# 2. Existing Conditions

## 2.1 Introduction

2.1.1 A review has been undertaken in relation to the existing engineering, environment and traffic conditions along the A9 corridor within the extents of the proposed scheme between the Pass of Birnam and Tay Crossing. These existing conditions are considered to provide a background and understanding of how the proposed dualling may impact, be influenced by, or improve, these conditions. Any changes to the existing conditions since the conclusion of the DMRB Stage 2 assessment are also included in this chapter.

2.1.2 The existing engineering and traffic conditions are presented in this chapter of the DMRB Stage 3 Scheme Assessment Report. Existing environmental conditions are summarised in Section 2.2 of this Report, including those relating to topography, climate, land use and watercourses. A more extensive summary of specific existing environmental conditions is presented in the relevant chapters of the Environmental Impact Assessment Report (EIAR).

2.1.3 Within this chapter reference is made to 'project extents', which refers to those sections of existing A9, side road network and associated infrastructure that will be upgraded or incorporated into the proposed scheme.

2.1.4 Drawings A9P02-JAC-GEN-X_ZZZZZ_ZZ-FG-RD-0001 and A9P02-JAC-GEN-X_ZZZZZ_ZZ-FG-RD-0002 included in Volume 2: Engineering Drawings, identifies the location of existing conditions relative to the existing A9. The drawings should also be used as a reference for general features identified within this chapter of the report.

## 2.2 Scheme Location and Environment

**Location**

2.2.1 The proposed scheme commences at the northern extent of the current section of existing A9 dual carriageway, at the Pass of Birnam. It extends approximately 8.4 kilometres, bypassing the towns of Birnam, Little Dunkeld and Dunkeld to the east, and Inver and The Hermitage to the west. The northern extent of the proposed scheme is the tie-in location with the adjoining section of the A9 Dualling Programme, between Tay Crossing to Ballinluig, which is approximately 0.75 kilometres north of the current River Tay Crossing structure. The project location is shown on Drawing A9P02-JAC-GEN-X_ZZZZZ_XX-FG-RD-0001 in Volume 2: Engineering Drawings.

**Topography**

2.2.2 At Dunkeld and Birnam the existing A9 passes through the steep sided, narrow River Tay valley, with the topography rising steeply to the west. The floodplain associated with the River Tay (Special

Area of Conservation (SAC)) is located mainly to the east of the existing A9, except where the A9 crosses the River Braan at Inver and crosses the River Tay to the North of Dalguise junction. Additionally, the existing A9 is within the floodplain of a 1 in 200-year return period (0.5% AEP) plus climate change flood event, for approximately 500 metres between the River Braan crossing and Inver.

2.2.3 At the southern extent, the existing A9 is surrounded by Ancient Woodland that forms part of the Murthly Castle Gardens and Designed Landscape (GDL), with the undulating topography of Birnam Wood, Rochanroy Wood and Ring Wood to the immediate west. To the east of the A9, the River Tay floodplain opens out and the settlements of Little Dunkeld and Birnam are located on the west bank of the river, which is a SAC. A further small settlement, Inver, is located to the immediate west of the A9 between the River Braan and River Tay, on a low-lying area of land. The Hermitage, which is a National Trust for Scotland (NTS) protected site, is also to the west of the A9 and offers attractive woodland walks. The A9 generally follows the alignment of the River Tay as it continues north, beneath steep forested slopes on the west that lead to the summits of Creag Bheag (420 metres AOD) and Creag an Eunaich (459 metres AOD). Beyond the river, to the east, the topography rises to the summit of Craig-y-Barns Hill (337 metres AOD). Beyond the River Tay crossing the topography rises to the immediate east of the A9, with vegetated slopes. Photograph 2-1 shows a view of the typical topography between the Pass of Birnam and Tay Crossing.

2.2.4 A full description of the topography and landscape of the existing A9 between the Pass of Birnam and Tay Crossing is provided in Chapter 10 (Landscape) of the EIAR.

*Photograph 2-1: Typical Topography between the Pass of Birnam and Tay Crossing*

**Climate**

2.2.5 Records indicate that the climate within the proposed scheme extents is typical of the central highlands of Scotland (Met Office, 2016). The average annual temperature in Dunkeld is approximately 8.1°C, with a monthly temperature range between -1°C and 19°C. The warmest months are July and August, and the coldest are January and December. Monthly rainfall is between 44 millimetres and 87 millimetres, with January being the wettest month. Frost is prominent during winter months, peaking in January and December, which both have an average of 13 days of air frost each year. The month of May has the most hours of sunshine, with 171 hours,

and December the least, with 34 hours (Gazetteer for Scotland, 2021) (Climate Data, n.d.). The climate details are based on 30-year climate averages.

2.2.6 Highland sections centrally located between Perth and Inverness are particularly affected by winter weather. For traveller safety, road closures are implemented through the use of snow gates at or near the following locations, which correspond to high points along the A9 trunk road.

- Blair Atholl, north of the Pass of Killiecrankie;
- Trinafour/Dalnacardoch Estate, south of the Pass of Drumochter;
- Dalwhinnie, north of the Pass of Drumochter; and
- Newtonmore, within Cairngorm Mountains, north of the Pass of Drumochter.

2.2.7 Whilst these existing snow gates are outside the proposed scheme extents, they will be taken into consideration in the overall context of traffic movements and general access.

**Land Use**

2.2.8 Land use in the locality of the existing A9 between the Pass of Birnam and Tay Crossing is varied and includes the following general categories:

- Transportation provision (e.g. local roads, railway, and walking, cycling and horse-riding (WCH) provision);
- Residential, commercial and industrial property;
- Community facilities, including those provided by public authorities and commercial organisations for use by the whole community (e.g. doctors' surgeries, schools, post offices, churches and general stores);
- Community land and other areas identified as open space within Perth & Kinross Council's Local Development Plan, which provide an established public recreational resource (e.g. playing fields, core paths, country parks and woodlands);
- Land allocated for development through Perth & Kinross Council's Local Development Plan and/or planning applications; and
- Commercial agricultural, forestry and sporting land interests (e.g. shooting/stalking or fishing for commercial purposes).

2.2.9 The main transportation provision in the locality of the existing A9 between the Pass of Birnam and Tay Crossing are:

- The road network connecting into the A9;

- The Highland Main Line Railway line; and
- A network of WCH provision through Core Paths, Local Paths, Right of Ways, National Cycle Route, and Local Cycle Route.

2.2.10 The main communities in the locality of the existing A9 between the Pass of Birnam and Tay Crossing are:

- Birnam;
- Little Dunkeld;
- Dunkeld; and
- Inver.

2.2.11 Most residential properties are located within these communities, with the remainder made up of scattered rural dwellings, including a number of farmhouses and cottages. Drawings A9P02-JAC-GEN-X_ZZZZZ_ZZ-FG-RD-0001 and A9P02-JAC-GEN-X_ZZZZZ_ZZ-FG-RD-0002 included in Volume 2: Engineering Drawings, identifies the location of these communities relative to the existing A9.

2.2.12 Commercial property in the locality of the existing A9 within the Pass of Birnam and Tay Crossing proposed scheme extent includes:

- Caravan Sites;
- Garage / fuel station;
- Guest Houses and Hotels;
- Nurseries;
- Restaurants; and
- Shops.

2.2.13 A number of commercial properties, primarily focussed on provision and delivery of local services, are present within the well- established communities of Dunkeld and Birnam.

2.2.14 Industrial property in the locality of the existing A9 between the Pass of Birnam and Tay Crossing includes a number of industrial estates and yards in Birnam and Inver. These house local contracting and forestry businesses that operate both locally and more widely across Scotland and the UK.

2.2.15 Community facilities in the locality of the existing A9 between the Pass of Birnam and Tay Crossing include:

- Birnam Arts & Conference Centre (art centre, community centre, library, conference centre and café);
- Birnam Post Office;
- Children's play areas;
- Churches (St. Mary's Episcopal Church and Little Dunkeld Kirk);
- Craigvinean (Doctor's) Surgery;
- Dunkeld & Birnam Recreation Club (outdoor recreation centre comprising all-weather tennis courts, bowling green and a grass football pitch);
- Dunkeld & Birnam Railway Station;
- Dunkeld Cathedral;
- Dunkeld Fire Station;
- The Hermitage (NTS visitor attraction); and
- The Royal School of Dunkeld (nursery and primary school and Community Education/Adult Education base).

2.2.16 With regard to development land, the Perth and Kinross Council (PKC) Local Development Plan 2 (LDP) (PKC, 2019) sets out the policies and proposals within its boundary up to 2029 and beyond. Further information regarding planning applications is contained in Chapter 16 (Population – Land use) of the EIAR.

2.2.17 With regard to agricultural, forestry and sporting interests in the locality of the existing A9 between the Pass of Birnam and Tay Crossing, the predominant land use is forestry, interspersed with a limited number of agricultural fields. The agricultural land supports a limited range of upland agricultural systems with livestock production the main farming type. In the case of forestry, most of this is managed for commercial purposes although some forestry and woodland support other uses, including recreation. There are also known locations used for fishing and shooting.

2.2.18 A full description of the land uses in the locality of the existing A9 between the Pass of Birnam and Tay Crossing is provided in Chapter 16 (Population – Land Use) of the EIAR.

**Environmental Constraints**

2.2.19 A number of natural and man-made environmental constraints exist within the Pass of Birnam to Tay Crossing project extents. These include:

- Ancient Woodland Inventory (AWI);
- Conservation Areas;
- Gardens and Designed Landscape (GDL);
- Listed Buildings;
- National Scenic Areas (NSAs); and
- Special Area of Conservations (SACs).

2.2.20 Further details with respect to these existing environmental constraints are included in the various chapters of the EIAR and associated Environmental Figures.

**Man-Made Engineering Features**

2.2.21 A number of man-made engineering features exist within the project extents. Man-made engineering features with respect to the historic and current road network include:

- The route of the existing A9, which was constructed in the 1970s;
- The local road network, which is operated and maintained by Perth and Kinross Council (PKC). The main routes that interface with the existing A9 are the B867, Perth Road, A923, A822 (Old Military Road), Unclassified Road to Inver, and B898;
- A left/right staggered priority junction is provided between the existing A9 and the B867 towards Bankfoot and Perth Road towards Birnam, providing access to the communities of Birnam, Little Dunkeld, Dunkeld;
- A right/left staggered priority junction is provided between the existing A9 and the A923 towards Dunkeld and the A822 towards Inver and Crieff, also providing access to the communities of Birnam, Little Dunkeld, Dunkeld. Inver can be access via a priority junction between the A822 and Unclassified Road to Inver;
- A priority junction is provided between the A9 and the B898, providing access to Dalguise; and
- Access tracks, many of which form direct junctions with the existing A9, providing access to land adjacent to the road. In total, there are 13 direct accesses from access tracks on the existing A9.

2.2.22 Further man-made features that exist within the Pass of Birnam to Tay Crossing project extents include:

- A number of residential areas in the locality of the existing A9, including Birnam, Little Dunkeld, Dunkeld, and Inver which can be accessed from the existing A9 as described above;
- Several commercial properties in the locality of the existing A9 between the Pass of Birnam and Tay Crossing, which can be accessed from the existing A9 and the existing local road network using the junctions noted above. Brodie's Timber, Scottish Forestry (Tay Forest District Office) and Foster Contracting (North) are located in Inver. The Birnam Industrial Estate comprises two units and is located in Birnam. One of the units is under Transport Scotland ownership and is currently rented by a local bakery (Aran Bakery). The other unit houses a joinery business (Merriman Joinery) and a ski maker (Lonely Mountain Skis);
- The Highland Main Line railway, which is approximately 190 kilometres (118 miles) long, and travels through the Scottish Highlands. The route is predominantly single track through this area, with a short section of double track creating a passing loop at Dunkeld & Birnam Station. The Highland Main Line railway is in close proximity to the existing A9 at Birnam and Dunkeld, and passes under the existing A9 carriageway via the Inver rail tunnel, approximately 1.5 kilometres west of the existing A822 junction, and the Inch rail tunnel located at the existing B898 junction. There are no trunk road or local road level crossings of the railway within the project extents;
- Dunkeld & Birnam Station is located immediately to the west of the existing A9. The station is located on a section of passing loop and has platforms in both directions. Vehicular access to the station and its car park, which can accommodate approximately 30 vehicles, is provided directly from the existing A9 via an existing at-grade junction. The station building is Category A Listed, and the listing includes a pedestrian footbridge. The signal box at the station is Category B Listed; and
- Ladywell Landfill site, which is monitored by PKC, is located immediately to the west of the Highland Main Line railway and is approximately 380 metres north-west of Dunkeld & Birnam Station.

2.2.23 The locations of the above man-made features are shown on Drawings A9P02-JAC-GEN-X_ZZZZZ_ZZ-FG-RD-0001 and A9P02-JAC-GEN-X_ZZZZZ_ZZ-FG-RD-0002 included in Volume 2: Engineering Drawings.

**Watercourses**

2.2.24 The Pass of Birnam to Tay Crossing project crosses a number of prominent watercourses, including:

- Inchewan Burn;
- The River Braan;

- Mill Lade; and
- The River Tay.

2.2.25 A more detailed description of the prominent watercourses referred to above, and all watercourse crossings, including minor watercourses, is included in Chapter 19 and Appendix A19.3 (Road Drainage and the Water Environment) of the EIAR. The locations of the prominent watercourses referred to above are shown on Drawings A9P02-JAC-GEN-X_ZZZZZ_ZZ-FG-RD-0001 and A9P02-JAC-GEN-X_ZZZZZ_ZZ-FG-RD-0002 included in Volume 2: Engineering Drawings.

## 2.3 Existing Road Network

**Description of Existing Trunk Road Network**

2.3.1 The existing A9 between the Pass of Birnam and Tay Crossing was constructed in the 1970s as two separate bypass projects. The section is 8.4 kilometres long and as-built drawings from the original construction confirm the single carriageway cross-section is 7.3 metres wide with 0.7 metre wide nearside hardstrips. However, the carriageway is wider at places to provide ghost islands, diverge tapers and lay-bys. Verge widths vary throughout to accommodate forward visibility, drainage, traffic signs, safety barriers and average speed safety cameras where appropriate. The current carriageway is kerbed. Illustration 2-1 shows the existing A9 carriageway.

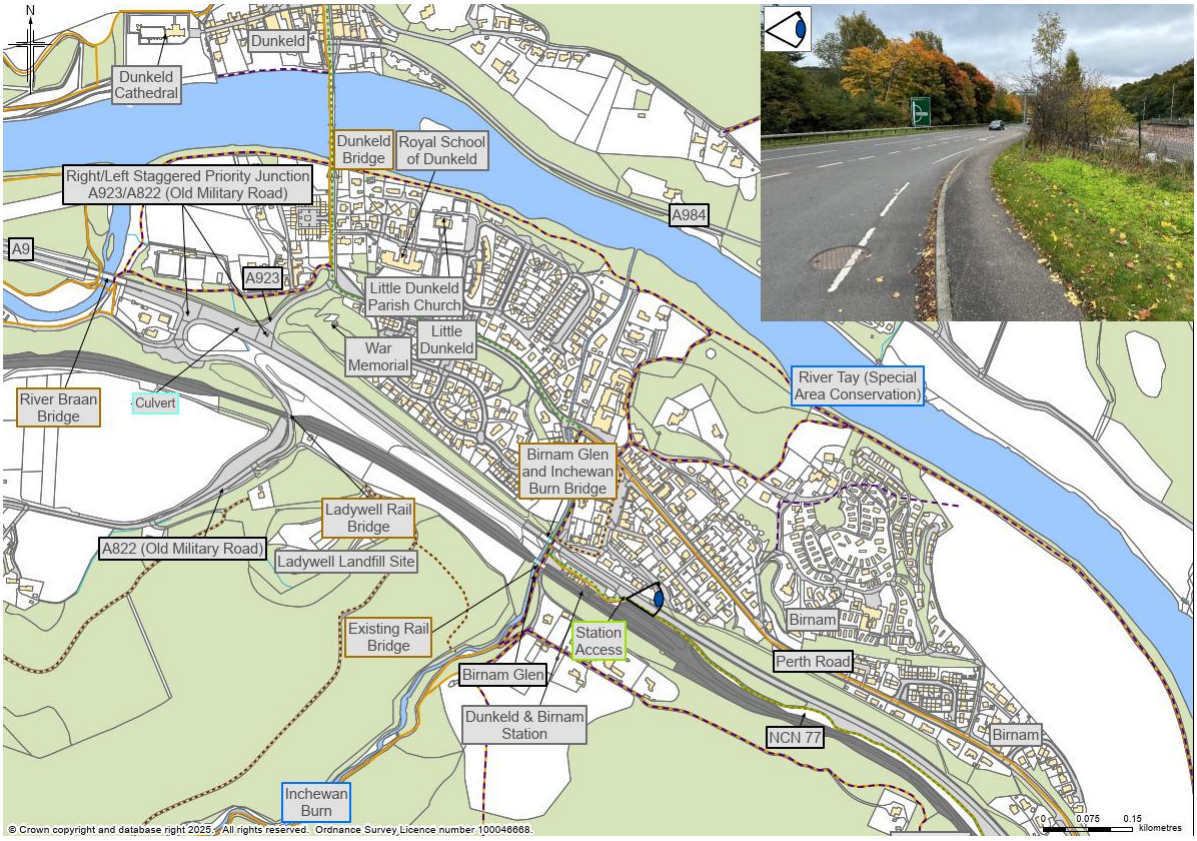


*Illustration 2-1 Typical section of Existing A9 Trunk Road between Birnam and Little Dunkeld*

2.3.2 The following description of the existing A9 should be read in conjunction with Drawings A9P02-JAC-GEN-X_ZZZZZ_ZZ-FG-RD-0001 and A9P02-JAC-GEN-X_ZZZZZ_ZZ-FG-RD-0002 included in Volume 2: Engineering Drawings.

2.3.3 Travelling north, the section of the existing A9 within the project extents commences at the end of the existing dual carriageway section at the Pass of Birnam on a right-hand horizontal curve. There is a priority junction on the southbound carriageway on the inside of the right-hand curve, which provides access to Murthly Estate. The junction incorporates a left-hand diverging lane loop on the northbound approach for right turns, and a nearside auxiliary lane on the southbound approach. A Type B lay-by, in accordance with Figure 4.30N in the DMRB CD 169 – The design of lay-bys, maintenance hardstandings, rest areas, service areas and observation platforms (DMRB, 2022), is located on the northbound carriageway towards the northern extent of the right-hand horizontal curve.

2.3.4 Continuing north, the alignment transitions to a left-hand bend, which includes a Type B lay-by (DMRB, 2022) off the southbound carriageway, and then on to a straight section where there is a left/right staggered priority junction. This junction links to the B867 to Bankfoot to the west and Perth Road, which leads to Birnam, Little Dunkeld and Dunkeld, to the east. This junction, labelled as “Left/Right Staggered Junction B867/Perth Road” in Illustration 2.2, incorporates diverge tapers for left turning A9 traffic, and ghost islands to facilitate right turning traffic crossing the existing A9. Merge tapers are not provided.

2.3.5 Immediately north of the junction, the existing A9 passes through a left-hand horizontal curve and the alignment is parallel and in close proximity to the Highland Main Line railway to the west and residential properties to the east. Following the left-hand curve is a right-hand curve and then a straight as the existing A9 passes Dunkeld & Birnam Station, which is on the west. A priority junction on the northbound carriageway provides access to the station. The junction incorporates a nearside auxiliary lane on the northbound approach for diverging traffic, but no ghost island for right turning traffic from the southbound carriageway. There is also no merge taper for traffic joining the existing A9. Directly north of the station, the existing A9 crosses Birnam Glen and the Inchewan Burn on a bridge. It should be noted that a sub-standard headroom clearance of approximately 3.6 metres is provided along Birnam Glen under the existing A9 bridge, limiting the size of vehicles that can travel along Birnam Glen. The adjacent railway bridge has a lower sub-standard headroom clearance of approximately 2.7 metres, further limiting the size of vehicles that can travel along Birnam Glen. A headroom clearance of 5.3 metres is required to provide unrestricted vehicle movement, as per the DMRB CD 127 – Cross-sections and headrooms (DMRB, 2021b).

2.3.6 Continuing north, the existing A9 is in cutting with the Highland Main Line railway to the west and residential properties to the east. The existing A9 enters a left-hand horizontal curve and there is a right/left staggered priority junction as shown in Illustration 2.3. The junction is with the A923 to the east, providing access to Birnam, Little Dunkeld and Dunkeld, and the A822 (Old Military Road) to the west, which provides a route to Crieff and Crianlarich, and to the unclassified road to Inver. The junction incorporates diverge tapers for left turning A9 traffic, and ghost islands to facilitate

right turning traffic crossing the existing A9. Merge tapers are not provided. The A822 (Old Military Road) passes underneath the Highland Main Line railway via an existing masonry arch bridge structure that has sub-standard headroom clearance of approximately 4.7 metres. Access to Inver is via an unclassified side road that forms a simple priority junction with the A822 (Old Military Road) approximately 60 metres to the junction with the existing A9.

2.3.7 The existing A9 crosses the over the River Braan watercourse via a bridge and approaches Inver, which is on the west of the carriageway, on a left-hand horizontal curve. The River Tay is on the immediate east and Type B lay-bys (DMRB, 2022) are provided on both the northbound and southbound carriageways. Two short sections of retaining wall have been constructed on opposite sides of the existing A9 at Inver to avoid impacting adjacent residential properties. A priority junction, labelled as "Auchlou Cottage Access" in Illustration 2.3, is located on the southbound carriageway to access the property known as Auchlou, which is under Transport Scotland ownership, on the east of the existing A9. This access is immediately north of a bus lay-by. A bus lay-by is also provided on the northbound carriageway in this location.

2.3.8 The alignment continues north on a series of large radii reverse curves as it passes The Hermitage on the west. Access to The Hermitage is via a priority junction on the northbound carriageway, labelled as "The Hermitage Access" in Illustration 2.4, which includes a nearside auxiliary lane on the northbound approach for left turning A9 traffic, and a ghost island to facilitate right turning traffic from the southbound carriageway of the existing A9. A merge taper is not provided. Two minor accesses, labelled as "Field Access 1" and "Forestry Access 2" in Illustration 2.4, are present on the southbound carriageway to access land between the A9 and the River Tay.

2.3.9 Approaching the River Tay crossing, the existing A9 passes through a right-hand compound curve, comprising of three separate radii. Dense woodland lines the route on its west side, and the Highland Main Line railway, which passes beneath the existing A9 through the Inver Rail Tunnel at the beginning of the curve, lies to the east. There are a number of minor accesses on the existing A9, providing access to adjacent land. A Type B lay-by (DMRB, 2022) is provided on the northbound carriageway and a Type A lay-by (DMRB, 2022) on the southbound carriageway. Immediately south of the River Tay crossing, the existing A9 transitions on to a straight and there is a priority junction on the northbound carriageway with the B898, labelled as "B898 Priority Junction" in Illustration 2.6, which provides a route to Dalguise, Kinnaird and Balnaguard. This junction incorporates a diverge taper and is located at the Inch Rail Tunnel, where the Highland Main Line railway passes below the existing A9. While a ghost island is not provided to accommodate southbound right turning traffic crossing the existing A9, there is a central median, approximately 1 metre wide at this location. A merge taper is not provided. The existing A9 is on a straight as it crosses the River Tay and continues on to a left-hand curve as it approaches the tie-in point with the A9 Dualling Programme: Tay Crossing to Ballinluig project.

2.3.10 The Pass of Birnam to Tay Crossing section is subject to the national speed limit, which is 60mph for cars and motorbikes and 50mph for buses, coaches and minibuses. For goods vehicles, the speed limit is either 40mph or 50mph dependant on the maximum laden weight. However, on single carriageway sections of the existing A9, HGVs are subject to a speed limit of 50mph, which

has been in-place since October 2014, prior to which HGVs were limited to a maximum speed of 40mph.

2.3.11 Along the length of the existing A9 between Dunblane and Inverness, average speed safety cameras have been implemented and have been operational since 28 October 2014. Average speed safety cameras record the time a vehicle enters and leaves a particular section of the existing A9. The distance between the cameras is fixed, which then allows for the average speed of the vehicle to be calculated and recorded. There is one average speed camera within the Pass of Birnam to Tay Crossing section of the A9, located approximately 0.75 kilometres south of the junction with the B867 on the northbound verge.

**Description of Existing Local Road Network**

2.3.12 As part of the Preliminary Engineering Services (PES) commission, a strategy was developed to provide a consistent approach with regards to the provision of access to the A9 corridor. The strategy considers three tiers of roads:

- Tier 1 - A and B Class Roads;
- Tier 2 - C and Unclassified Roads; and
- Tier 3 - Private and Agricultural Access Roads.

2.3.13 There are four Tier 1 roads (B867, A923, A822 and B898), two Tier 2 roads (Perth Road and Unclassified Road to Inver) and 13 Tier 3 roads/accesses which intersect with the existing A9 along the proposed scheme extents. These roads, along with the existing junctions, are described in the following sections.

<u>B867 (Bankfoot to Birnam)</u>

2.3.14 The B867 is a single carriageway road generally 7.3 metres wide and commences at the staggered priority junction on the northbound side of the existing A9 at Birnam. The B867 rises steeply from the existing A9 heading south-east, parallel to the existing A9, before turning south towards the villages of Waterloo and Bankfoot. South of Bankfoot the B867 re-joins the existing A9 via a left-in left-out junction on the northbound carriageway of the recently constructed A9 Dualling Programme: Luncarty to Pass of Birnam scheme.

2.3.15 The edge of the carriageway is kerbed in the vicinity of the junction with the existing A9 at Birnam, and the width of the grass verges is variable. There are no footways present at this point, however National Cycle Network (NCN) Route 77 departs its on-road route along the existing B867 to join a segregated cycle path from the northbound carriageway approximately 70 metres in advance of the junction with the existing A9 at Birnam. There is no lighting present in the vicinity of the junction with the existing A9 at Birnam. The southern section of the route from its junction with the existing A9 at Bankfoot to a point just north of the village of Waterloo has a footway along at least one side of the B867 road. A restricted speed limit of 30mph is signed through Bankfoot but

the remainder of the route is to the national speed limit of 60mph. Illustration 2.2 shows the existing B867 at its junction with the existing A9 and the route of the existing B867.

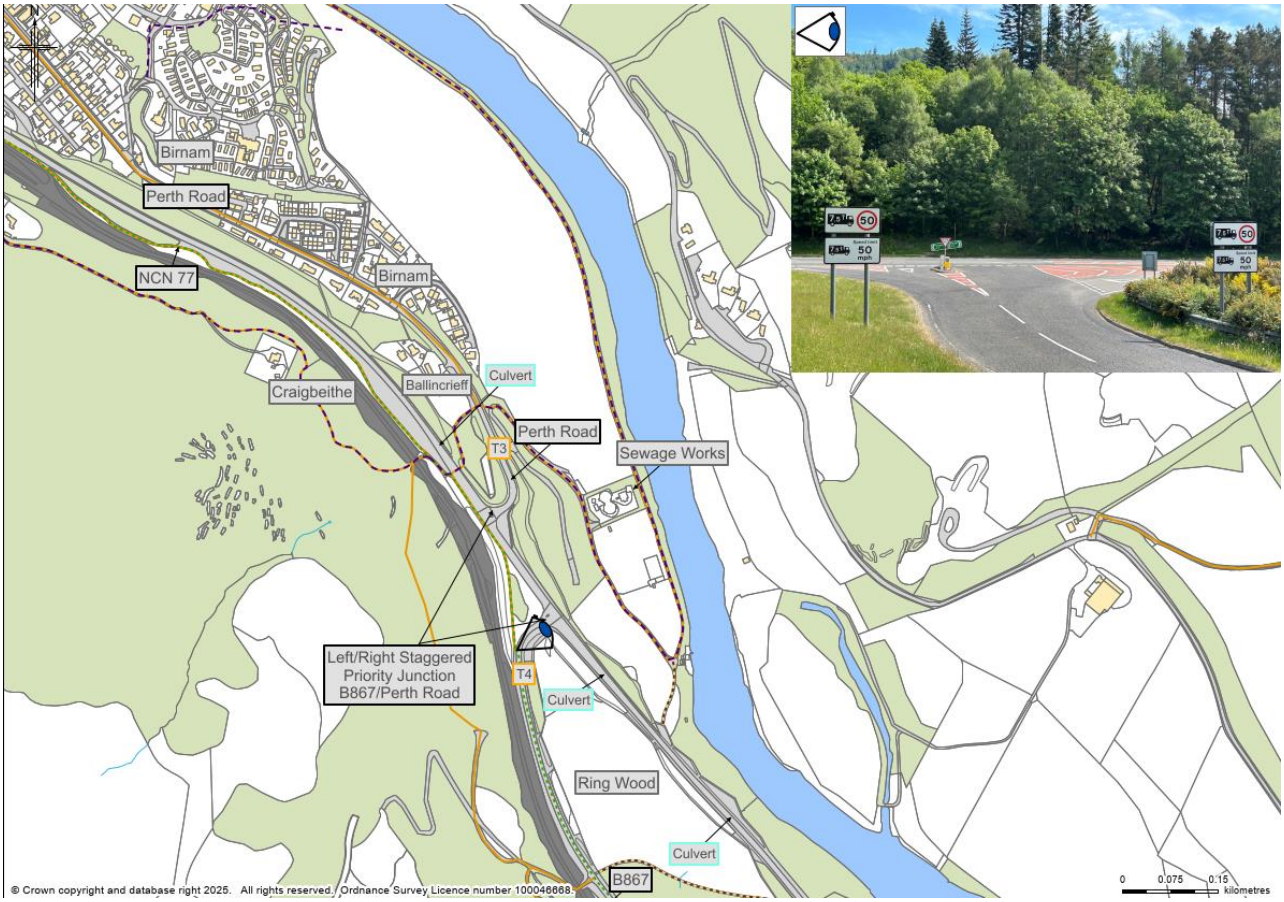


*Illustration 2-2 B867 Junction with the existing A9 (Bankfoot to Birnam)*

Perth Road (Birnam to Dunkeld)

2.3.16 Perth Road is a single carriageway road generally 7.3 metres wide and commences at the staggered priority junction on the southbound side of the existing A9 at Birnam. Perth Road descends north-west then west from the existing A9 heading into Birnam, parallel to the existing A9, and continues in this direction until its junction with the A923 at Little Dunkeld.

2.3.17 The edge of the carriageway is kerbed for the majority of the road from the junction with the existing A9 to the end of the road at its junction with the A923. The road has a footway along at least one side of the road for the majority of its extents, with footways to both sides through the main built-up area in Birnam. There is no lighting present in the vicinity of the junction with the existing A9, however a restricted speed limit of 30mph Ais signed on entry into Birnam and street lighting is provided along the remainder of the road through the village. Illustration 2.3 shows the existing Perth Road junction with the existing A9 and the route of Perth Road.

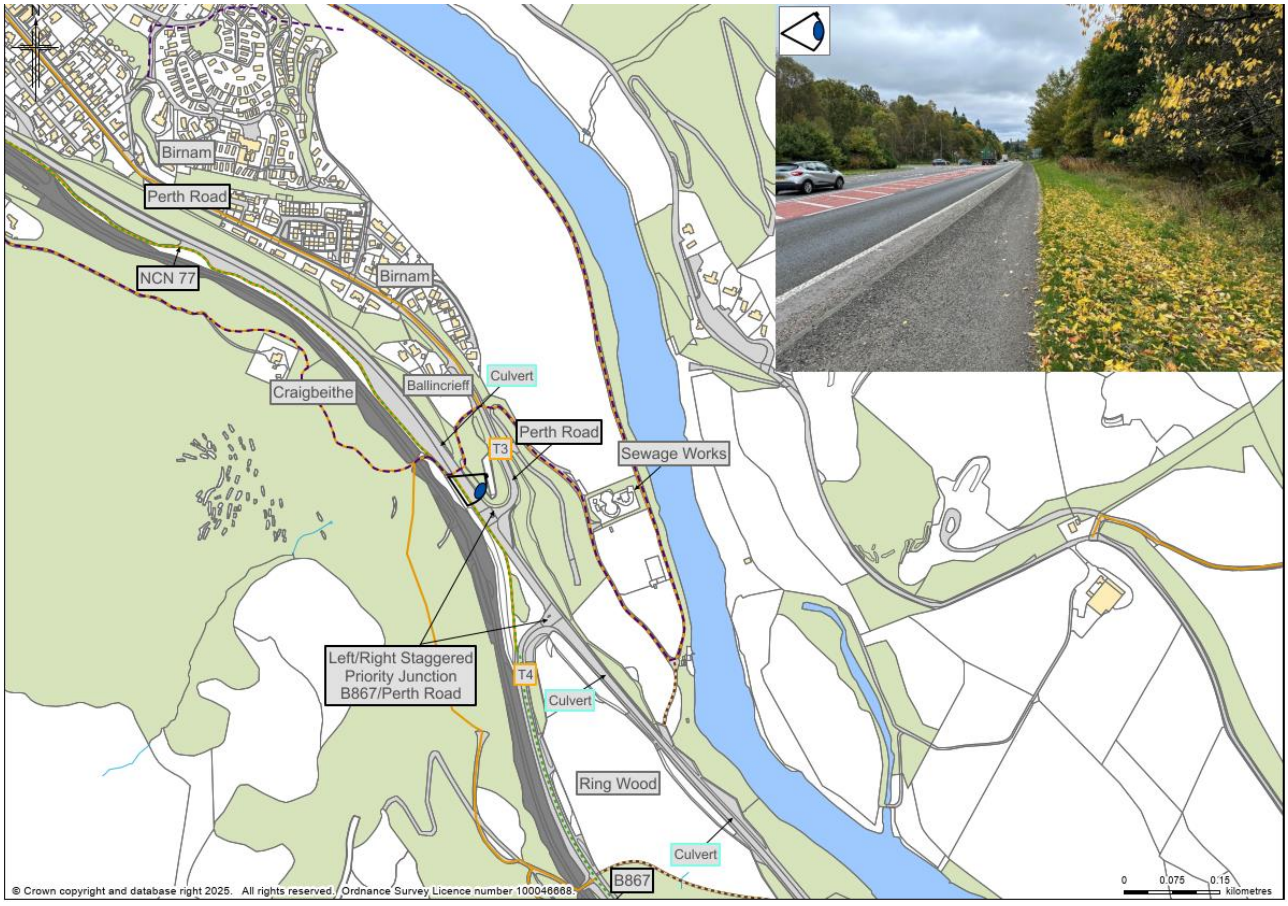


*Illustration 2-3 Perth Road Junction with the existing A9 (Birnam to Dunkeld)*

A923 (Dunkeld to Blairgowrie)

2.3.18 The A923 is a single carriageway road generally 7.3 metres wide and commences at the staggered priority junction on the southbound side of the existing A9 at Little Dunkeld. The A923 descends from the existing A9 in a north-easterly direction, crossing the River Tay via the Dunkeld Bridge before entering Dunkeld. The road then continues north through the centre of Dunkeld before turning east at a major/minor priority junction and continuing to Blairgowrie.

2.3.19 Beyond the project extents the A923 runs through the villages of Butterstone, Forneth and Achlader before reaching Blairgowrie.

2.3.20 The edge of the carriageway is kerbed in the vicinity of the junction with the existing A9 and the width of the grass verges is variable. Kerbing is continued along both sides of the road through Dunkeld. Footways are provided to both sides of the road from the A923 junction with Perth Road through the town of Dunkeld. There is no lighting present in the vicinity of the junction with the existing A9. A restricted speed limit of 30mph is signed immediately east of the junction with the existing A9, which changes to a 20mph speed limit east of the junction with Perth Road. The 20mph speed limit is maintained through Dunkeld and returns to a 30mph limit towards the northern extent. At the northern extent of Dunkeld, a national speed limit of 60mph is in place. Illustration 2.4 shows the existing A923 at its junction with the existing A9 and the route of the A923.

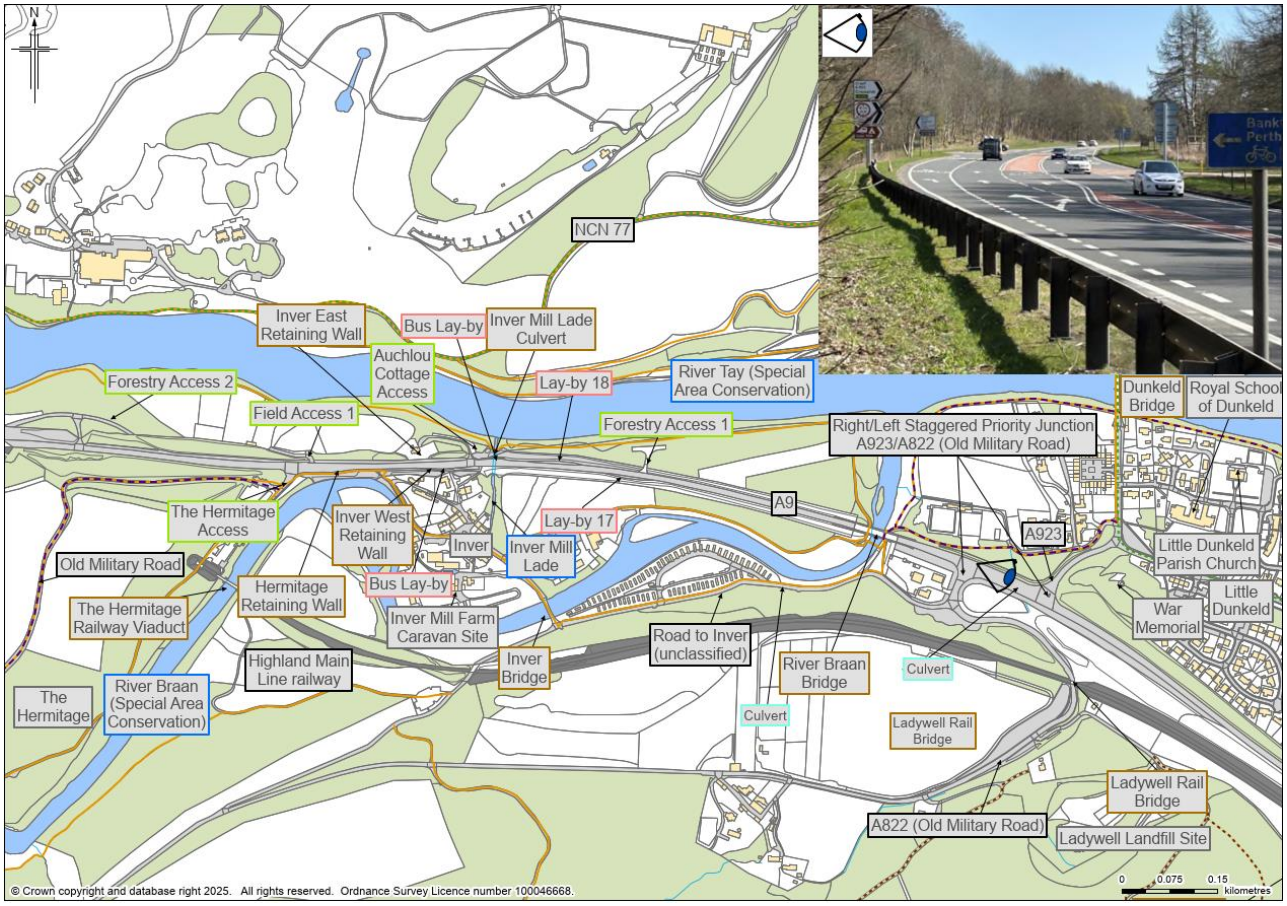


*Illustration 2-4 A923 Junction with the existing A9 (Dunkeld to Blairgowrie)*

A822 (Old Military Road) (Dunkeld to Crieff)

2.3.21 The A822 is a single carriageway road generally 7.3 metres wide and commences at the staggered priority junction on the northbound side of the existing A9 at Dunkeld. The A822 remains relatively level to the immediate west of the existing A9 and approximately 60 metres west an at-grade junction provides access to the Unclassified Road to Inver. West of the Inver junction the alignment begins to rise and crosses under the Highland Main Line railway. The A822 continues to rise as it heads west until it reaches a junction with the A826, where it turns in a southern direction towards Crieff.

2.3.22 Beyond the project extents, the A822 travels through a number of villages including Trochry, Milton, Amulree and Newton before reaching Crieff.

2.3.23 The edge of the carriageway is kerbed in the vicinity of the junction with the A9, and the width of the grass verges is variable. Kerbing is continued along both sides of the road up to the railway bridge. No footways are provided along the A822 including in the vicinity of the existing A9. There is no lighting present in the vicinity of the junction with the existing A9. Illustration 2.5 shows the existing A822 at its junction with the A9 and the route of the A822.

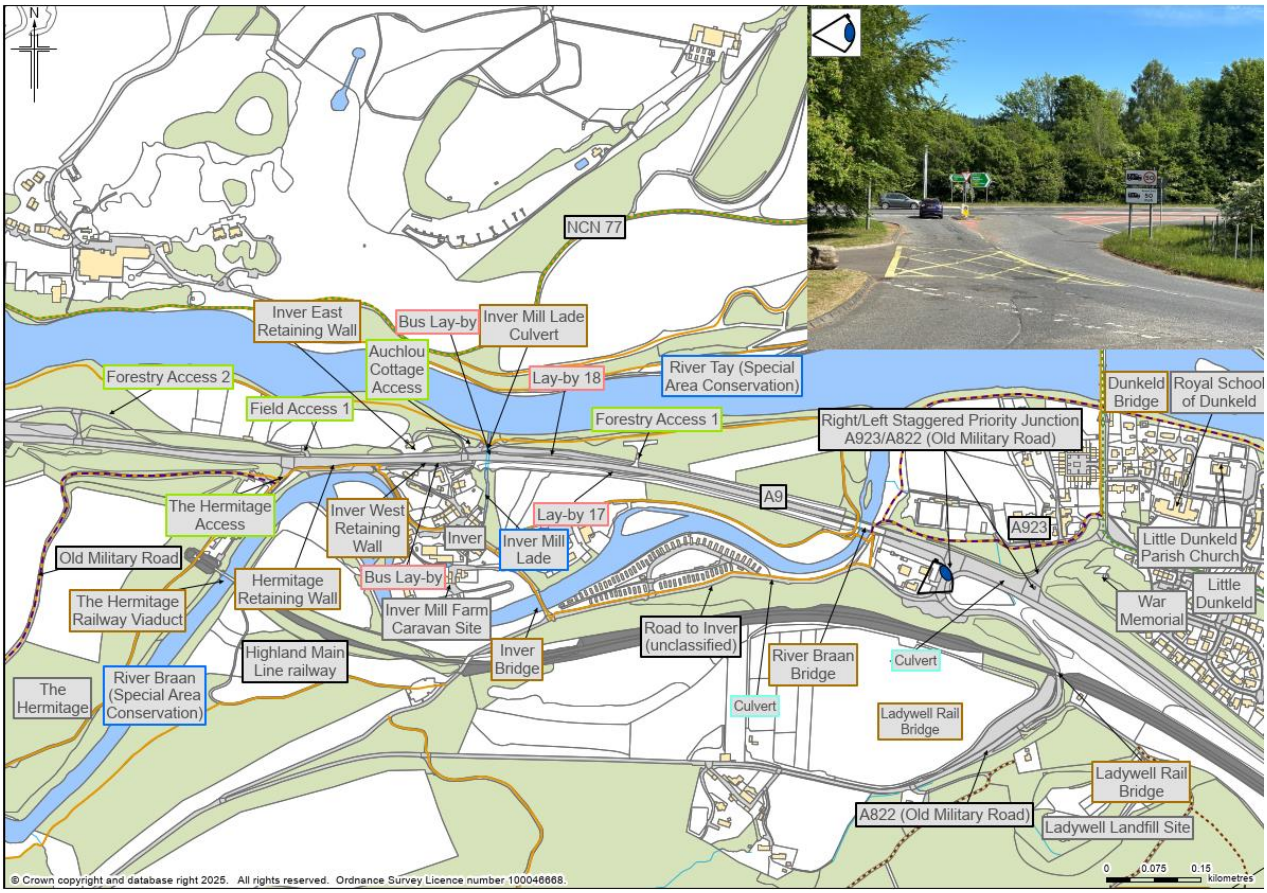


*Illustration 2-5 A822 Junction with the existing A9 and Inver Junction (Dunkeld to Crieff)*

<u>B898 (Dalguise to Grandtully)</u>

2.3.24 The B898 is a single carriageway road generally 7.3 metres wide and commences at the major/minor priority junction on the northbound side of the existing A9 to the immediate south of the River Tay crossing. The B898 travels in a north-west direction from its junction with the existing A9 before turning west at Logierait, where the B898 continues towards Grandtully.

2.3.25 Beyond the project extents the B898 travels through a number of villages including Dalguise, Kincraigie and Balnaguard before reaching Grandtully.

2.3.26 The edge of the carriageway is kerbed in the vicinity of the junction with the existing A9, and the width of the grass verges is variable. Kerbing is continued along both sides of the road up to the junction into the Craigvinean Forest. A footway is provided along the B898 for a short distance in the vicinity of the existing A9 up to the Douglas Fir access to the forest. There is no lighting present in the vicinity of the junction with the existing A9. Illustration 2.6 shows the existing B898 at its junction with the existing A9 and the route of the B898.


*Illustration 2-6 B898 Junction with the existing A9 (Dalguise to Grandtully)*

**Description of Existing Junctions**

B867/Perth Road Junction

2.3.27 The B867 and Perth Road junctions connect to the existing A9 at a left/right staggered priority junction, allowing for full cross-carriageway movements in both directions. The junction consists of a ghost island layout on the existing A9 with nearside diverge lanes approximately 180 metres long. There are no merge tapers provided. Small physical approach islands are provided on the B867 and Perth Road at the junction with keep left illuminated bollards present on the island. The junction is un-lit.

2.3.28 Illustration 2.2 shows the existing at-grade junction layout looking north from the B867 approach to the existing A9. Illustration 2.3 shows the existing Perth Road junction layout from the eastern approach from the existing A9.

A822/A923 Junction

2.3.29 The A822 and A923 junctions connect to the existing A9 at a right/left staggered priority junction, allowing for full cross-carriageway movements in both directions. The junction consists of a ghost island layout on the existing A9 with nearside diverge lanes approximately 180 metres long on the

A822 and approximately 230 metres long on the A923. There are no merge tapers provided. Small physical approach islands are provided on the A822 and A923 at the junction with keep left illuminated bollards present on the island. The junction is un-lit.

2.3.30 Illustration 2.4 shows the existing at-grade junction layout looking south east from the existing A9 towards the A923 junction. Illustration 2.5 shows the existing A822 junction layout with the existing A9 from the junction of the unclassified road to Inver with the A822.

B898 Junction

2.3.31 The B898 junction is connected to the existing A9 via an at-grade priority junction allowing for full cross-carriageway movements at the junction. The junction does not have a ghost island layout on the existing A9 to provide segregation for right turning traffic from the southbound carriageway, however a central median, approximately 1 metre wide is present on the existing A9. A nearside diverge taper, approximately 190 metres long, is included on the northbound carriageway. A merge taper is not provided. A small physical approach island is provided on the B898 at the junction with keep left illuminated bollards present. The junction is un-lit.

2.3.32 Illustration 2.6 shows the existing at-grade junction layout from the B898 approach looking south along the existing A9.

**Description of Existing Direct and Field Accesses**

2.3.33 13 accesses within the project extents have been identified to be Tier 3. Each access is described in Table 2.1.

| Access | Gated/Open | Surface Treatment | Description |
|---|---|---|---|
| Murthly Castle & Dalpowie Plantation Access | Gated | Surfaced | A nearside diverge auxiliary lane, approximately 45 metres long, is provided on the existing A9 southbound carriageway to accommodate left-turning traffic. No merge taper is included. A left hand diverging lane loop, which allows right turning traffic to wait off the existing A9, and to make the crossing movement at right angles is provided on the northbound carriageway.<br>The access is gated, kerbed and surfaced. |

| Access | Gated/Open | Surface Treatment | Description |
|---|---|---|---|
| Dalpowie Plantation Access | Gated | Surfaced | Forestry access is provided to the rear of the left-hand diverging lane loop, which provides access to Murthly Castle & Dalpowie Plantation Access, on the existing A9 northbound carriageway.<br>The access is gated, kerbed and surfaced. |
| Station Access | Open | Surfaced | A nearside diverge auxiliary lane, approximately 70 metres long, is provided on the existing A9 northbound carriageway to accommodate left-turning traffic. No merge taper is included. No ghost island is provided to accommodate right-turning southbound traffic.<br>The access is open, kerbed and surfaced. |
| Forestry Access 1 | Gated | Surfaced | A direct access is provided on the existing A9 southbound carriageway to access land and forestry adjacent to the existing A9. There are no diverge or merge tapers provided and no ghost island to accommodate right-turning northbound traffic.<br>The access is gated and surfaced (in the immediate locality of the existing A9 junction). |
| Auchlou Cottage Access | Gated | Surfaced | A direct access is provided to Auchlou Cottage on the existing A9 southbound carriageway. There are no diverge or merge tapers provided and no ghost island to accommodate right-turning northbound traffic. The access is located immediately to the north of a bus lay-by.<br>The access is gated, kerbed and surfaced. |

| Access | Gated/Open | Surface Treatment | Description |
|---|---|---|---|
| Field Access 1 | Gated | Surfaced | A direct access is provided on the southbound carriageway to access land adjacent to the existing A9. There are no diverge or merge tapers provided and no ghost island to accommodate right-turning northbound traffic.<br>The access is gated, kerbed and surfaced. It should be noted that the access is within the ghost island taper (hatched area) for The Hermitage. |
| The Hermitage Access | Open | Surfaced | A nearside diverge auxiliary lane, approximately 75 metres long, is provided on the existing A9 northbound carriageway to accommodate left-turning traffic. No merge taper is included. A ghost island to facilitate right-turning traffic from the southbound carriageway is included.<br>The access is open, kerbed and surfaced. |
| Forestry Access 2 | Gated | Surfaced | A direct access is provided on the existing A9 southbound carriageway to access forestry adjacent to the existing A9. There are no diverge or merge tapers provided and no ghost island to accommodate right-turning northbound traffic.<br>The access is gated, kerbed and surfaced. |
| Forestry Access 3 | Open | Surfaced | A direct access is provided on the existing A9 southbound carriageway to access forestry adjacent to the existing A9. There are no diverge or merge tapers provided and no ghost island to accommodate right-turning northbound traffic.<br>The access is open, kerbed and surfaced. |

| Access | Gated/Open | Surface Treatment | Description |
|---|---|---|---|
| Forestry Access 4 (Tay Forest Park) | Gated | Surfaced | A direct access to the Tay Forest Park is provided on the existing A9 northbound carriageway. There are no diverge or merge tapers provided and no ghost island to accommodate right-turning southbound traffic.<br>The access is gated, kerbed and surfaced. |
| Forestry Access 5 | Gated | Surfaced | A direct access is provided on the existing A9 southbound carriageway to access forestry adjacent to the existing A9. There are no diverge or merge tapers provided and no ghost island to accommodate right-turning northbound traffic.<br>The access is gated, kerbed and surfaced. |
| Forestry Access 6 | Gated | Surfaced | A direct access is provided on the existing A9 northbound carriageway to access forestry adjacent to the existing A9. There are no diverge or merge tapers provided and no ghost island to accommodate right-turning southbound traffic.<br>The access is gated and surfaced. |
| Field and Utility Maintenance Access | Gated | Surfaced | A direct access is provided on the existing A9 southbound carriageway to access land and forestry adjacent to the existing A9. There are no diverge or merge tapers provided and no ghost island to accommodate right-turning northbound traffic.<br>The access is gated, kerbed and surfaced. It should be noted that the access is directly opposite the B898 junction. While a ghost island is not provided at the B898 junction, there is a central median, approximately 1 metre wide at this location. |

*Table 2-1 Description of Existing Tier 3 Road Junctions and Accesses*

**Existing A9 Geometric Design Standards**

2.3.34 An assessment has been undertaken of the geometry of the existing A9 single carriageway within the extents of the proposed scheme between the Pass of Birnam and Tay Crossing, utilising the 3-dimensional topographical survey data available. Horizontal and vertical geometry, as well as Stopping Sight Distance (SSD), have been considered in relation to the Desirable Minimum standards detailed in the DMRB (DMRB, 2020), to identify sections that are not in compliance with current design standards for rural all-purpose single carriageway mainline. Details of this assessment is given below.

- Horizontal Alignment - A horizontal curve of radius 537 metres, which is one step below Desirable Minimum (720 metres) for a rural all-purpose single carriageway mainline with a 100 kilometres per hour (60mph) Design Speed, is included between The Hermitage and the River Tay crossing.

  The remainder of the horizontal alignment is compliant with relevant design standards.
- Vertical Alignment - The vertical alignment is compliant with relevant design standards.
- Stopping Sight Distance - The SSD is below Desirable Minimum standards (215 metres forward visibility) at several locations on the existing A9. However, the reduction in SSD does not fall below 120 metres, which is two steps below Desirable Minimum. In accordance with the DMRB CD 109 – Highway link design (DMRB, 2020), this is a permitted Relaxation from Standards, as it is not on the immediate approach to a junction or combined with any other Relaxations from Standards.

**Local Road Junction Geometric Design Standards**

2.3.35 An assessment of local road junctions has been undertaken to determine their compliance with Desirable Minimum standards detailed in the DMRB CD 123 - Geometric design of at-grade priority and signal-controlled junctions (DMRB, 2021a). This assessment has focused on the design criteria detailed below.

- Junction Corner Radii - Where no provision is made for large goods vehicles, it is recommended that the minimum corner radius at simple junctions is 10 metres in rural areas. This only applies however, where there are no nearside diverge tapers or lanes, or nearside merge tapers.

  Where a nearside diverge taper or lane is provided, the corner radius should be 40 metres. Where a merge taper is present, a corner radius of 30 metres should be provided.

- Visibility, Major Road - Drivers approaching a junction on the major road (A9 single carriageway) must have full visibility of the junction for a distance corresponding to the Desirable Minimum SSD for the major road (100 kilometres per hour/60mph).
- Visibility, Minor Road - Drivers approaching on the minor road must have full visibility of the junction with the major road for a distance corresponding to the Desirable Minimum SSD for the minor road.
- Junction Visibility (15 metres from Give Way line) - From a point 15 metres along the centreline of the minor road, from the give-way line, an approaching driver should be able to clearly view the junction form.
- Junction Visibility (9 metres from Give Way line) - From a point 9 metres along the centreline of the minor road, from the give-way line, an approaching driver should be able to clearly view a distance equivalent to the Desirable Minimum SSD for a distance of 215 metres (for a Design Speed of 100 kilometres per hour/60mph).

2.3.36 Table 2.2 summarises the junction's compliance with the relevant design standards.

| Junction | Compliance with DMRB Standards | | | | | |
|---|---|---|---|---|---|---|
| | Junction Corner Radii | | Visibility | | Junction Visibility | |
| | Diverge | Merge | Major Road | Minor Road | 15 metres from Give Way Line | 9 metres from Give Way Line |
| B867 | × | ✓ | ✓ | × | ✓ | ✓ |
| Perth Road | × | ✓ | ✓ | × | ✓ | ✓ |
| Dunkeld & Birnam Station | × | ✓ | ✓ | N/A | ✓ | × |
| A923 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| A822 (Old Military Road) | × | ✓ | ✓ | × | ✓ | ✓ |
| The Hermitage | × | ✓ | ✓ | N/A | ✓ | ✓ |
| B898 | × | ✓ | ✓ | × | ✓ | ✓ |

*Table 2-2 Summary of Existing Priority Junction Standards*

2.3.37 The immediate approaches to the junctions for the B867, Perth Road, A822 and B898 are all subject to the National Speed Limit (60mph) for a single carriageway. Given the rural nature of these roads, they are often lined with vegetation with nominal verge widths. As such, Desirable Minimum SSD is not readily available, resulting in Departures from Standards. Existing signs and road markings therefore highlight the road layout and presence of junctions. The A923 is subject to a 30mph speed limit in the locality of the priority junction onto the existing A9. The junctions for Dunkeld & Birnam Station and The Hermitage are directly onto a car park area. As such, a check of approach visibility on the minor road is not appropriate.

**Traffic Conditions**

Existing Traffic Flows

2.3.38 Annual Average Daily Traffic (AADT) data on the existing A9 has been taken from the permanent Automatic Traffic Counter (ATC) sites maintained by Transport Scotland for the 24-hour period. These figures are shown in Table 2.3 and should be read in conjunction with Drawings A9P02-JAC-GEN-X_ZZZZZ_ZZ-FG-RD-0001 and A9P02-JAC-GEN-X_ZZZZZ_ZZ-FG-RD-0002 included in Volume 2: Engineering Drawings.

2.3.39 For the local road network, where no ATC data is available, the flows have been estimated by factoring the 12-hour junction turning counts, undertaken in November 2012, March 2013 and March 2015, using the average ratio of AADT to 12-hour weekday flows, derived from analysis of ATC data along the existing A9 between Perth and Inverness. These figures are also shown in Table 2.3.

2.3.40 All traffic flows in Table 2.3 have been rounded to two significant figures.

| Location (including location reference) | Drawing Reference Location | AADT |
|---|---|---|
| A9 Mainline (South of the Junction with the A923)[1] | Ref T1 | 14,000 |
| A9 Mainline (South of the Junction with the B898)[1] | Ref T2 | 13,000 |
| Perth Road (Birnam)[2] | Ref T3 | 1,400 |
| B867 (Bankfoot Road Junction)[3] | Ref T4 | 700 |
| Dunkeld Station[4] | Ref T5 | 90 |
| A923 (Dunkeld)[3] | Ref T6 | 2,800 |
| A822 (Old Military Road)[3] | Ref T7 | 1,400 |
| B898 (Dalguise)[3] | Ref T8 | 360 |

| Location (including location reference) | Drawing Reference Location | AADT |
|---|---|---|
| [1] Based on ATC data from Transport Scotland's Scottish Road Traffic Database (SRTDb)<br>[2] Based on Junction Turning Count (March 2013)<br>[3] Based on Junction Turning Count (November 2012)<br>[4] Based on Junction Turning Count (March 2015) | | |

*Table 2-3 Traffic Count Data (two-way)*

Traffic Accidents

2.3.41 When the severity of recorded Road Traffic Collisions along the length of the A9 between Perth and Inverness is compared with National Averages for Single and Dual Carriageway standard between 2015 and 2022, the A9 is noted to have a higher proportion of Fatal and Serious recorded collisions. In particular, it is noted that single carriageway sections of the A9 between Perth and Inverness have a significantly higher proportion of Fatal (13%) and Serious (31%) collisions than National Averages for similar road types (2% and 12% respectively).

| Accident Rate | National Average | | | A9 Perth to Inverness | | |
|---|---|---|---|---|---|---|
| | Fatal | Serious | Slight | Fatal | Serious | Slight |
| Severity Split | 2% | 12% | 85% | 13% | 31% | 55% |

*Table 2-4 Comparison of Accident Rates*

2.3.42 The impacts of a safety intervention, such as speed cameras, would normally be assessed over a period of five years from implementation, and five years of data would be required to calculate a local accident rate for appraisal purposes. However, interim findings have been published by the A9 Safety Group, with the most recent being produced in March 2018 to detail the first three years of operation (November 2014 to October 2017). Compared to a baseline period of January 2011 to December 2013, analysis shows that between Perth and Inverness, introduction of average speed cameras has:

- Resulted in nine fewer deaths than the baseline period;
- Reduced the number of fatal casualties by over 40%;
- Reduced the number of fatal and serious casualties by over 32%;
- Reduced the number of total casualties by 31%;
- Reduced the number of fatal accidents by 20%; and
- Reduced the number of fatal and serious accidents by more than 10%.

2.3.43 These statistics highlight a sustained improvement in driver behaviour and a trend of reduced collisions and casualties compared to baseline data.

2.3.44 Transport Scotland has recorded STATS19 data (accident, casualties and vehicle tables and personal injury accident data) for the period between January 2019 and November 2024. The location and severity of Personal Injury Accidents (PIAs) during the time-period referenced is shown on Drawings A9P02-JAC-VTR-X_ZZZZZ_ZZ-FG-TR-0001 and A9P02-JAC-VTR-X_ZZZZZ_ZZ-FG-TR-0002 included in Volume 2: Engineering Drawings. It should be noted that the calculation of accident rates is calculated from at least five year's data during which no changes were made to the road network.

2.3.45 Fatal accidents (identified as red dots on Drawings A9P02-JAC-VTR-X_ZZZZZ_ZZ-FG-TR-0001 and A9P02-JAC-VTR-X_ZZZZZ_ZZ-FG-TR-0002 included in Volume 2: Engineering Drawings) are recorded where the level of injuries sustained cause death within 30 days of the accident. Serious accidents (identified as orange dots on Drawings A9P02-JAC-VTR-X_ZZZZZ_ZZ-FG-TR-0001 and A9P02-JAC-VTR-X_ZZZZZ_ZZ-FG-TR-0002 included in Volume 2: Engineering Drawings) are recorded where a casualty is detained in hospital or sustains fractures, concussions, severe cuts or where death occurs 30 or more days after the accident. Slight accidents (identified as yellow dots on Drawings A9P02-JAC-VTR-X_ZZZZZ_ZZ-FG-TR-0001 and A9P02-JAC-VTR-X_ZZZZZ_ZZ-FG-TR-0002 included in Volume 2: Engineering Drawings) are recorded when a casualty sustains a sprain, bruise or slight cut. Non injury accidents are not recorded (Department for Transport, n.d.).

2.3.46 In total, there were 18 accidents on this section of the existing A9 between 1 January 2019 and 31 December 2023. Of those 18 accidents, two were fatal, ten serious and the remaining five were slight in severity. Overall, the 18 accidents resulted in a total of 45 casualties. By plotting the accident locations along the route, there is evidence to suggest that a number of these accidents occurred at existing junction locations. Three accidents occurred on the existing A9 at or near the left/right staggered priority junction with the B867 and Perth Road, five accidents occurred on the existing A9 at or near the right/left staggered priority junction with the A923 and A822 (Old Military Road), and one accident occurred on the existing A9 at or near the existing priority junction with the B898.

**Road Pavement Condition**

2.3.47 A desk study was undertaken during the DMRB Stage 2 assessment to determine the pavement construction and pavement condition on the existing A9 between the Pass of Birnam and Tay Crossing. The information used in the desk study was obtained from Transport Scotland's Integrated Road Information System (IRIS) now known as the Asset Management Performance System (AMPS) which is a database maintained by Transport Scotland for the purpose of logging and predicting the condition of the trunk road network in Scotland.

2.3.48 Analysis of the information obtained from IRIS at the time of the initial DMRB Stage 2 assessment indicated that for this section of the existing A9 between the Pass of Birnam and Tay Crossing, the majority of the pavement consisted of bituminous material overlaying Cement Bound Material

(CBM), with some sections comprising fully flexible construction. It also identified that the existing pavement did not include low noise surfacing.

2.3.49 The DMRB Stage 2 analysis was based on information provided by survey undertaken in May 2012. Review of the survey information available on AMPS circa 2025 indicates that no further surveys have been carried out since the DMRB Stage 2 analysis was undertaken. It is therefore assumed that the construction of the pavement has not been altered and is consistent with the previous analysis.

2.3.50 Assessment of the 2012 survey information indicated that the residual pavement life of the existing A9 between the Pass of Birnam and Tay Crossing was almost 10% of the pavement had a residual life of less than 5 years, 20% between 5 and 20 years residual life and 70% had a residual life of over 20 years remaining. It is assumed that in the intervening years since, the existing pavement has continued to deteriorate in a manner consistent with standard road use and as such will present a proportionally reduced residual life.

2.3.51 Review of the AMPS information did not indicate that any maintenance interventions have been undertaken since the DMRB Stage 2 assessment. It is assumed that areas of the existing pavement that indicated low residual life in 2012 may benefit from localised structural improvement.

2.3.52 The estimated residual life is determined from deflectograph data and historical results have shown that it is not always reliable in predicting residual life within pavements consisting of bituminous material overlying CBM. Prior to undertaking a detailed pavement design further detailed pavement analysis will be undertaken to determine the existing pavement condition.

**Structures**

2.3.53 There are five bridges, one major culvert, ten minor culverts and three retaining walls on the existing A9 between the Pass of Birnam and Tay Crossing. These structures cross the Highland Main Line railway (two crossings), a local road (one crossing) and watercourses including the River Braan (one crossing) and the River Tay (one crossing). The locations of the existing bridges, culverts and retaining walls referred to above are shown on Drawings A9P02-JAC-GEN-X_ZZZZZ_ZZ-FG-RD-0001 and A9P02-JAC-GEN-X_ZZZZZ_ZZ-FG-RD-0002 included in Volume 2: Engineering Drawings. A summary of the existing bridges and culverts along the project extents is provided in Table 2.5.

| Structure Reference | No. of Spans | Skew Span Length (m) | Skew Angle | Total Deck Length (m) | Total Deck Width (m) | Form of Construction |
|---|---|---|---|---|---|---|
| Birnam Glen and Inchewan Burn Bridge (A9 400)<br>Structure crosses Birnam Glen (local road) and Inchewan Burn (watercourse). | 2 | 1) 15.425m<br>2) 15.425m | 5° | 32.3m | 13.35m | Precast, prestressed concrete 'T' beams with composite in-situ concrete infill |
| River Braan Bridge (A9 410) | 1 | 29.5m | 0° | 30.14m | 13.6m | Weathering steel Universal Beams |

| Structure Reference | No. of Spans | Skew Span Length (m) | Skew Angle | Total Deck Length (m) | Total Deck Width (m) | Form of Construction |
|---|---|---|---|---|---|---|
| Structure crosses the River Braan (watercourse). | | | | | | composite with a reinforced concrete deck slab |
| Inver Mill Lade Culvert (A9 420)<br>Structure crosses Inver Mill Lade (watercourse). | 1 | 3.5m (clear) | 0°<br>(A9 and mill lade cross at 5°) | 4.4m | 40.5m | Reinforced concrete box culvert |
| Inver Rail Bridge (A9 430)<br>Structure crosses the Highland Main Line railway. | 1 | 9.7m | 34.5°<br>(A9 and railway cross at approx. 64°) | 10.8m | 42.1m | Precast, prestressed concrete 'T' beams with composite in-situ concrete infill |
| Inch Rail Bridge (A9 440)<br>Structure crosses the Highland Main Line railway. | 1 | 10.3m | 0°<br>(A9 and railway cross at approx. 70°) | 11.0m | 87.3m | Precast, prestressed concrete 'T' beams with composite in-situ concrete infill |
| River Tay Bridge (A9 450)<br>Structure crosses the River Tay (watercourse). | 3 | 1) 69.5m<br>2) 87.0m<br>3) 69.5m | 0° | 226.3m | 13.4m | Continuous steel plate girders composite with a reinforced concrete deck slab |

*Table 2-5: Existing Structures*

## Bridges

*Birnam Glen Bridge (A9 400)*

2.3.54 The Birnam Glen Bridge, located immediately north of Dunkeld & Birnam Station, carries the existing A9 carriageway over Birnam Glen and the Inchewan Burn. It was constructed circa 1977 and is a two-span structure, with the superstructure comprising inverted precast, prestressed concrete 'T' beams with composite in-situ concrete infill. The intermediate support is a reinforced concrete leaf pier on spread footings and the end supports comprise a full height reinforced concrete counterfort abutment on spread footings at the north end and a reinforced concrete bank seat abutment on spread footings at the south end. The bridge has a skew of approximately 5°, two skew spans of 15.425 metres and an overall skew deck length of approximately 32.3 metres. The deck is 13.35 metres wide and includes raised verges at each edge. Metal P2 parapets are mounted on plinth upstands at the rear of the verges.

*River Braan Bridge (A9 410)*

2.3.55 The River Braan Bridge, located north of the junction with the A822 (Old Military Road), carries the existing A9 carriageway over the River Braan and core paths. It was constructed circa 1977 and is a

single span structure, with the superstructure comprising weathering steel Universal Beams composite with a reinforced concrete deck slab. The end supports are full height reinforced concrete cantilever abutments on spread footings. The bridge is square and has a span of 29.5 metres. The deck is 13.6 metres wide and includes raised verges at each edge. Metal P2 parapets are mounted on plinth upstands at the rear of the verges.

*Inver Mill Lade Culvert (A9 420)*

2.3.56 The Inver Mill Lade Culvert, located approximately 0.8 kilometres north of Dunkeld, carries the existing A9 carriageway over a small watercourse. It was constructed circa 1977 and is a single span reinforced concrete box culvert with reinforced concrete wingwalls and scour protection at the inlet and outlet. The culvert has a clear span of 3.5 metres and minimum headroom of 1.7 metres. The highway and watercourse cross at a skew of approximately 5°, but the culvert is right-spanning with an overall length of 40.5 metres. Tensioned corrugated steel safety barriers are provided in the verges.

*Inver Rail Bridge (A9 430)*

2.3.57 The Inver Rail Bridge, located approximately 1.6 kilometres north of Dunkeld, carries the existing A9 carriageway over the Highland Main Line railway. It was constructed circa 1977 and is a single span structure, with the superstructure comprising inverted precast, prestressed concrete 'T' beams composite with in-situ concrete infill. The end supports are full height reinforced concrete cantilever abutments on spread footings (east abutment) and bored piles (west abutment). The bridge deck is trapezoidal in section and has a skew of approximately 34.5°. The carriageway crosses the railway at a skew of approximately 64°, leading to large redundant areas on the deck outwith the carriageway. The skew span of the deck is approximately 9.7 metres and the deck width is approximately 42.1 metres.

2.3.58 The minimum headroom to the railway below is 4.86 metres. Metal parapets are present above each portal, with tensioned corrugated steel safety fencing provided in the verges in front of the redundant deck areas. The railway is single track at this location.

*Inch Rail Bridge (A9 440)*

2.3.59 The Inch Rail Bridge, located immediately south of the River Tay crossing, carries the existing A9 carriageway over the Highland Main Line railway. It was constructed circa 1977 and is a single span structure. The superstructure comprises inverted precast, prestressed concrete 'T' beams composite with in-situ concrete infill. The end supports are full height reinforced concrete cantilever abutments on spread footings. The carriageway crosses the railway at a skew of approximately 70°, leading to large redundant areas on the deck outwith the carriageway. The bridge deck is curved in plan to follow the alignment of the railway below. The square span of the deck is 10.3 metres and the deck width is approximately 87.3 metres.

2.3.60 The minimum headroom to the railway below is 4.71 metres. Reinforced concrete parapets with masonry facing are present above each portal and return along the adjacent abutment walls. Tensioned corrugated steel safety fencing is provided in the verges across the front of the redundant deck areas. The railway is single track at this location.

*River Tay Crossing (A9 450)*

2.3.61 The River Tay Bridge, located north of the junction with the B898, carries the existing A9 carriageway over the River Tay and local core paths and national cycle route. It was constructed circa 1977 and is a three-span structure, with the superstructure comprising continuous steel plate girders composite with a reinforced concrete deck slab. The intermediate supports are reinforced concrete columns with a capping beam, all on piled foundations, and the end supports comprise reinforced concrete bank seat abutments on piled foundations. The bridge is square, and the span lengths are approximately 69.5 metres, 87 metres and 69.5 metres. The deck is 13.37 metres wide and includes raised verges 2.0 metres (west) and 1.8 metres (east) wide. Metal parapets are mounted on plinth upstands at the rear of the verges. The intermediate supports are located within the watercourse under normal flow conditions.

Culverts

2.3.62 A total of eleven culverts have been located on the A9 as part of hydrological studies site walkover. The culverts recorded during the hydrological studies site walkover are shown below in Table 2.6.

| Culvert | Reference Point on Drawings B2140002/EXI/0001 and 0002 | Watercourse Number | Type | Diameter (mm) |
|---|---|---|---|---|
| 1 | 2000 m south of B867 junction | 2 | Pipe | 700 |
| 2 | 430m south of B867 junction | 5 | Pipe | 600 |
| 3 | 120m south of B867 junction | 5A | Pipe | 1000 |
| 4 | 250m north of B867 junction | 7 | Pipe | 600 |
| 5 | 30m north of A923 junction | 9 | Box Culvert | 400 x 750 |
| 6 | 890m north of A923 junction (Inver Mill Lade Culvert, A9 420, as described in Table 2.5) | 12 | Box Culvert | 2000 x 3400 |
| 7 | 100m north of Inver Rail Bridge (Inver Culvert, A9 430 C10) | 12A | Pipe | 1000 |
| 8 | 820m north of Inver Rail Bridge | 12B | Pipe | 1000 |
| 9 | 430m south of B898 junction (Craigvinean Culvert, A9 430 C70) | 13 | Pipe | 800 |
| f10 | 620m north of B898 junction | 16 | Pipe | 1200 |
| | | | | |
| 11 | 960m north of B898 junction | 18 | Pipe | 400 |

*Table 2-6: A9 Pass of Birnam to Tay Crossing Culverts*

Retaining Walls

2.3.63 Transport Scotland's AMPS database lists three retaining walls located between Pass of Birnam and Tay Crossing. These are shown below in Table 2.7:

| Retaining Wall | Construction Date | Purpose | Structural Form | Length (m) | Max Height (m) |
|---|---|---|---|---|---|
| Inver West Retaining Wall (A9 420 W10) | 1977 | To support adjacent properties and gardens above the level of the A9. | reinforced concrete cantilever construction with spread footings | 26 | 3.7 |
| Inver East Retaining Wall (A9 420 W12) | 1977 | To support adjacent properties and gardens above the level of the A9. | reinforced concrete cantilever construction with spread footings | 46 | 3.7 |
| Hermitage Access Retaining Wall (A9 420 W44) | 1997 | to limit the extents of the existing A9 embankment in this area and encroachment towards the River Braan | reinforced concrete cantilever construction with spread footings | 65 | 2.1 |

*Table 2-7 A9 Pass of Birnam to Tay Crossing Retaining Walls*

**Roadside Features**

Lay-Bys

2.3.64 This section of existing A9 has eight lay-bys, four in the northbound direction and four in the southbound direction. In addition, a further two bus lay-bys are included within the proposed scheme extents, one in the northbound direction and one in the southbound direction.

2.3.65 On the northbound carriageway, Type B lay-bys (DMRB, 2022) are provided on the existing dualled section of the A9 to the immediate south of the scheme extents, north of the existing private access to Murthly Castle, to the south of Inver and to the north of The Hermitage. Type B lay-bys (DMRB, 2022) do not include a segregation island between the main carriageway and the lay-by and, in accordance with the DMRB (DMRB, 2022), should only be utilised on single carriageways where the speed limit is less than 40mph. The northbound bus lay-by is in the locality of Inver.

2.3.66 On the southbound carriageway, Type B lay-bys (DMRB, 2022) are provided on the existing dualled section of the A9 to the immediate south of the scheme extents, north of the existing private access to Murthly Castle and to the south of Inver. A Type A lay-by is provided south of the River Tay crossing. Type A lay-bys include a segregation island between the main carriageway and the lay-by and should be used on single carriageways where the speed limit is greater than 40mph and on dual carriageways (DMRB, 2022). Type A lay-bys may be utilised on single carriageways with speed limit less than 40mph where high traffic flows are expected. The southbound bus lay-by is in the locality of Inver.

2.3.67 The locations of the existing lay-bys are shown on Drawings A9P02-JAC-GEN-X_ZZZZZ_ZZ-FG-RD-0001 and A9P02-JAC-GEN-X_ZZZZZ_ZZ-FG-RD-0002 included in Volume 2: Engineering Drawings and a summary of the existing lay-bys is shown in Table 2.8.

| Lay-by Number | Approximate Location | Lay-by Type | Direction | Approximate distance to the next layby in direction of travel (km) |
|---|---|---|---|---|
| 13 | Approximately 200 metres south of the existing extent of dual carriageway | Type B | Northbound | 1.3 |
| 14 | Approximately 300 metres south of the existing extent of dual carriageway | Type B | Southbound | 3.0 |
| 15 | Approximately 350 metres north of the existing private access to Murthly Castle | Type B | Northbound | 3.5 |
| 16 | Approximately 630 metres north of the existing private access to Murthly Castle | Type B | Southbound | 1.7 |
| 17 | Approximately 280 metres south of Inver | Type B | Northbound | 2.0 |
| 18 | Approximately 180 metres south of Inver | Type B | Southbound | 3.4 |
| 19 | Approximately 1.5 kilometre north of The Hermitage | Type B | Northbound | 2.2 |
| 20 | Approximately 350 metres south of the River Tay | Type A | Southbound | 2.2 |

*Table 2-8: Existing Lay-Bys*

2.3.68 The DMRB CD 169 – The design of lay-bys, maintenance hardstandings, rest areas, service areas and observation platforms (DMRB, 2022) recommends that on single carriageways with greater than 8,000 AADT, lay-bys should be provided at between 2 kilometres and 5 kilometres intervals. As such, the existing lay-bys 13 and 16 within the scheme extents are in not accordance with this standard. The six other existing lay-bys within the scheme extents are in accordance with this standard.

Lighting

2.3.69 There is no lighting on the existing A9 carriageway or the associated junctions within the scheme extents. The only notable presence of lighting in the locality is street lighting within Birnam, Little Dunkeld, Dunkeld and Inver, and low-level pedestrian lighting provided at Dunkeld & Birnam Station with lighting provided within the car parking area. A full analysis of the extent to which the

existing street lighting complies with current design standards has not been undertaken at this stage.

Road Restraint Systems

2.3.70 Road Restraint Systems (RRS) are provided at various points along the existing A9 between Pass of Birnam and Tay Crossing, to protect errant vehicles from colliding with roadside hazards. Table 2.9 shows the approximate locations of RRS, their approximate length (measured using topographical survey information) and the associated hazard that the RRS offers protection from (identified using topographical survey information and publicly available imagery).

| Approximate Location | Verge | Approximate length | Hazard |
|---|---|---|---|
| Existing Dual Carriageway Section | Northbound Verge | 180m | Trees |
| Existing Dual Carriageway Section | Central Reserve | 200m | Adjacent Dual Carriageway |
| Existing Dual Carriageway Section | Southbound Verge | 250m | Embankment, Speed Camera Sign, Parking Sign, Trees |
| Existing Dual Carriageway Section | Southbound Verge | 200m | Embankment, Trees |
| South of Murthly Estate Access | Southbound Verge | 240m | Speed Limit Sign, Embankment, Trees |
| North of Murthly Estate Access | Southbound Verge | 150m | Embankment, Trees, Dual Carriageway Sign |
| North of Murthly Estate Access | Southbound Verge | 55m | Embankment, Trees |
| South of Birnam Junction | Northbound Verge | 125m | Average Speed Camera and Average Speed Camera Sign |
| South of Birnam Junction | Southbound Verge | 80m | Embankment, Layby |
| South of Birnam Junction | Northbound Verge | 50m | Advance Direction Sign |
| South of Birnam Junction | Northbound Verge | 540m | Tourist Information Signs, B867 Junction - Advance Direction Sign, Pedal Cycle Route Crossing Sign, Embankment |
| South of Birnam Junction | Southbound Verge | 60m | Embankment, Trees |
| South of Birnam Junction | Southbound Verge | 180m | Embankment, Route Confirmatory Sign, Parking Sign |

| Approximate Location | Verge | Approximate length | Hazard |
|---|---|---|---|
| North of Birnam Junction | Northbound Verge | 240m | Embankment |
| North of Birnam Junction | Southbound Verge | 900m | Advance Direction Signs, Tourist Information Sign, Risk of Falling or Fallen Rock Sign, Embankment, Pedal Cycle Route Crossing Sign |
| North of Birnam Junction | Northbound Verge | 585m | Cycle Path, Advance Direction Sign, Railway Station Sign |
| South of Birnam Glen and Inchewan Burn Bridge | Northbound Verge | 35m | Bridge Structure |
| South of Birnam Glen and Inchewan Burn Bridge | Southbound Verge | 35m | Bridge Structure |
| North of Birnam Glen and Inchewan Burn Bridge | Northbound Verge | 35m | Bridge Structure |
| North of Birnam Glen and Inchewan Burn Bridge | Southbound Verge | 35m | Bridge Structure, Railway Station Sign |
| North of Dunkeld Junction | Southbound Verge | 450m | Service Sign, Tourist Information Sign, Bridge Structure |
| North of Dunkeld Junction | Northbound Verge | 180m | Parking Sign, Bridge Structure, |
| North of Dunkeld Junction | Southbound Verge | 65m | Advance Direction Sign |
| South of The Hermitage Junction | Northbound Verge | 60m | Tourist Information Sign |
| South of The Hermitage Junction | Southbound Verge | 55m | Advance Direction Sign |
| South of The Hermitage Junction | Northbound Verge | 135m | Embankment |
| North of The Hermitage Junction | Southbound Verge | 200m | Embankment, Trees |
| North of The Hermitage Junction | Northbound Verge | 560m | Trees, Inver Rail Tunnel, Parking Sign |
| North of The Hermitage Junction | Southbound Verge | 440m | Embankment, Inver Rail Tunnel |
| South of Dalguise Junction | Northbound Verge | 70m | Advance Direction Sign |

| Approximate Location | Verge | Approximate length | Hazard |
|---|---|---|---|
| South of Dalguise Junction | Southbound Verge | 50m | Embankment |
| South of Dalguise Junction | Northbound Verge | 75m | Embankment, Trees |
| South of Dalguise Junction | Southbound Verge | 520m | Embankment, Inch Rail Tunnel, Highland Main Line railway, Flag Direction Sign, Warning Sign, |
| South of Dalguise Junction | Northbound Verge | 280m | Embankment, Advance Direction Sign, Warning Sign |
| South of Tay Crossing Structure | Northbound Verge | 55m | Bridge Structure |
| South of Tay Crossing Structure | Southbound Verge | 30m | Bridge Structure |
| North of Tay Crossing Structure | Northbound Verge | 100m | Bridge Structure, Route Confirmatory Sign |
| North of Tay Crossing Structure | Southbound Verge | 135m | Bridge Structure, Advance Direction Sign, Parking Sign |
| North of Tay Crossing Structure | Northbound Verge | 95m | Embankment, Trees, Cycle Path |

*Table 2-9: Existing RRS*

2.3.71 A full analysis of the extent to which the existing RRS comply with current design standards has not been undertaken.

Traffic Signs

2.3.72 Traffic signs on the existing A9 within the Pass of Birnam to Tay Crossing section are generally mounted in the verge and include advanced warning signs, direction signs, hazard warning signs, regulatory signs and tourist information signs. Existing signs are in English. Signs are generally mounted on standard posts; however, several have passively safe posts to avoid the need for further lengths of RRS. The tourist information signs direct travellers to local points of interest and tourist destinations. No permanent variable message signs are present in the locality.

**Drainage**

2.3.73 Road drainage on the existingA A9 carriageway within the Pass of Birnam to Tay Crossing section of A9 dualling generally consists of kerbs and gullies to convey carriageway run-off, via carrier drains, to outfalls into adjacent watercourses, including the River Tay and River Braan. No treatment or attenuation measures are included within the existing drainage network. Lengths of filter drains are present in verges to facilitate drainage run-off in the verge and from adjacent earthworks slopes.

2.3.74 Junctions and side roads, including Perth Road, the A923, A822 and B898, also incorporate kerbs and gullies, with carriageway run-off directed to local watercourses.

**Public Utilities**

2.3.75 Public Utilities within the locality of the existing A9 have been identified by 'C2 Preliminary Inquiries information' requested from utility companies in accordance with the New Roads and Street Works Act 1991 (UK Government, 1991), Code of Practice, and are shown on Drawings A9P02-JAC-VUT-X_ZZZZZ_ZZ-FG-RD-0001 and A9P02-JAC-VUT-X_ZZZZZ_ZZ-FG-RD-0002 included in Volume 2: Engineering Drawings. Details in relation to these services are provided in the following paragraphs.

Telecommunications

2.3.76 Records show both underground and overhead Openreach plant is present within the project extents. The following plant is present within the immediate extents of the A9, local roads and accesses:

- Underground plant is located in the existing A9 verges and follows the mainline carriageway from the southern extent through to the northern extent;
- Underground cables cross the existing A9 in the vicinity of the left/right staggered priority junction between the existing A9 and the B867 and Perth Road and the right/left staggered priority junction between the existing A9 and the A923 and A822 (Old Military Road);
- Underground cables extend from the existing A9 verge at The Hermitage Junction into The Hermitage;
- Overhead cables are located adjacent to Dunkeld & Birnam Station leading to the residential properties at Birnam Glen;
- Overhead cables are located adjacent to the right/left staggered priority junction with the A923 and A822 (Old Military Road). From the northbound verge of the existing A9, the overhead cables travel west along the Unclassified Road to Inver. From the southbound verge, they travel east along the A923 into Little Dunkeld;
- Overhead cables cross the mainline carriageway at 4 locations:
    - Approximately 200 metres north of the tie-in to the existing dualled section at the southern extent of the scheme;
    - approximately 500 metres north of the left/right staggered priority junction between the A9 and the B867 and Perth Road;
    - At the Birnam Glen and Inchewan Burn Bridge; and
    - To the north of Inver, approximately 80 metres north of Inver Mill lade culvert.

- Two existing mobile phone masts and associated apparatus are located adjacent to the A9:
    - One is located adjacent to the northbound verge approximately 0.9 kilometres south of the existing priority junction with the B898. This mast is operated by Cellnex and is used by both EE and Three mobile phone companies; and
    - The other is adjacent to the southbound verge, opposite the exist existing priority junction with the B898. This mast is used by both O2 and Vodaphone mobile phone companies.

Gas

2.3.77 Records show that Scottish Gas Networks (SGN) plant is present within the project extents. The following plant is present within the immediate extents of the existing A9:

- A high-pressure gas main crosses the existing A9 Approximately 500 metres north of the existing private access to Murthly Castle;
- An Intermediate-pressure gas main crosses the existing A9 at three locations along the scheme extents:
    - approximately 300 metres north of the River Braan Bridge;
    - approximately 500 metres north of The Hermitage priority junction; and
    - approximately 50 metres south of the B898 priority junction.
- A low-pressure gas main crosses the A9 approximately 30 metres south of the Birnam Glen and Inchewan Burn Bridge.

Electricity

2.3.78 Records show Scottish and Southern Electricity (SSE) apparatus is present throughout the study area.

- Overhead cables cross the existing A9 carriageway at four locations along the route:
    - Approximately 350 metres north of the existing private access to Murthly Castle;
    - Approximately 250 metres south of The Hermitage priority junction;
    - Approximately 0.9 kilometres south of the existing priority junction with the B898; and
    - In the immediate locality of the existing priority junction with the B898.
- Overhead cables follow the route of the existing A9 carriageway, adjacent to the southbound carriageway, between the Inver Rail tunnel and approximately 200 metres south of the priority junction with the B898 junction;

- Underground cables cross the existing A9 carriageway at ten locations along the route:
    - Approximately 170 metres north of the tie-in to the existing dualled section at the southern extent of the scheme;
    - Approximately 500 metres north of the existing private access to Murthly Castle;
    - approximately 300 metres south of the existing left/right staggered priority junction between the A9 and the B867 and Perth Road;
    - Approximately 500 metres south of Dunkeld & Birnam Station;
    - Approximately 30 metres south of the Birnam Glen and Inchewan Burn Bridge;
    - At the Birnam Glen and Inchewan Burn Bridge;
    - Approximately 50 metres north of the existing right/left staggered priority junction with the A923 and A822 (Old Military Road);
    - Approximately 300 metres north of the River Braan crossing;
    - Approximately 170 metres south of the existing priority junction with the B898; and
    - In the immediate locality of the existing priority junction with the B898.

Water Supply and Sewerage

2.3.79 Records show Scottish Water apparatus is present throughout the study area.

- Distribution water mains cross the existing A9 carriageway at three locations along the route:
    - In the immediate locality of the existing left/right staggered priority junction between the A9 and the B867 and Perth Road;
    - Approximately 70 metres south of the Birnam Glen and Inchewan Burn Bridge; and
    - In the immediate locality of the existing right/left staggered priority junction with the A923 and A822 (Old Military Road).
- Sewage pipes cross the existing A9 carriageway at three locations along the route:
    - Approximately 70 metres south of the Birnam Glen and Inchewan Burn Bridge;
    - At the Birnam Glen and Inchewan Burn Bridge; and
    - In the immediate locality of the existing right/left staggered priority junction with the A923 and A822 (Old Military Road).

Bus Services

2.3.80 Information regarding existing local and school bus services, within the study area and the wider local area, was obtained from PKC and bus companies. It should be noted that limited data was available regarding the number of travellers using the services.

2.3.81 Numerous bus services currently operate on the existing A9 and surrounding side road network. Two formal bus lay-bys are located on the existing A9 in the vicinity of Inver. The northbound bus lay-by is accessed via Inver, and the southbound bus lay-by is accessed via the core path on the bank of the River Braan and River Tay which has links into Inver and Little Dunkeld or crossing of the existing A9 carriageway. The remaining formal bus stops are located on the side road network within Dunkeld and Birnam on the A923 and Perth Road.

2.3.82 Table 2.10 provides details in relation to the itinerary of the services, correct as of May 2025.

| Service No. | Operator | Origin | Destination | Routes | Frequency (times a day) |
|---|---|---|---|---|---|
| 23 / 27 / 34 | Stagecoach | Perth | Aberfeldy | A9 | Hourly Service (Mon-Sun) |
| 60 | Stagecoach | Blairgowrie | Dunkeld | A9 | Four services daily (Mon-Fri) |
| 897 | Doherty's Midland Coaches | Perth | Aberfeldy | A9 | Two services daily (Mon-Fri) during operational school months |
| M90 | Megabus / Citylink | Edinburgh or Perth | Inverness | Perth Road | Daily service in each direction |
| M91 | Megabus / Citylink | Edinburgh, Perth or Glasgow | Inverness | Perth Road | Daily service in each direction |

*Table 2-10: Existing Bus Services*

**Walkers, Wheels, Cyclists and Horse-rider Provision**

2.3.83 A full description of existing Walkers, Wheels, Cyclists and Horse-rider (WCH) routes within the A9 corridor is included in Chapter 17 (Population - Accessibility) included in the EIAR. The location of WCH routes are shown on Drawings A9P02-JAC-GEN-X_ZZZZZ_ZZ-FG-RD-0001 and A9P02-JAC-GEN-X_ZZZZZ_ZZ-FG-RD-0002 included in Volume 2: Engineering Drawings.

Core Paths

2.3.84 The PKC Core Paths Plan (PKC, 2017) was adopted on 25th January 2012 and revised in 2017. The plan aims to satisfy the basic needs of local people and visitors for general access and recreation, and provide links to the wider path network throughout. The core path network is intended to

cater for a range of public users including walkers, cyclists, horse riders and people with disabilities, and is a key part of outdoor access provision.

2.3.85 There are 33 paths in the vicinity of the existing A9 between Pass of Birnam and Tay Crossing that are designated as core paths. There are eight locations within the scheme extents where a core path interacts with the existing A9, and these are as follows:

- DUNK/142 runs parallel to the existing A9 northbound carriageway between the existing left/right staggered priority junction between the existing A9 and the B867 and Birnam Glen;
- DUNK/57 crosses the existing A9 approximately 90 metres north of the left/right staggered priority junction between the existing A9 and Perth Road. This crossing is at-grade, but no dedicated crossing provision is provided at this location;
- DUNK/11 crosses the existing A9 via Birnam Glen. The Birnam Glen and Inchewan Burn Bridge provides safe crossing provision under the existing A9 at this location;
- DUNK/23 crosses the existing A9 on both the north and south banks of the River Braan. The River Braan Bridge provides safe crossing provision under the existing A9 at these locations;
- DUNK/64 runs parallel to the existing A9 northbound carriageway and auxiliary lane of The Hermitage priority junction between Inver and The Hermitage priority junction;
- DUNK/23 crosses the existing A9 on the west bank of the River Tay. The River Tay Bridge provides safe crossing provision under the existing A9 at this location;
- DUNK/100 runs parallel to the existing A9 northbound carriageway between the existing B898 priority junction and approximately 200 metres north of the River Tay Bridge where it veers to the west of the existing A9; and
- DUNK/145 crosses the existing A9 on the east bank of the River Tay. The River Tay Bridge provides safe crossing provision under the existing A9 at this location.

Public Rights of Way

2.3.86 A public right of way is a defined route which has been used by the general public for at least 20 years and which links two public places (usually public roads). Public rights of way vary from long hill routes (often historical drove or kirk roads) to local routes or as short cuts to shops, schools and other local amenities. ScotWays maintains the National Catalogue of Rights of Way (CROW), in partnership with Scottish Natural Heritage (SNH). In addition, many local authorities also have their own records. Access along public rights of way is protected by the Countryside (Scotland) Act 1967 (UK Government, 1967), Section 46. This Act requires the local authority to 'assert, protect and keep open and free from obstruction or encroachment any public rights of way'. Diversions can be considered if the proposed diversion is deemed suitable by the planning authority.

2.3.87 There are eight paths in the vicinity of the existing A9 between Pass of Birnam and Tay Crossing that are designated as public rights of way, and of these there are three public right of ways which interact with the existing A9. These rights of way are as follows:

- TP102 crosses the A9 on the same route as DUNK/57 described above;
- TP106 crosses the A9 on the same route as DUNK/11 described above; and
- 32/10 crosses the A9 on the same route as DUNK/23 on the south bank of the River Braan as described above.

Local Paths

2.3.88 There are numerous local paths in the vicinity of the existing A9 between Pass of Birnam and Tay Crossing which provide greater access to outdoor recreation such as woodland areas. There are six local paths which interact with the existing A9 as follows:

- An undesignated local path crosses the existing A9 at the existing Murthly Estate priority junction. This crossing is at-grade, but no dedicated crossing provision is provided at this location;
- An undesignated local path terminates on the southbound side of the existing A9 approximately 550 metres north of the Murthly Estate priority junction;
- An undesignated local path terminates on the northbound side of the existing A9 approximately 700 metres north of the Murthly Estate priority junction;
- An undesignated local path terminates on the southbound side of the existing A9 approximately 250 metres south of the left/right staggered priority junction between the existing A9 and the B867;
- An undesignated local path terminates on the southbound side of the existing A9 approximately at the Birnam Glen and Inchewan Burn Bridge; and
- An undesignated local path terminates on the northbound side of the existing A9 approximately 900 metres south of the B898 priority junction.

National and Regional Cycle Network

2.3.89 The National Cycle Network (NCN) is a UK network of cycle routes (national or regional) and was created by Sustrans which is a charity that promotes sustainable transport. It officially opened its flagship project, the National Cycle Network, in 2000 to encourage cycling throughout Britain. The routes are a combination of pedestrian routes, disused railways, minor roads, canal towpaths and traffic calmed routes. National Cycle Routes and Regional Cycle Routes can also be designated as core paths or public rights of way (Sustrans, n.d.).

2.3.90 NCN77 interacts with the existing A9 between Pass of Birnam and Tay Crossing. Beginning at the southern extent of the scheme, NCN77 follows the B867 from Bankfoot to Birnam Junction. Along this section of route, cyclists share the carriageway with motor vehicles. Just south of the B867 junction with the existing A9 carriageway, NCN77 diverges from the northbound side of the B867 and runs parallel to the existing A9 carriageway on a combination of stepped and detached cycle track between the B867 junction and Dunkeld and Birnam station. This section of NCN77 is shared with pedestrians (DUNK/142). From the station, NCN77 continues north down to Birnam Glen Road, then crosses the under the existing A9 via Birnam Glen into Birnam. The Birnam Glen and Inchewan Burn Bridge provides safe crossing provision under the existing A9 at this location. Along Birnam Glen, cyclists share the carriageway with motorised vehicles.

2.3.91 NCN77 also interacts with the existing A9 towards the northern extent of the scheme, where it travels north from Dunkeld and then crosses the existing A9 on the east bank of the River Tay on a detached cycle track shared with DUNK/145. The River Tay Bridge provides safe crossing provision under the existing A9 at this location. NCN77 then loops around and crosses the River Tay in the northbound verge of the existing A9 carriageway. NCN77 runs parallel to the existing A9 from approximately 200 metres north of the River Tay Bridge to the existing B898 priority junction. This section of the NCN77 is shared with pedestrians (DUNK/100).

2.3.92 The Regional Cycle Network (RCN) Route 83 connects to NCN77 at the eastern extent of Dunkeld and travels along the C502 towards Dowally and beyond. This route does not interact with the existing A9 between Pass of Birnam and Tay Crossing.

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