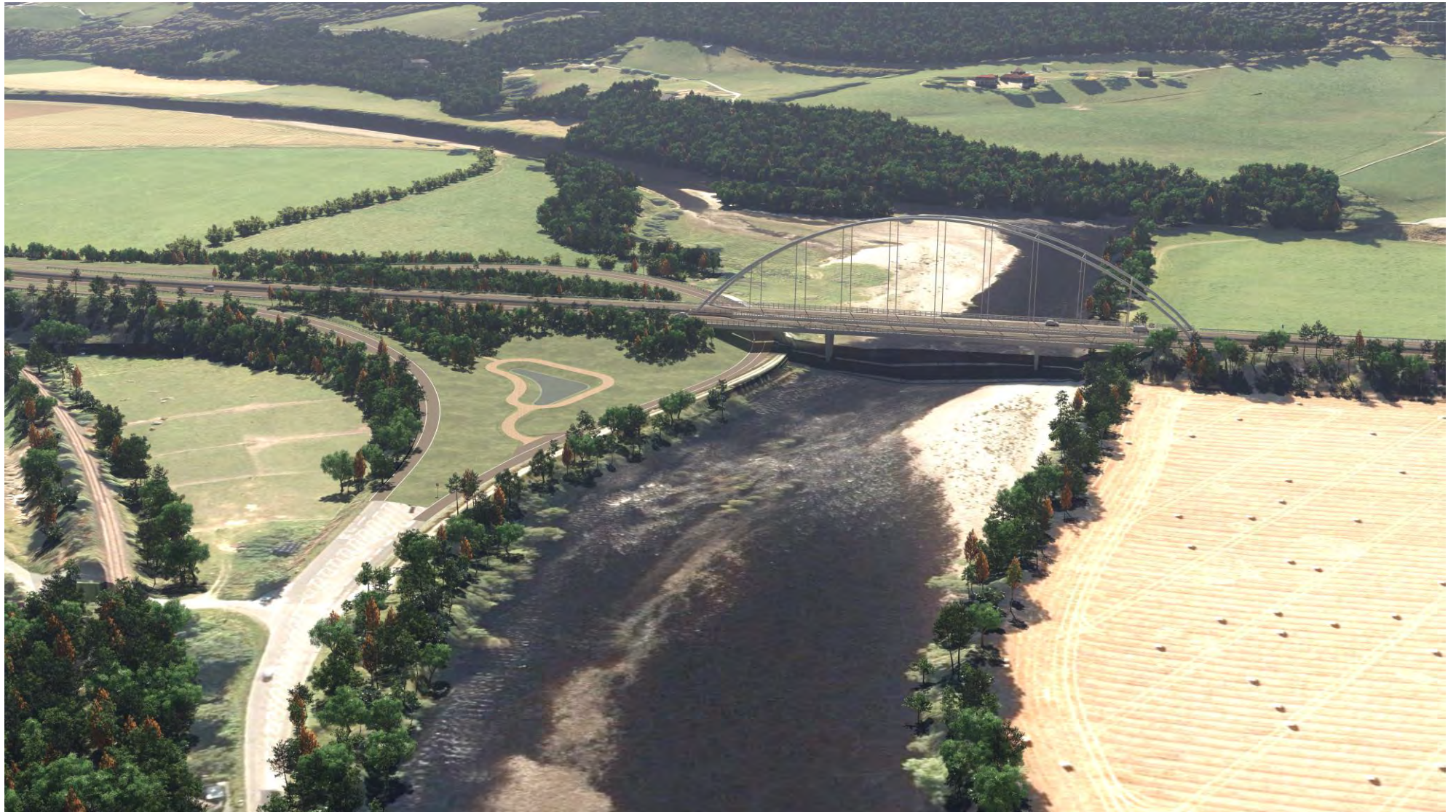


Image 2: Proposed Tummel Underbridge (still from a Virtual Reality Model, November 2017).

## Section 3: Environmental Impacts and Mitigation



### Environmental Impacts and Mitigation

The following sections summarise the likely significant impacts of the proposed scheme on the environment and also provide details of relevant mitigation measures proposed. Full details of each assessment and the associated findings of the EIA are presented in the ES (Volume 1: Main Report).

### People and Communities - Community and Private Assets

This chapter of the ES considers the impacts of the proposed scheme on community and private assets, including land and property. Current land uses in the study area include residential, commercial and industrial, and areas supporting agriculture, forestry and sporting interests. The main settlement in the study area is Pitlochry; the predominant land use in the study area is agriculture with parcels of forestry and woodland. The development of the proposed scheme design has sought to avoid impacts on community and private assets, where possible, through design development. Additional mitigation measures to reduce construction and operational impacts have been developed.

The proposed scheme would result in the loss of approximately 79 hectares (ha) of land, comprising:

- 8ha from residential, commercial and industrial land and including the demolition of two properties;
- less than 1ha from development land allocations;
- 32ha of agricultural land;
- 35ha of forestry;
- less than 1ha of sporting land; and
- 3ha of other land.

With regard to impacts on properties, significant residual impacts are anticipated as a result of permanent land-take at two residential properties; Greengates (loss of land from woodland parcel) and Faskally Cottage West. Additional significant impacts are anticipated due to the acquisition and demolition of two properties; Tigh na Beithe and Craiglunie.

Impacts of the proposed scheme for residential, commercial and industrial properties also result from change to the current access arrangement to/from properties. Significant residual impacts have been identified as a result of change in vehicle access on nine groupings of residential properties and six commercial/industrial properties. The probable impact of the proposed scheme on business viability for affected commercial/industrial business has also been assessed, with the majority of impacts being not significant. However, Pitlochry Boating Station and Café has been assessed as significant adverse during construction.

No significant impacts on community land, community facilities or community severance have been identified.

There is expected to be less than 1ha of land-take from development land allocations and extant planning applications as a result of the proposed scheme. This is expected to have a significant adverse impact on one development land allocation (Fonab Business Park) and one extant planning application (3 business units at Fonab Business Park).

Approximately 8ha of the 32ha of agricultural land acquired for the proposed scheme has the potential to be returned to agricultural use. This would not reduce the significance of impacts for the affected land interests.

Five agricultural, forestry and sporting interests were assessed as part of the EIA. Four of these interests are not expected to have significant impact and one, West Haugh of Dalshian Farm, has been assessed as having a significant residual impact.



Photograph 3: View from hostel in Pitlochry across Loch Faskally towards Tombane

### People and Communities - All Travellers

This chapter of the ES assesses the impact of the proposed scheme on pedestrians, cyclists, equestrians (referred to as Non-Motorised Users; NMUs), and also on vehicle travellers in terms of changes to views from the road, and driver stress.

The assessment identifies outdoor areas and paths including core paths, rights of way, National Cycle Routes, equestrian routes and local paths within 500m of the proposed scheme. A total of 38 paths were identified as well as seven NMU crossing points of the existing A9. Changes to NMU journey lengths and amenity value were assessed, and used to determine potential severance impacts on access to the outdoors. The assessment took into account mitigation embedded in the proposed scheme design, such as an underpass and new footways.

With the proposed scheme in place, significant beneficial impacts for NMUs have been identified due to the design maintaining existing NMU access while providing safer passage across the A9 within the study area. With the proposed scheme in place, significant adverse impacts have been largely avoided in key areas as a result of the provision of an underpass at Rob Roy

Way and by maintaining existing NMU routes. The proposed scheme also includes enhanced NMU access from the A9 and side roads to Tay Forest Park (Craigower Forest).

Significant adverse impacts would remain for the NMU route between Foss Road and the Clunie Footbridge due to decreased amenity value as a result of the retaining wall associated with the proposed scheme and the limited opportunity for mitigation. Generally, journey lengths are not significantly affected with the proposed scheme in place. Whilst NMUs travelling along the Rob Roy Way would experience an increase in journey length due to the provision and location of a new underpass, the increased amenity value due to improved safety of the path reduces overall impacts so they are not considered to be significant.

With regard to impacts on vehicle travellers, views from the road were assessed for the existing A9 and for the proposed scheme during the winter year of opening and during the summer, 15 years after opening. The existing A9 runs through two different Local Landscape Character Areas (LLCAs) within the Lower Highland Glen Landscape Character Area (LCA). Significant residual impacts are predicted during the winter year of opening as a result of the proposed scheme where it passes through Pass of Killiecrankie LLCA, due largely to the introduction of the new junction and associated new large-scale cuttings and the resultant loss of existing mature woodland north of Pitlochry. By the summer 15 years after opening, establishment of mitigation planting is anticipated to help reduce the impacts such that they would no longer be significant.

Driver stress can be caused by frustration, fear of accidents and uncertainty of the route being followed. Current levels of driver stress for the A9 between Pitlochry and Killiecrankie during peak hours are assessed as moderate. Traffic levels are forecast to increase over time, and in the absence of the proposed scheme it is anticipated that higher levels of driver stress during peak hours would be experienced. However, with the proposed scheme in place, driver stress would decrease for both northbound and southbound travellers when compared to the future scenario without the proposed scheme.





Photograph 4: Clunie Footbridge over Loch Faskally linking NMUs to crossing points

### Geology, Soils, Contaminated Land and Groundwater

This chapter of the ES identifies and describes the existing geology, soils, hydrogeology and contaminated land within the study area. It assesses the significance of potential impacts of the proposed scheme on these features and outlines measures for avoiding or mitigating these impacts where possible.

Baseline conditions were established through desk based assessment, consultation and site surveys. This process identified that no designated Geological Receptors or Geological Conservation Review sites are within the study area. In addition, the location and type of groundwater receptors such as private water supplies, ecological receptors with a potential groundwater dependency and surface water features were identified and documented.

The impact assessment was designed to assess the significance from both direct (within the proposed footprint) and indirect (groundwater dewatering) effects from the proposed scheme. The impact of the proposed scheme on geology, soils and mineral resources is expected to be Neutral. A number of impacts from contaminated land source and/or pathways were identified. Potentially significant impacts to four active groundwater fed private water supplies and/or their associated infrastructure have been identified. Non-significant impacts were identified for surface water features from indirect groundwater dewatering.

No significant residual impacts are anticipated for the majority of receptors after the implementation of the proposed mitigation with the exception of groundwater flow within superficial aquifers. Significant residual impacts have been assessed on groundwater flow within glacial deposits/glacial till and alluvium/River Terrace deposits.



Photograph 5: View of River Garry, looking South from B8019 Garry Bridge

### Road Drainage and the Water Environment

This chapter of the ES presents the assessment of the proposed scheme on the surface water environment, specifically considering the attributes of hydrology, flood risk, fluvial geomorphology and water quality.

The proposed scheme is located within the River Tay catchment. Within the 500m study area, 23 surface water features were identified which may be affected by the proposed scheme. The majority of these are upland, fast flowing and low stream order watercourses which are currently crossed by the existing A9. The largest watercourse within the study area is the River Tummel (catchment area: 1715km<sup>2</sup>), which is a transitional river with a predominantly cobble and gravel substrate. Loch Faskally is also located within the study area, which is a reservoir formed from the impoundment of the River Tummel by the Pitlochry Dam.



**Photograph 6: View from Pitlochry Dam looking North**

Several water features within the study area form part of the River Tay SAC these include the River Tummel, the River Garry (from downstream of Struan weir), and Loch Faskally.

The drainage system associated with the existing A9 consists primarily of kerbs and gullies, which currently discharge untreated and un-attenuated road runoff directly to watercourses. Land uses within the River Tummel catchment are primarily low intensity agriculture, forestry and managed moorland; therefore, potential pollution sources are generally limited to agricultural runoff, road runoff and forestry operations.

The assessment has been informed by consultation, desk-based assessments, site walkovers and topographic surveys. Hydraulic modelling of the River Tummel was undertaken to assess the potential impacts on flood risk.

Significant impacts from the proposed scheme in the absence of mitigation include increases in fluvial flood risk, alterations to flows and sediment processes within watercourses, and deterioration in water quality in receiving watercourses from construction and operational runoff.

Standard mitigation during construction would be delivered through a Construction Environmental Management Plan (CEMP), which would include measures for flood risk, fluvial geomorphology and water quality. Mitigation measures proposed include aspects such as: a sediment management plan; storage of machinery and material outside of the floodplain; adherence to guidance such as SEPA's Guidance for Pollution Prevention (GPPs), and specific management plans to manage drainage and minimise the generation of suspended sediment,

With the implementation of the proposed mitigation measures during construction, potential impacts would be avoided or reduced. Residual Impacts on the majority of water features would be of Slight or Negligible significance and are not considered significant. A residual impact of Moderate significance on flood risk during construction would remain for the River Tummel, due to the requirement for works within the functional floodplain to construct the new Tummel Crossing.

During the operational phase, mitigation incorporated into the design would include the use of SuDS, scour protection and plans to manage flood flows.

With the proposed mitigation, the majority of residual impacts during operation would be of Slight or Negligible significance. For flood risk, adverse residual impacts of Moderate significance and beneficial impacts of Large significance are reported. However, the net effect of the proposed scheme on flood risk is considered to be beneficial, due to a reduction in flood risk to residential properties as a result of the proposed mitigation. Adverse residual impacts from flood risk relate to localised increases in flood depths on agricultural land.

## Ecology and Nature Conservation

This chapter of the ES considers the potential impacts of the proposed scheme on terrestrial and freshwater species, habitats and ecosystems. The approach to this assessment is based on the guidance provided by the DMRB and draws on the Chartered Institute for Ecology and Environmental Management's (CIEEM) Guidelines for Ecological Impact Assessment in the UK and Ireland.

Baseline conditions for ecological features were established through desk-based assessment, consultation and site surveys. This process identified ecological features that could potentially be impacted by the proposed scheme, within a 500m study area including: two statutory designated sites (the River Tay SAC and the Pass of Killiecrankie Site of Special Scientific Interest (SSSI)); and aquatic and terrestrial species and habitats. Habitats and species of particular relevance included, amongst others, Ancient Woodland Inventory (AWI) sites, the notable plant species northern marsh-orchid, otter, red squirrel, badger, bats and freshwater pearl mussel.

Assessment of impacts and their significance took into account the nature and magnitude of potential impacts and their consequent effects on important ecological features.

Prior to the development and application of mitigation, potential significant impacts on ecological features were identified for the construction and operation phases of the proposed scheme.

The primary approach to mitigation has been to use the flexibility available within the early design stages to avoid significant impacts. For example, a roundabout on the southbound exit/entry slip roads at the Pitlochry North Junction was incorporated during the design development to reduce substantially the land-take and associated loss of habitat listed on the AWI in this area, compared with the initial proposal. An iterative design process has been undertaken and design principles have been discussed with SNH, SEPA and other relevant stakeholders.

Where avoidance of impacts has not been possible, mitigation measures to reduce significant adverse impacts have been proposed. Measures include the implementation of standard mitigation commitments and best working practices during the construction phase.

To mitigate impacts, compensatory planting, habitat creation, mammal fencing and provision of crossing structures have been proposed to mitigate impacts and are shown on the drawings provided in Section 4.



**Photograph 7: Northern marsh-orchid recorded within the study area, on the existing A9 verge, north of Middleton of Fonab**

No significant residual impacts are anticipated from construction of the proposed scheme. Whilst, areas designated as part of the AWI have been avoided where possible, a significant residual impact from the operation phase is anticipated from the permanent loss of habitat designated as part of the AWI. Compensation planting is proposed, however this will not mitigate for the permanent loss of the biodiversity and intrinsic importance of AWI habitats. However, as this habitat matures, woodland corridors will grow to connect currently fragmented areas and the planting will therefore mitigate for the functions and importance of the woodland in respect of habitat connectivity and carrying capacity for other species. In the long-term, significant residual impacts are therefore predicted to reduce.

A potential beneficial impact is anticipated as a result of the proposed scheme through increased permeability of the A9 for species compared with that from the existing A9. This is expected for species including badger and otter, through provision of crossing structures, which include culverts with mammal provision and dry mammal underpasses.

### Landscape

This chapter of the ES presents the assessment of the potential impacts on the landscape resource resulting from the proposed scheme. The assessment has been undertaken following guidance provided by DMRB Interim Advice Note 135/10 Landscape and Visual Effects Assessment (IAN 135/10) and Guidelines for Landscape and Visual Impact Assessment 3<sup>rd</sup> Edition (GLVIA3).

Baseline conditions were established through desk-based research and site surveys of the study area comprising the proposed scheme and an area extending up to a distance of 5km from it.



Photograph 8: Queen's View, Loch Tummel NSA (Ben Vrackie SLA)

There are a number of designated/protected areas and areas of national importance located within the study area including the Cairngorms National Park (CNP), Loch Tummel National Scenic Area (NSA), Ben Vrackie Special Landscape Area (SLA) and the Cairngorms Wild Land Areas (WLAs). The proposed scheme would also pass directly through the Landscape Character Areas (LCAs) of Strath Tummel and the Strath Tummel: Pitlochry (settlement) as well as the Local Landscape Character Area (LLCA) of the Pass of Killiecrankie.

Potential impacts of the proposed scheme on these landscape receptors would arise from construction activities such as the removal of roadside vegetation, the loss of existing embankments and rock outcrops, in addition to the construction of structures and earthworks (for example the Pitlochry North and South grade separated junctions and the Tummel Underbridge). Potential impacts would also arise from the operation of the additional carriageway and associated route infrastructure, in addition to the changed appearance of the landscape and the associated change in perception.

In order to mitigate these potential impacts, a number of embedded, standard and project specific mitigation measures have been developed through an iterative design process. The proposed scheme alignment has been developed to avoid or reduce potential impacts on landscape features. This has primarily been achieved through online widening of the existing A9 where practicable, grading out of cuttings and embankments in order to reflect the local topography and planting to integrate the proposed scheme into the landscape. Where planting is specified, native plant species are proposed to re-establish or reinforce the character of the landscape, and woodland planting is proposed in areas where restoration is required to improve the fit of the proposed scheme with the surrounding landscape. Sowing of species rich grassland is proposed in some open areas.

In addition to considering alignment, earthworks and planting, specific mitigation measures have included input to the design of structures such as Tummel Underbridge, Clunie Underbridge, and SuDS features. In areas where exposure of rock cuttings are anticipated, mitigation measures include creating a rugged, naturalistic appearance to reflect the character of the rock and fit with the surrounding landscape.

The assessment of impacts indicated that significant impacts would arise in two areas of importance; the Strath Tummel LCA and the Pass of Killiecrankie LLCA, in the winter of the year of opening. The impacts result from a loss of landscape features, loss of areas of mature and established woodland and farmland within the vicinity of the existing A9. The mitigation measures proposed would reduce the impact for the Strath Tummel LCA, to not significant; however, the impact would remain significant for the Pass of Killiecrankie LLCA.

### Visual

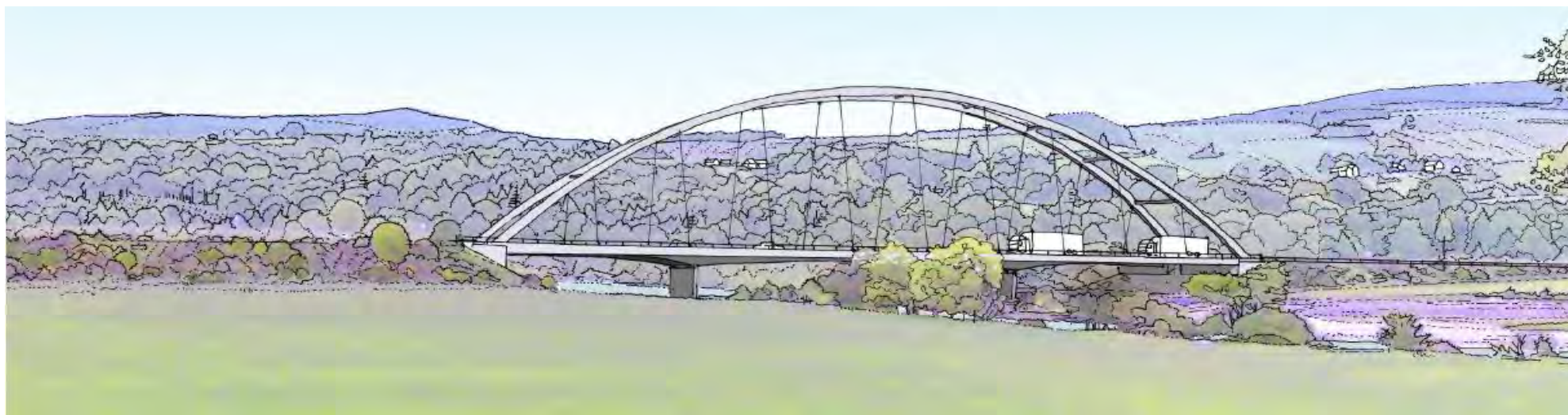
The visual assessment reported in the ES has considered the degree of likely impact resulting from the proposed scheme on the views experienced by people from buildings, outdoor public areas, local roads and routes used by pedestrians, cyclists and equestrians (collectively referred to as receptors).

In this section of the A9 and its associated study area, built receptors are generally concentrated in and around the town of Pitlochry. Outdoor receptors including roads and pedestrian or cycle routes occur throughout the study area.

The River Tummel is a primary feature within the landscape and the River Tummel is impounded by Pitlochry Dam to form Loch Faskally. The existing A9 is also a noticeable element within views as it follows the River Tummel valley, with adjacent established forestry plantations and mature woodland providing screening across some sections of the route. The topography of the area generally limits views to within the valley itself, with the rising hills to the east and west helping to screen more distant views into the area.

As noted above, the design of the proposed scheme has been developed through a process involving engineering, environmental and landscape specialists in order to reduce visual impacts and integrate the proposed scheme with the surrounding landscape.

As part of the design, landscape mitigation proposals were developed to reduce visual impacts. The proposals include grading out of embankment and cutting slopes to blend with existing landforms and planting to screen the proposed scheme and help integrate it with the surrounding landscape. The landscape design also considered opportunities to maintain or enhance open views. The effectiveness of the proposed planting is expected to increase over time as vegetation matures.



Artist's Impression: View of proposed Tummel Underbridge (Northeast View)

Visual impacts would be limited to some extent by the fact that the existing A9 is already visible from some locations and also due to the screening often provided by the existing landform and vegetation.

It is anticipated that impacts would typically occur where a receptor location is close to the proposed scheme or where open views are possible towards the A9, and these visual impacts would generally be associated with physical aspects of the scheme itself or with traffic. The assessment has identified that 24 built receptors and 16 outdoor receptors are likely to experience significant visual impacts during the construction phase. During operation, in the winter of the year of opening, 16 built receptors and 14 outdoor receptors are predicted to experience significant visual impacts. These impacts would be due to the loss of existing roadside vegetation and the increased prominence of the new road infrastructure (including earthworks, underbridges and retaining walls). The majority of the receptors affected would be located in proximity to the proposed Tummel Underbridge bow string arch bridge and the proposed Pitlochry North Junction location, to the north of Loch Faskally and below Creag na Ciche.

By the summer 15 years after the opening of the proposed scheme, mitigation planting, mostly in the form of new woodland and scattered individual trees would be established and is predicted to reduce the visual impacts of the proposed scheme such that the number of significantly affected built receptors would reduce to six and the number of significantly affected outdoor receptors would reduce to seven.

### Cultural Heritage

This chapter of the ES assesses the potential impacts of the proposed scheme on cultural heritage assets comprising archaeological remains, historic buildings and the historic landscape.

The study area extended to 200m in all directions from the footprint of the proposed scheme. Baseline conditions for the study area were established through a desk-based survey, a walkover survey and targeted geophysical survey. Designated cultural heritage assets beyond the study area but located within 2km of the proposed scheme were included in the baseline to assess potential impacts on setting. In total, 170 cultural heritage assets were considered as part of the baseline comprising 31 archaeological remains, 129 historic buildings, and ten historic landscape types.



**Photograph 9: Overton of Fonab/Balnacroft Farmstead (Asset 278) showing surviving remains of a sub-rectangular building**

An archaeological geophysical survey was also undertaken at Dunfallandy where the potential presence of linear and pit features that may be of archaeological origin were identified. These potential archaeological remains will be subject to archaeological evaluation by trial trenching and subsequent archaeological excavation prior to construction should the evaluation identify them to be archaeological remains or features.

Prior to commencement of construction works, archaeological investigations will be undertaken, comprising trial trenching taking into account areas of high and low archaeological potential to inform a strategy to mitigate the impact of the construction of the proposed scheme.

After proposed mitigation measures are considered, no significant residual impacts are predicted, and the overall impact on the cultural heritage resource comprising archaeological remains, historic buildings and the historic landscape has been assessed to not be significant.



Photograph 10: View from Dunfallandy Stone looking north-east towards existing A9

### Air Quality

This chapter of the ES considers the potential impacts of the proposed scheme on air quality during construction and operation. The existing air quality throughout the area is characterised by the existing emissions from road traffic. Air quality modelling was undertaken to determine the potential for changes to air quality as a result of the proposed scheme, and any related impacts on local communities and designated ecological sites.

The assessment used air quality monitoring and modelling to consider the following pollutants emitted from vehicles; nitrogen oxides, nitrogen dioxide and fine particulate matter (PM).

The potential effect of construction on ambient PM concentrations was also considered and carbon dioxide has been considered in the regional emissions assessment.

To establish local baseline air quality conditions, a project specific air quality monitoring survey was undertaken along with a review of PKC's 'Updating and Screening Assessments for PKC (2015) and 'Air Quality Annual Progress Report (2016).

Air Quality monitoring near the proposed scheme shows that nitrogen dioxide concentrations and PM concentrations currently meet the prescribed air quality objectives (AQOs).

Impacts of the proposed scheme were assessed for the year of opening (2026). It was concluded that there are no significant local air quality impacts at either human exposure locations or ecosystems/designated sites. A regional emissions assessment was undertaken for the year of opening (2026) and the design year (2041). The regional assessment predicted that emissions of nitrogen oxides, nitrogen dioxide, fine PM and carbon dioxide will increase with the proposed scheme, but the predicted level of emissions are not considered to be significant.

During the construction phase of the proposed scheme, the appointed contractor will be required to implement appropriate dust control measures and as such, the proposed scheme is not expected to have any significant residual impacts.

### Noise and Vibration

This chapter of the ES considers the potential noise and vibration impacts of the proposed scheme on noise sensitive receptors (NSRs) e.g. residential properties and schools.

The noise assessment for the proposed scheme used noise monitoring and modelling to establish baseline conditions and identify potential noise and vibration impacts associated with the proposed scheme from both construction and operation. The study area and calculation area were determined using the guidance provided in DMRB.

Operational noise modelling was undertaken for all NSR, noise sensitive committed developments and noise sensitive amenity areas within the defined calculation area which extends 600m from the proposed scheme.

As part of the impact assessment a baseline noise survey was undertaken at eight identified NSRs to support validation of the noise model outputs and inform understanding of the existing noise climate within the vicinity of the proposed scheme.

Measures embedded in the proposed scheme that attenuate noise include the use of low noise surfacing on sections of the existing A9 to the north and south of the proposed scheme, and two noise barriers. Noise barriers are proposed to be located at ch120–ch320 (southbound) at a height of 0.8m and another located at ch6600–ch6750 (northbound) at a height of 0.5m above the finished road level of the A9 dualled carriageway based on the DMRB Stage 3 design.



Photograph 11: Baseline noise monitoring equipment

An indicative assessment of potential eligibility for noise insulation for all NSR under the Noise Insulation (Scotland) Regulations 1975 was also undertaken. The results indicated that no NSR would meet the eligibility requirements for noise insulation.

The results of the residual operational noise impact assessment in the short-term indicate that at ground floor level, two NSR would have significant impacts. Consideration was given to providing noise mitigation along the garden boundaries facing on to the side roads B8019 and A924 to reduce impacts. However, as the driveways of these properties also share this boundary then any additional mitigation would be ineffective due to the gaps required to accommodate driveways. Accordingly, mitigation for these properties has not been proposed.

The results of the residual operational noise impact assessment in the long-term indicate that at ground floor level and at the first floor level no NSRs would have a significant noise impact.

Potential impacts during the construction phase were also considered. Whilst there is potential for temporary significant impacts due to the proximity of some properties to the location of the works, with appropriate mitigation measures, it is anticipated that these could be reduced and would not be considered significant.

### Materials

This chapter of the ES presents a detailed assessment of the potential impacts associated with the use and consumption of material resources and the production and management of waste during construction of the proposed scheme. The assessment follows draft guidance set out in DMRB Volume 11, Section 3, Part 6 HD212/11 Materials (Highways Agency et al, unpublished 2012).

The use and consumption of material resources during construction has been estimated based on the likely requirements of the DMRB Stage 3 design of the proposed scheme. By applying key material and waste management principles, the impacts on natural resources and need for permanent disposal of wastes will be minimised. In particular, this will be achieved by re-using existing soils and infrastructure where possible, taking into consideration the environmental impacts of products during their procurement.

Proposed mitigation measures will aim to minimise materials use, maximise re-use and recycling of wastes and ensure all materials and waste are handled according to the regulatory requirements. It is proposed that these measures will be implemented through several plans addressing different aspects of construction site management, such as a Site Waste



Management Plan (SWMP) and a Construction Environmental Management Plan (CEMP).

The assessment utilised Transport Scotland's Carbon Management System (CMS) to estimate the total embodied carbon emissions, measured as carbon dioxide equivalent (CO<sub>2</sub>e) associated with material resources used for construction of the proposed scheme.

The overall impact magnitude on material resources is anticipated to be moderate based on the assessment of embodied carbon.

Impacts on waste management infrastructure were assessed (i.e. operational landfills and licensed waste management facilities). The residual impact on the generation and management of waste is not considered to be significant.



Photograph 12: Ground investigation works for the proposed scheme

### Policies and Plans

This chapter of the ES considers the proposed scheme's compliance with national, regional and local planning policy.

In principle the development of the proposed scheme is supported in planning policy, with the Scottish Government's commitment to the proposed scheme and wider improvements to the A9 outlined in the National Planning Framework 3 (2014) and various other national policy guidance documents.

The proposed scheme also supports regional transport policy objectives as part of a wider strategy to assist in providing enhanced connectivity to deliver prosperity and connect communities across the region. (TACTRAN Regional Transport Strategy, 2008)

The assessment has identified areas of potential non-compliance with some aspects of planning policy, largely due to the large scale and nature of the proposed scheme, as well as the wording of policies not being directly relevant. However, it finds that the proposed scheme complies with the overall aims of policy in all regards.

For example, in relation to landscape policies, it is clear that the proposed scheme will result in impacts, which raises potential policy conflicts. However, these landscape impacts should be viewed in the context of the presence of the existing A9, where the principle of a major trunk road has long been established. Similarly, in relation to the amount of material required to construct and operate the proposed scheme, it should be noted that equivalent scale roads infrastructure projects throughout Scotland and the UK that have a similar impact have been approved on the basis of the suggested mitigation and the acceptance that essential road infrastructure schemes of this scale would normally require a significant amount of materials to construct.

The design of the proposed scheme has been refined through the DMRB process, and mitigation measures are proposed to address potential impacts identified in the assessment chapters of the ES (Chapters 8–18). The design and environmental mitigation commitments reduce potential short and long term impacts of the proposed scheme where a potential policy conflict has been identified.

On balance, it is assessed that the proposed scheme broadly complies with the aims, intent and objectives of planning policies, relevant to the proposed

study area, for protecting environmental quality and delivering on the Scottish Government's commitments.

### Cumulative Impacts

This chapter of the ES considers potential for cumulative impacts of the proposed scheme, and those of the proposed scheme in combination with committed developments and other major proposed development projects, including other projects forming part of the A9 Dualling Programme.

Potential for cumulative impacts due to the combined effect of a number of different environmental impacts of the proposed scheme on a single receptor/resource was assessed, based on the findings of the topic chapters in this ES. Six significant cumulative impacts were identified for: Greengates, Faskally Cottage West, Littleton of Fonab, Balmore Cottages, Fonab Castle Hotel and Pitlochry Boating Station/Café.

The likely longer term upgrade of the A9 Dualling Programme from Perth to Inverness was identified as having the potential to have a cumulative impact in terms of impacts on the River Tay catchment, land-take from the River Tay SAC, effects due to loss of woodland including areas on the AWI, materials and waste management, long distance NMU routes, and land-take from land-holdings present in multiple project boundaries. Any cumulative impact as a result of changes in traffic volumes was incorporated into the relevant assessments reported in Chapters 8 to 19 of this ES and is not considered in this assessment.

In relation to loss of AWI, significant cumulative impacts are expected and further details of the expected impacts from other A9 dualling projects is required to confirm the level of this cumulative impact. No significant cumulative impacts are expected for the River Tay catchment, the River Tay SAC, land-holdings, long distance NMU routes and materials and waste.

No additional committed developments or proposed major development projects were identified that may contribute to a significant cumulative impact in combination with the proposed scheme.

### References

Chartered Institute of Ecology and Environmental Management (CIEEM) (2016). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2<sup>nd</sup> edition.

Defra (2014). UK National Atmospheric Emissions Inventory

Highways Agency et al. (1999). Design Manual for Roads and Bridges: Volume 11 as amended.

Highways Agency et al. (unpublished 2012). DMRB Volume 11, Section 3, Part 6 HD 212/11 "Materials" Draft, 2015.

Perth & Kinross Council (2014). Perth & Kinross Council Local Development Plan.

Perth & Kinross Council (2015). 2015 Updating and Screening Assessments for Perth and Kinross Council, June 2015.

Perth & Kinross Council (2016). 2016 Air Quality Annual Progress Report (APR) for Perth and Kinross Council, June 2016

Scottish Government (1984). Roads (Scotland) Act 1984.

Scottish Government (2008). Strategic Transport Project Review (STPR), December 2008.

Scottish Government (2011). Infrastructure Investment Plan, December 2011.

Scottish Government (2014). National Planning Framework 3.

Scott Wilson Kirkpatrick (1997). A9 (T) Perth to Inverness Development of A Route Strategy - Phase 3 Final Report.

Scott Wilson (2004). A9 Perth to Blair Atholl - Route Improvement Strategy Study. Scott Wilson (Scotland) Ltd, December 2005.

TACTRAN (2008). Tayside and Central Scotland Transport Partnership, Regional Transport Strategy 2008 – 2023.

Transport Scotland (2013). A9 Dualling Programme: Strategic Environmental Assessment – Environmental Report.

Transport Scotland (2016). A9 Dualling: Case for Investment.

## Section 4: Key Environmental Features



# Legend

## Design



Proposed Scheme  
(DMRB Stage 3 Design)



SuDS Retention Pond

## Proposed Landscape and Ecological Mitigation



Deciduous/Riparian Woodland Planting



Mixed Woodland Planting



Scrub Planting



Individual Deciduous Tree Planting



Heath



Grassland



Potential Return to Agriculture



Hedge



Red Squirrel & Bat Mitigation Area  
(woodland to be retained) for provision  
of boxes



Dry Mammal Underpass



Mammal Resistant Fencing



Noise Mitigation

## Constraints



River Tay Special Area of Conservation (SAC)

## Non Motorised Users (NMU)



Embedded NMU Mitigation



Existing Public Rights of Way



Existing Core Path



Existing National Cycle Route (NCR)

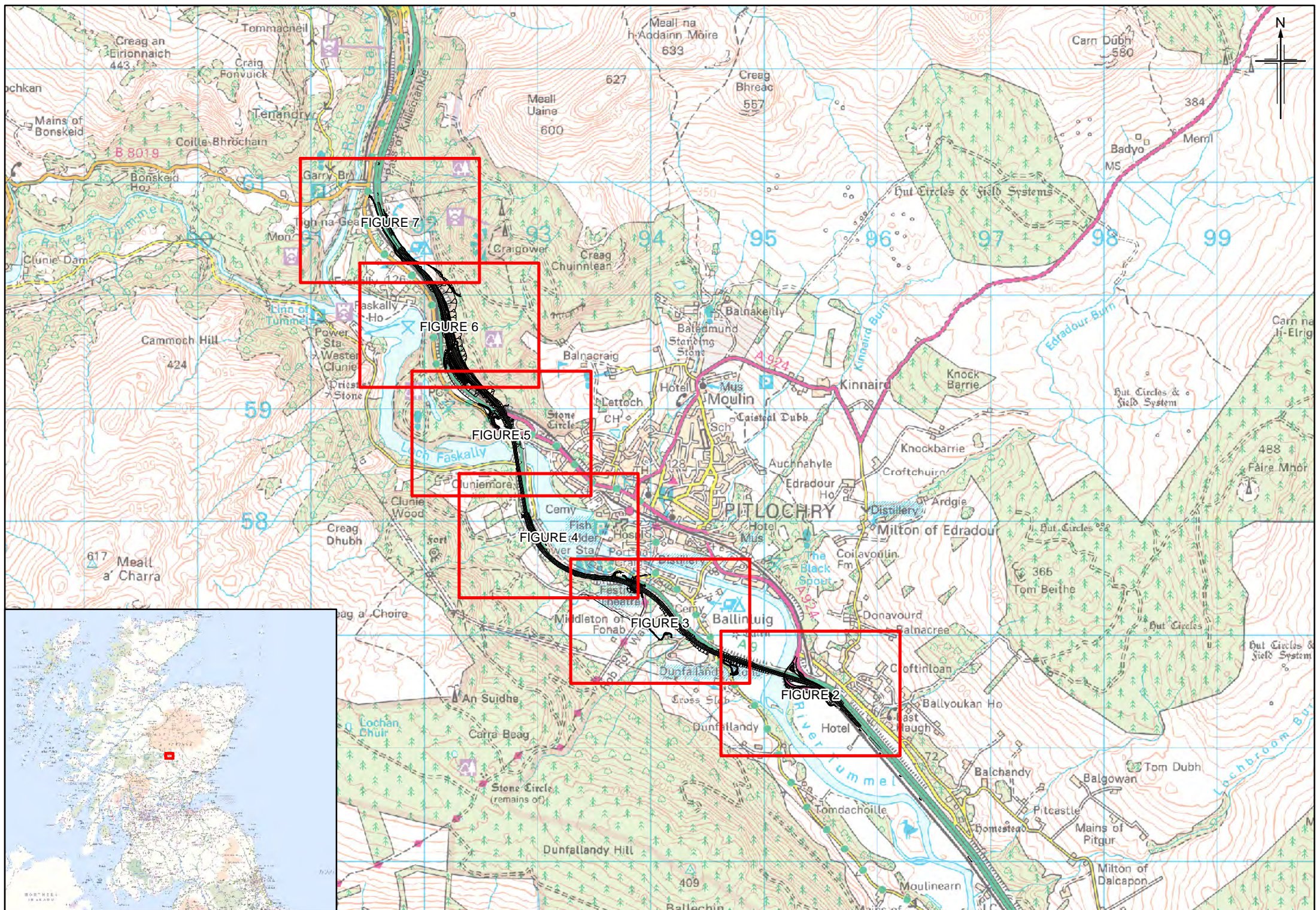


FIGURE 1

0 0.225 0.45 0.9 1.35 1.8 2.25 Kilometres

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FIGURE 2

0 0.05 0.1 0.2 0.3 0.4 0.5 Kilometres

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**FIGURE 3**

0 0.05 0.1 0.2 0.3 0.4 0.5 Kilometres

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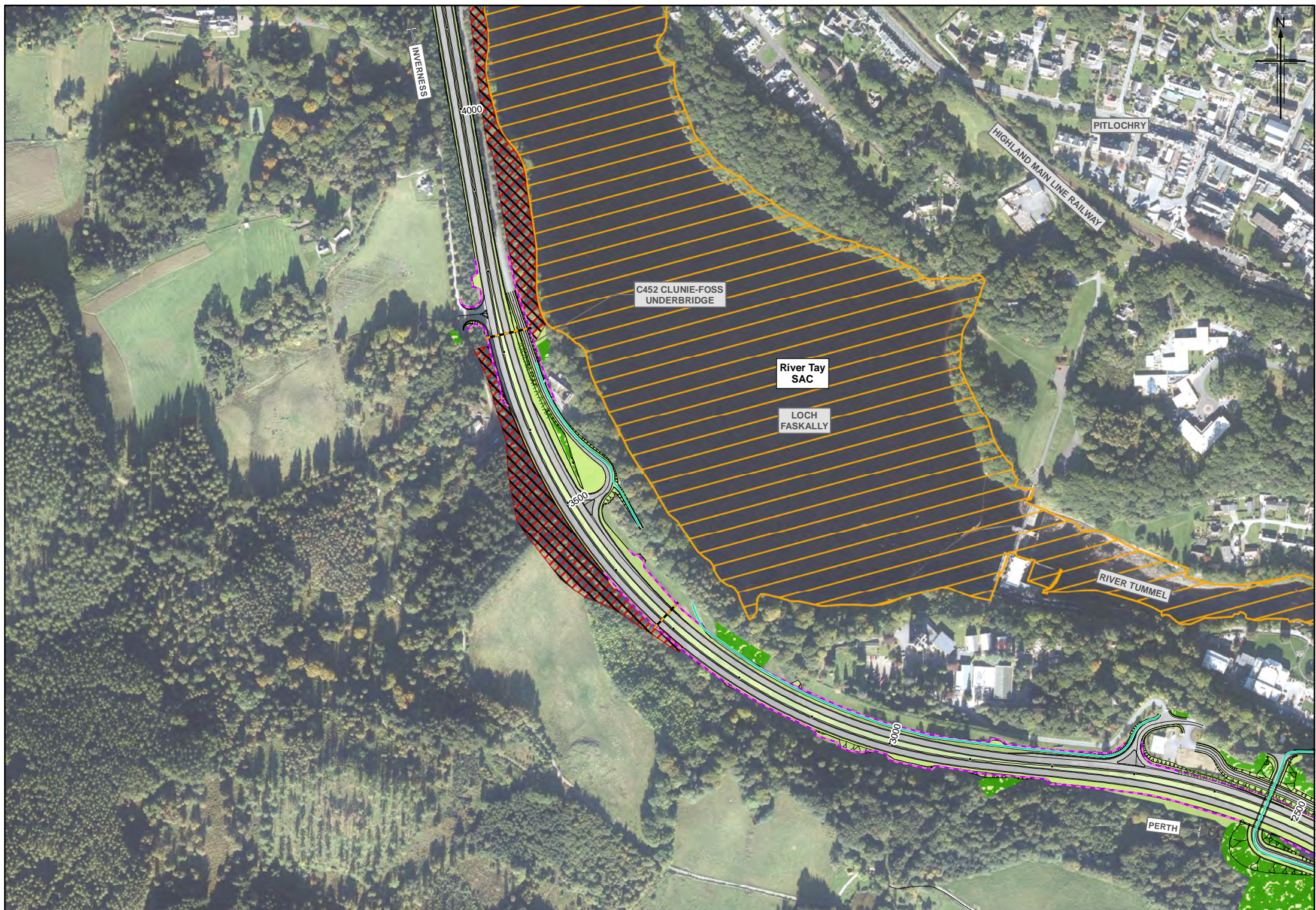
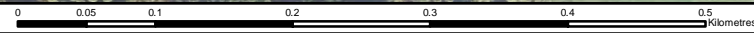


FIGURE 4



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**FIGURE 5** 0 0.05 0.1 0.2 0.3 0.4 0.5 Kilometres Reproduced by permission of Ordnance Survey on behalf of HMSO. © Crown copyright and database right 2017. All rights reserved. Ordnance Survey Licence number 100046666.

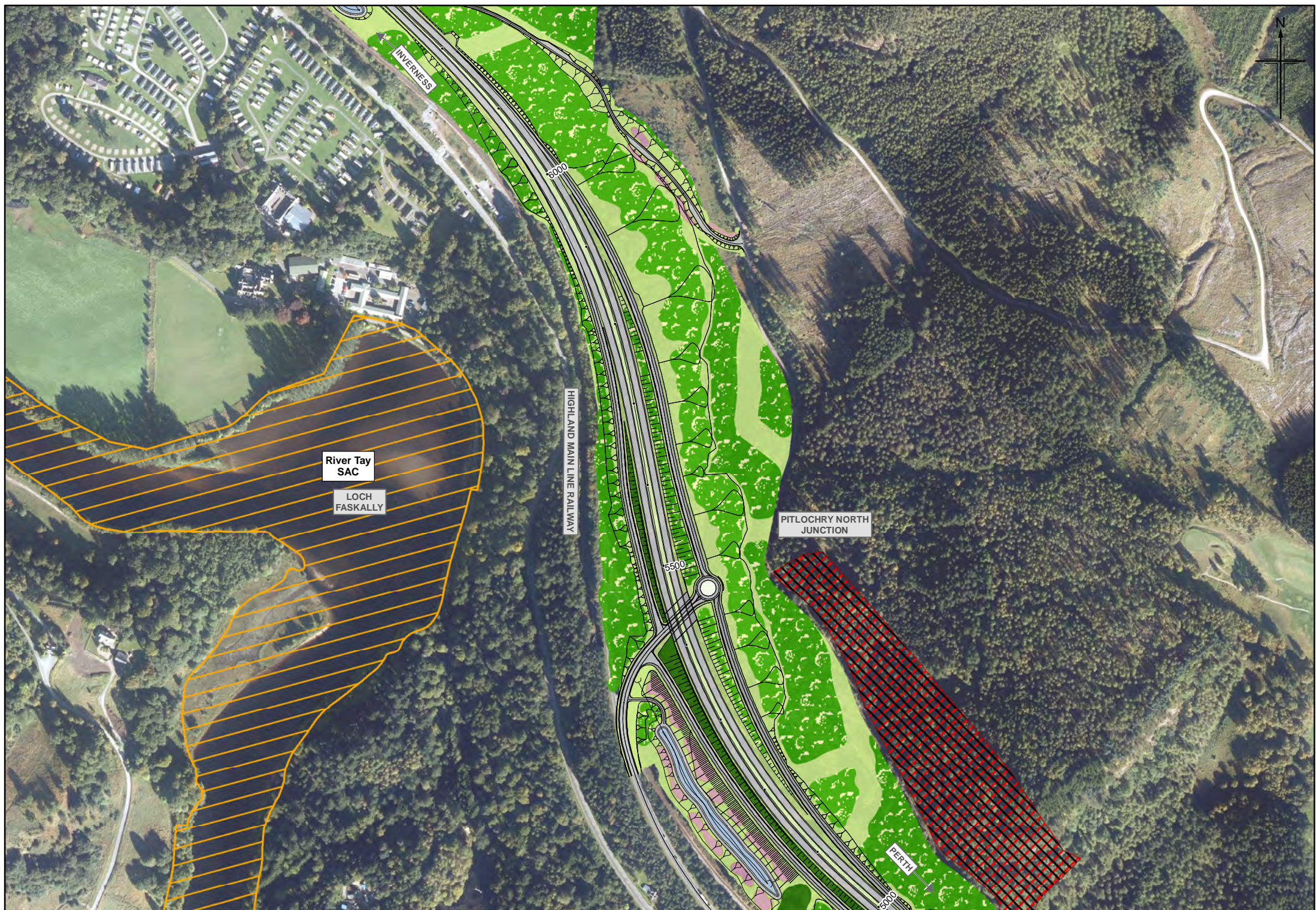


FIGURE 6

0 0.05 0.1 0.2 0.3 0.4 0.5 Kilometres

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FIGURE 7

0 0.05 0.1 0.2 0.3 0.4 0.5 Kilometres

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**A9**  
**DUALLING**  
**PERTH TO INVERNESS**  
Pitlochry to Killiecrankie

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