

4 The Proposed Scheme

4.1 Background

4.1.1 This chapter provides a description of the proposed scheme, including information on the procurement process, design of the route, the proposed layout, and the methods and programme of construction.

4.1.2 The elements of the design for the proposed scheme and the anticipated construction methods are described in this chapter, and provide the basis against which the environmental impacts and the mitigation to address those impacts have been determined, and reported in this ES.

4.2 Scheme Procurement

4.2.1 It is proposed that the scheme be procured as a Public Private Partnership (PPP) or similar style of project, and is likely to be awarded under a Design Build, Finance and Operate (DBFO) contract. Under a DBFO contract, a concession company takes responsibility for the design and construction of the scheme and would normally appoint a contractor to undertake this on their behalf. They would continue to operate the completed trunk road for an extended concession period of the order of 30 years. The concession company provides the finance for the scheme and receives payment for this throughout the concession period. Following expiry of the concession period, responsibility for operating and maintaining the trunk road would return to the Scottish Executive. Responsibility for operating and maintaining the side roads would transfer to Aberdeenshire or Aberdeen City Councils following construction of the scheme.

4.2.2 Under the DBFO style of contract, a specimen (outline) design is prepared for the proposed scheme, which the Contractor can optimise as the detailed design is developed. Such optimisation would have to be within the constraints imposed by the ES, including the Schedule of Environmental Commitments, Statutory Orders and any specific limits set within the contract documents.

4.3 Scheme Design

4.3.1 Development of the design assessed in this EIA has included consultations with statutory and non-statutory consultees, including affected landowners, to determine any requirements or suggestions they had for the proposed scheme. Further details of consultations undertaken are given in Chapter 6 (Scoping and Consultation). Where feasible and practicable, changes to the scheme design were made following these consultations.

4.3.2 As described in Chapter 3 (Alternatives Considered), environmental constraints and issues were considered and contributed to the decision-making process during identification of the preferred location for the route, and have also informed the subsequent scheme design. The design described in this chapter has been developed in an iterative process, considering advice from a wide range of environmental and engineering specialists, as well as public consultations.

4.3.3 To meet landowner access requests etc, a few minor refinements to the design were made subsequent to the completion of the assessment process reported in this Environment Statement. These amendments are not considered to materially affect the outcome of the environmental assessment and are thus not described or assessed in this Environmental Statement

4.3.4 A Design Aesthetics Group was formed to assist development of the design of the major bridges, junctions and components of the scheme. This group included members from Transport Scotland, Aberdeenshire Council, Aberdeen City Council, Jacobs and Jacobs' architectural and aesthetic advisors, Nicoll Russell Studios.

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4.4 Outline of the Proposed Scheme

4.4.1 As noted in Chapter 1 (Introduction), the proposed scheme is shown in Figure 1.1, has a total length of 46km and is comprised of three sections as follows:

- Northern Leg: between North Kingswells and Blackdog, and based upon the route corridor selected by NESTRANS in 2002.
- Southern Leg: between Charleston and North Kingswells, and based upon the route corridor announced by the Minister for Transport in December 2005.
- Fastlink: between Stonehaven and Cleanhill, and based upon the route corridor announced by the Minister for Transport in December 2005.

4.4.2 The AWPR Steering Group which comprises representatives from Transport Scotland, Aberdeenshire Council and Aberdeen City Council determined that the route would be designated as a Special Road. This is a statutory designation which is promoted by an Order under the 'Roads (Scotland) Act 1984' and means that the main carriageways and verges of the AWPR and Fastlink cannot be used by pedestrians, equestrians, cyclists, motorcycles with engine capacity under 50cc, learner drivers and certain farm vehicles. This designation also applies to certain slip roads as shown on the Order, but does not apply to the side roads.

4.4.3 Access to the route will only be permitted at major junctions. No other public access will be provided on the route and side roads and existing paths and tracks which are crossed by the route are maintained or realigned wherever practicable. Specific provision is made for access by emergency vehicles to the Fastlink to the south of Cookney. This access is not available for use by the public.

4.4.4 The route between Charleston and Blackdog is designated a High Load Route, identifying it as suitable for any abnormal and indivisible loads travelling on the A90 between the areas south and north of Aberdeen. This entails a vertical clearance of 6.45m at structures instead of the standard clearance of 5.3m.

4.4.5 The proposed scheme is referred to by chainage throughout the ES, which are shown on all OS based Figures. For ease of identification, the Northern Leg, Southern Leg (Cleanhill Junction to North Kingswells Junction) and Southern Leg (Charleston to Cleanhill Junction) chainages are prefixed by 3, 2 and 1 respectively. The Fastlink chainage commences at 0.

4.4.6 Figures are provided as multiple sheets (a, b, c et seq.) at either 1:25,000, 1:10,000 or 1:5,000 scale depending on the study area considered within each of the environmental subject areas. The key maps illustrating how each sheet relates to the proposed scheme are illustrated on Figures 4.4a-c, 4.5a-c and 4.6a-c respectively.

Northern Leg (ch314800 – 330900)

4.4.7 The proposed Northern Leg is shown on Figures 4.1a-g, and described below.

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North Kingswells Junction to Craibstone (Figures 4.1a-b)

- 4.4.8 The design for North Kingswells Junction comprises a grade-separated junction (a road junction at which some or all of the arms of the junction are separated vertically and linked by slip roads), with north facing slip roads with at-grade priority junctions. At this junction, it is therefore only possible to access the AWPR to travel northbound and exit from the AWPR travelling southbound. The junction includes a connector road which passes below the AWPR in a cutting and links to the existing Chapel of Stoneywood to Fairley Road (C89C) to the north of Webster Park at a new at-grade roundabout. A connection is also provided from the west side of North Kingswells Junction to Brimmond Hill.
- 4.4.9 An overbridge is provided at Kepplestone Farm (Kepplestone Overbridge) to provide access across the route.
- 4.4.10 The AWPR runs north from North Kingswells Junction towards the A96 Junction at Craibstone and is a dual carriageway with three lanes in each direction at this location. The AWPR crosses a number of side roads as follows:
- Tulloch Road (U90C) – the AWPR passes below Tulloch Road in cutting to the west of Chapel Belts with Tulloch Road realigned south of its current line and maintained with an overbridge (Ashtown Overbridge) over the AWPR. A new at-grade priority junction is provided with the Chapel of Stoneywood to Fairley Road approximately 50m south of the existing junction with Forrit Brae Road.
 - Chapel of Stoneywood to Fairley Road (C89C) – the AWPR crosses the Chapel of Stoneywood to Fairley Road to the south of Gough Burn. The Chapel of Stoneywood to Fairley Road is to be closed at this point and it will not be possible to cross the AWPR at this location. A private access is provided between the Chapel of Stoneywood to Fairley Road to the south of the AWPR and the existing access road to the Scottish Agricultural College and Rowett Institute. The junction between the Chapel of Stoneywood to Fairley Road and the A96 will be closed and alternative access provided via the link road connecting to the grade separated junction at the AWPR described below.
- 4.4.11 Several new footpaths are provided along this section of the route to link up with existing paths severed by the AWPR. These comprise the following:
- along the south side of the connector road at North Kingswells Junction between the existing Chapel of Stoneywood to Fairley Road and Brimmond Hill;
 - along the east side of the AWPR between North Kingswells Junction and the access track at Newton Farm;
 - to the west of the AWPR between the realigned Tulloch Road and the Chapel of Stoneywood to Fairley Road, to the north of the AWPR; and
 - on both sides of the route at the Scottish Agricultural College Estate at Craibstone, connecting to existing paths within the estate.

A96 Junction (Figure 4.1b)

- 4.4.12 The A96 Junction connects the AWPR and the A96 Aberdeen-Inverness Trunk Road at Craibstone, and comprises a grade-separated junction at the AWPR and an at-grade roundabout on the A96 linked via a dual carriageway connector road.
- 4.4.13 The grade-separated junction at the AWPR includes northbound and southbound slip roads which connect to the AWPR. These slip roads link to a connector road at traffic signal controlled junctions. The connector road passes below the AWPR and connects to the at-grade roundabout on the A96 at its eastern end and the existing Chapel of Stoneywood to Fairley Road at its western end.

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- 4.4.14 The roundabout on the A96 will be traffic signal controlled and will connect the roundabout to the A96 to the east and west. A short spur is provided on the north side of the roundabout which will enable a link road to be provided to Kirkhill Industrial Estate and Aberdeen International Airport in the future. The link road is not part of the AWPR scheme.
- 4.4.15 The existing roundabout at the A96/Dyce Drive Junction is to be modified to be a traffic signal controlled crossroads.
- 4.4.16 The AWPR crosses the existing A96 to the north of Craibstone and east of Chapel of Stoneywood with the A96 passing below the AWPR through an underbridge.
- 4.4.17 The existing junction between the Chapel of Stoneywood to Kirkhill Road and the A96 will remain open although for safety reasons it will not be possible to turn right from this junction onto the A96. Traffic wishing to travel west on the A96 will have to turn at the new roundabout on the A96. The Chapel of Stoneywood to Kirkhill Road is crossed by the AWPR north of the A96 and will be closed at this location preventing access to Kirkhill Industrial Estate. Access to land to the east of the route will be maintained from Dyce Drive.
- 4.4.18 The existing junction on the A96 leading to Walton Road will remain open providing local access and access to drainage ponds proposed to the north of the A96.
- 4.4.19 The AWPR crosses the existing right of way at Walton Road and it will be closed and diverted to the A96 to maintain access.
- 4.4.20 The existing underpass which passes below the A96 at Craibstone is to be maintained.

A96 Junction to Goval (Figures 4.1b-e)

- 4.4.21 The AWPR is dual carriageway with two lanes in each direction between the A96 Junction at Craibstone and the A947 Junction at Goval. The route runs north from the A96 passing to the west of Kirkhill Industrial Estate.
- 4.4.22 The AWPR passes to the west of the Stone Circle at Kirkhill as it continues north, and then turns east at Kirkhill to pass to the north of Dyce Drive at the point it crosses over the Aberdeen to Inverness railway line. The AWPR then crosses over the River Don and continues eastwards to Goval.
- 4.4.23 The Aberdeen to Inverness railway line passes below the AWPR through an underbridge. The AWPR crosses the River Don on a viaduct which has piers (columns) either side of the river and within the river floodplain, but none within the river itself.
- 4.4.24 A grade-separated junction is provided to connect the AWPR to the A947 Aberdeen to Turriff Road at Goval. The junction is traffic signal controlled. The A947 is realigned to pass over the AWPR on an overbridge and this provides access to slip roads on the north side of the AWPR enabling access to the AWPR to the east and egress from the AWPR to the west. The B977 Echt to Balmedie Road is realigned to connect to the A947 to the south of the route with an at-grade roundabout proposed on the B977 to the south of the AWPR to provide access to slip roads accessing the AWPR to the west and enabling egress from the east. The existing B977 is retained to provide access to properties along the road.

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- 4.4.25 The route crosses a number of side roads between Craibstone and Goval as follows:
- Pitmedden Road (C55C) – the AWPR crosses Pitmedden Road approximately 100m north-west of its exiting junction with Dyce Drive. Pitmedden Road is maintained on its current line and passes below the AWPR through an underbridge (Pitmedden Road Underbridge).
 - Echt to Balmedie Road (B977) – the AWPR crosses the B977 southwest of Goval Farm. The B977 is realigned to the east of its current line and crosses over the AWPR on an overbridge (B977 West Overbridge).
 - Aberdeen to Turriff Road (A947) – the AWPR crosses the A947 which is maintained as described above.
 - A farm overbridge is provided to the north of Lower Overton.

- 4.4.26 Several tracks and paths are provided along this section of the route to link up with existing paths severed by the AWPR. These comprise:
- Paths are provided either side of the AWPR at Balgosie and Howemoss.
 - Existing tracks are severed by the AWPR at Kirkhill Forest but have been maintained with an overbridge that crosses the AWPR (Kirkhill Overbridge) and connecting paths.
 - A path is provided to the south of the AWPR northwest of Kirkhill.

- 4.4.27 The Formartine and Buchan Way (a footpath following a disused railway line) is crossed by the AWPR and the realigned A947 at Goval. Underbridges are provided to enable the Formartine and Buchan Way to pass below both the AWPR and realigned A947.

Goval to Blackdog (Figures 4.1e-g)

- 4.4.28 The AWPR is dual carriageway with two lanes in each direction between the A947 Goval Junction and A90 North Junction at Blackdog. The route runs eastwards from Goval past Corsehill, Lochgreens, Newtonhill and to the south of Potterton. The route turns northwards at Harehill to connect to the A90 north of Blackdog at a new grade-separated junction.

- 4.4.29 The A90 North Junction comprises of a two-bridge roundabout controlled by traffic signals, which is raised above the A90 and connected to it by slip roads to the north and south. Connections are also provided on the west side to the Belhelvie to Waterridgemuir Road (C1C) providing access to Potterton and property at Wester Hatton, and on the east side to Blackdog, Blackdog Industrial Estate and property at Hatton. The existing junction at Blackdog will be closed for safety reasons as it is too close to the slip roads which connect to the grade-separated junction over the A90 and access provided via the access road connecting to the A90 North Junction.

- 4.4.30 The route crosses a number of side roads between Goval and Blackdog as follows:
- Newmachar Church Road (C25C) – the AWPR crosses the Newmachar Church Road at Corsehill and the existing road will be closed at this location. The Newmachar Church Road will be connected to the B977 north of the AWPR.
 - Echt to Balmedie Road (B977) – the AWPR crosses the B977 at Corsehill. The B977 is realigned to the west of its current location and crosses over the AWPR on an overbridge (B977 East Overbridge). As described above, the B977 is also realigned on the north side of the AWPR to connect to the Newmachar Church Road. A new at-grade priority junction is provided north of the AWPR to connect the realigned sections of the B977.
 - Leuchlands to Cranbog to Shielhill Road (U19C) – the AWPR passes below the U19C at Newtonhill. The U19C is maintained with an overbridge (Newtonhill Overbridge) which carries the road over the AWPR.

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- Aberdeen to Tarves Road (B999) – the AWPR crosses the B999 north of Cranfield. The B999 is realigned to the west of its current location and crosses the AWPR on an overbridge (B999 Overbridge) which carries the road over the AWPR.
- A new access road is provided from the realigned Belhelvie to Waterridgemuir Road (C1C) at the A90 North Junction to Middleton Steadings, as existing access from A90 is severed by AWPR.
- A new access road is provided from the Newmill – Burnhead Road (U240C) at Blackdog to North Tarbothill.
- A new access road is provided from the access passing Seaview Caravan Park to properties to the east of the A90 and north of the caravan park.

4.4.31 Several tracks and paths are provided along this section of the route to link up with existing tracks and paths severed by the AWPR or to provide alternative access points. These comprise:

- An underbridge is provided to the north of the new roundabout on the B977 to provide access to the north of the AWPR at Meadowhead Cottage.
- An overbridge provided at Lochgreens (Lochgreens Overbridge) to maintain an existing access.
- A new access (Lochhills Farm Access) is provided from the B997.
- Access tracks are provided alongside the realigned B999 to the north of the AWPR.
- An access track is provided from the existing B999 running eastwards to the south of the AWPR.
- Access provided to Wester Hatton and Hatton Cottages from the A90 North Junction as described above.

Southern Leg (ch200000 – 207270 and ch100000 – 111400)

4.4.32 The Southern Leg is shown on Figures 4.2a-h, and described below. Chainages 200000 and 100000 commence at Cleanhill Junction and run eastwards to Charleston and northwards to Kingswells, respectively.

Charleston to Cleanhill Junction (Figures 4.2a-c)

4.4.33 The AWPR is dual carriageway with two lanes in each direction between Charleston Junction and Cleanhill Junction. The existing grade separated junction which connects the A90 and the A956 at Charleston is modified as part of the proposed scheme with new slip roads provided on each side of the A90 connecting to the A956 which is carried over the A90 on a new overbridge to be constructed to the south of the existing bridge. The junctions are traffic signal controlled. A connection is also provided to the Craighill (Redmoss) Road (U168K, also known as the Old Stonehaven Road) to the north of the A956 with a traffic signal controlled junction at the realigned A956.

4.4.34 The existing junction between the A90 and Lochton to Auchlunies to Nigg Road (C5K) to the north of Charleston Junction is closed as part of the proposed scheme as it is crossed by the new northbound merge slip road.

4.4.35 The existing junction between the A90 and the Hare Moss to Checkbar Road (U58K) to the south of Charleston Junction is closed as part of the proposed scheme as it is crossed by the northbound diverge slip road. A new road is provided from the U58K to the new junction being constructed at Schoolhill to maintain access.

4.4.36 The existing A90 to the south of the junction is widened to be a dual carriageway with three lanes provided in each direction between Charleston Junction and the new junction at Schoolhill being constructed by a private developer.

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- 4.4.37 The AWPR runs west from Charleston Junction passing south of Whistlebrae, Hare Moss and Greenloaning, and north of Burnhead to connect to the Fastlink south of Cleanhill Wood at Cleanhill Junction.
- 4.4.38 The route crosses a number of side roads between Charleston and Cleanhill Junction as follows:
- Existing access road at Whistlebrae – the AWPR passes below the existing access road to the south of Whistlebrae. The access road will be closed at this location and a new side road provided from the Lochton – Auchlunies – Nigg Road (C5K) crossing the AWPR and connecting to the new junction currently under construction at Schoolhill.
 - Hilldowntree to Sunnyside to Causeyport Road (C34K) – the AWPR crosses the C34K approximately 150m north of the existing U58K / C34K junction. The C34K will be closed to public traffic but will be maintained for agricultural traffic and non-vehicular traffic with an overbridge.
 - U59K – The AWPR crosses the U59K at Bishopton. The U59K will be closed at this location.
 - Hillside to Batchart Road (C30K) – The AWPR passes below the C30K south of Greenloaning. The C30K is realigned to the west of its current location and passes over the AWPR on an overbridge (C30K overbridge).
 - Lochton to Auchlunies to Nigg Road (C5K) – The AWPR passes below the C5K to the northeast of Burnhead. The C5K is realigned to pass over the AWPR on an overbridge (C5K overbridge).
 - Blaikiewell Road (U63K) – The AWPR crosses the U63K north of Burnhead. The U63K will be closed at this location but will be realigned to connect to the realigned C5K to the north of the route. An access will also be provided to the properties at Burnhead to the south of the route.
- 4.4.39 Several access roads, tracks and paths are provided along this section of the route to link up with existing tracks and paths severed by the AWPR or to provide alternative access points. These comprise:
- C34K – As described above, an overbridge for agricultural traffic and non-vehicular traffic will be provided where the route crosses the C34K.
 - U59K – As described above the U59K will not be maintained as a public road. However, a bridge will be provided over the AWPR at Bishopton to maintain access for the adjacent landowner.
 - Hillside to Batchart Road (C30K) – access roads will be provided to the south of the AWPR from the realigned C30K to provide access to Sunnyside Farmhouse and Merchant's Croft.
 - A track will be provided from the realigned C5K to run westwards to the south of the route to connect to an existing track which is severed by the route.

Cleanhill Junction to Milltimber (Figures 4.2c-e)

- 4.4.40 The AWPR is a dual carriageway with two lanes in each direction between Cleanhill Junction and Milltimber. The AWPR runs north from Cleanhill Junction passing to the east of Eastland House and west of Kingcausie House before crossing the River Dee to the east of the existing Maryculter Bridge.
- 4.4.41 The AWPR crosses the River Dee on a viaduct which has piers (columns) either side of the river but none within the river itself. A culvert is also included to the north of the river which is positioned opposite the existing culvert under the B979.
- 4.4.42 The route continues north passing to the east of the B979 and through Milltimber. The route passes to the east of Kippie Lodge to a new grade separated junction (Milltimber Junction) south of Nether Beanshill.

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4.4.43 Milltimber Junction is a new grade-separated junction with a loop arrangement for the slip roads which are connected with an overbridge (Milltimber Junction Overbridge) that passes over the route. The junction is accessed from a link road which connects to the A93 and is located on the west-side of the AWPR. The link road connects to the new Milltimber Junction at a new roundabout. The junction between the link road and the A93 is a traffic signal controlled cross roads which also connects to the B979 to the south.

4.4.44 The route crosses a number of side roads between Cleanhill Junction and Milltimber as follows:

- Blaikiewell Road (U63K) – The AWPR passes over the U63K to the south of Cleanhill Wood. The U63K is maintained on its existing line and passes below the route through an underbridge (U63K Blaikiewell Road underbridge).
- South Deeside Road (B9077) – The AWPR passes over the B9077 to the north of Kingcausie. The B9077 is maintained on its existing line and passes below the route through an underbridge (B9077 South Deeside Road underbridge).
- Station Road – The AWPR passes below the Station Road. Station Road is realigned and crosses over the route on an overbridge (Milltimber Brae overbridge).
- North Deeside Road (A93) – The AWPR passes below the A93 at Milltimber. The A93 is maintained on its existing line and crosses over the route on an overbridge (A93 overbridge).
- Culterhouse Road – The AWPR passes below Culterhouse Road. No access will be possible across the AWPR at this location. Culterhouse Road will be realigned to the west of the route to connect to the new link road which links the A93 to Milltimber Junction to maintain access at this location.

4.4.45 Several access roads, tracks and paths are provided along this section of the route to link up with existing tracks and paths severed by the AWPR or to provide alternative access points. These comprise:

- A track is provided to the east of the AWPR in Cleanhill Wood to replace a track that is crossed by the route at this location.
- An access road is provided at Eastland House which passes below the route through an underpass (Kingcausie/Eastland Underpass) to maintain access along a road which is crossed by the route.
- An access track is provided along both sides of the route to the north of the River Dee to maintain a track which connects to the B979 and is crossed by the route.
- Old Deeside Line Walk – the route passes below the Old Deeside Line Walk to the south of Milltimber. Access will be maintained via the new overbridge at Station Road as described above.
- A new path is provided to the east of the route between Milltimber Junction and Culterhouse Road which will enable pedestrians/equestrians/cyclists to cross the route at this location.

Milltimber to North Kingswells Junction (Figures 4.2e-h)

4.4.46 The AWPR is a dual carriageway with two lanes in each direction between Milltimber and North Kingswells Junction. The AWPR runs north from Milltimber passing to the east of Beanshill, between Silverburn and Gairnhill Wood and east of Moss of Auchlea. The route crosses the A944 to the east of Kingsford Industrial Estate.

4.4.47 A new grade separated junction (A944 South Kingswells Junction) is provided at the A944. The A944 South Kingswells Junction comprises a two-bridge roundabout, which is on the line of the A944 below the AWPR and connected to it by slip roads to the north and south. Connections are also provided on the northwest side to the existing road which is crossed by the route to the north of the A944 and on the southeast side to the existing Kingsford to Silverburn Road which is crossed by the route to the south of the A944.

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4.4.48 The route continues north from the A944 passing west of Denhead of Cloghill, Cloghill House and Fairley Home Farm to connect to the Northern Leg of the AWPR to the south of North Kingswells Junction.

4.4.49 The route crosses a number of side roads between Milltimber and North Kingswells Junction as follows:

- Contlaw Road – The AWPR passes below Contlaw Road at the existing crossroads at Beanshill. Contlaw Road is maintained with an overbridge (Contlaw Road Overbridge) which carries the road over the AWPR. The other roads at the existing crossroads are maintained with new at-grade junctions provided which connect to Contlaw Road to the east and west of the route.
- The AWPR crosses the existing track that runs eastwards from Beanshill Lodge. The road will be closed with access maintained from Contlaw Road.
- Silverburn Road (C127) – The AWPR passes over the C127 to the southwest of Gairnhill Wood. The C127 is realigned to pass below the AWPR through an underbridge (C127 Underbridge).
- The AWPR crosses the existing access road which runs from the Kingsford to Silverburn Road to Gairn Farm. The access road will be closed and a new access road provided further north which will pass below the route through an accommodation underpass.
- The AWPR crosses an existing road between Moss of Auchlea and Backhill to the south of the A944. The road will be closed at this location although access will be maintained from the new access road provided to Gairn Farm as described above.
- Denhead of Cloghill access – The AWPR crosses the access road to Denhead of Cloghill Farm. The access road will be realigned to the north to cross the route on a new overbridge (Fairley Cloghill Overbridge).
- The route passes below an existing access road to the north of Cloghill House. The existing road will be closed with a new access road provided from Cloghill House on the east side of the route to the new Fairley Cloghill Overbridge to the south.
- The route passes over an existing access road southwest of Fairley Home Farm. The existing road will be closed with access maintained via the new Derbeth Overbridge as described below.
- The route passes below an existing access road which runs from Fairley House to Hillhead of Derbeth Farm. The access road will be realigned to cross over the route on a new overbridge (Derbeth Overbridge). Connections will also be provided to Derbeth Farm to the east of the route and dwellings at Cloghill to the west of the route.

Fastlink (ch0 – 11500)

4.4.50 The Fastlink is shown on Figures 4.3a-f, and described below.

Stonehaven Junction to Cleanhill Junction (Figures 4.3a-f)

4.4.51 The Fastlink connects to the existing A90 at the existing grade separated B979 junction which is modified as part of the proposed scheme. A new roundabout is constructed to the west of the existing A90 at the end of the existing loop slip roads which are retained. Access to the existing B979 and Megray is provided from the roundabout. The B979, which passes below the existing A90, is widened and the existing A90 underbridge is replaced to accommodate this widening. New slip roads are provided to the east of the existing A90 connecting to the B979 at a traffic signal controlled junction.

4.4.52 The Fastlink is a dual carriageway with two lanes in each direction. The route runs northwards from the Stonehaven Junction, passing to the east of Megray Wood, east of Hill of Muchalls, Cookney and North Rothnick and west of Burnhead. The route connects to the Southern Leg at Cleanhill Junction which is a new at grade roundabout provided to the south of Cleanhill Wood.

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4.4.53 The route crosses a number of side roads between Stonehaven Junction and Cleanhill Junction as follows:

- Auquorthies to Ury Road (U89K) – the Fastlink crosses the U89K at Megray Wood and the road will be closed to vehicular traffic at this location. An underpass will be provided to enable non-motorised users to pass below the route at this location. Vehicular traffic will be diverted north along a new road to be constructed to the east of the Fastlink.
- Fishermyre to Clayfolds Road (U88K) – the Fastlink crosses the U88K east of Fishermyre. The U88K is realigned and passes below the route at an underbridge (U88K underbridge). The realigned road from the U89K connects to the U88K to the east of the route with access provided below the Fastlink through the proposed underbridge.
- Bridge of Muchalls to Netherley Road (C12K) – the Fastlink passes below the C12K east of Elrick. C12K is maintained on its current line and crosses the route on an overbridge (C12K overbridge). Access to the Fastlink for emergency vehicles is provided at this location.
- Muchalls to Burnhead Road (C25K) – the Fastlink passes below the C25K east of Cookney. The C25K is realigned to connect to the C24K to the north of North Cookney Cottage and passes over the Fastlink on an overbridge (C25K overbridge).
- The Fastlink passes below the road which runs between West Stoneyhill and Newhall to the north of Cookney and the existing road will be closed at this location. The road will be connected to the C25K at Cookney with a new access road following the line of the existing track at this location.
- Lairhillock to Portlethen Road (C13K) – the Fastlink passes below the C13K northeast of North Rothnick. The C13K is realigned and passes over the route on an overbridge (C13K overbridge).
- Lochton to Auchlunies to Nigg Road (C5K) – the Fastlink passes over the C5K east of Greens of Crynoch. The C5K is maintained on its existing line and passes below the route through an underpass (C5K underbridge).

4.4.54 Several access roads, tracks and paths are provided along the Fastlink to link up with existing tracks and paths severed by the route or to provide alternative access points. These comprise:

- As described above, an underpass is provided on the line of the U89K for non-vehicular traffic.
- As described above, an access road is provided to the east of the route between the U88K at Megray Wood and the U88K at Fishermyre.
- An access road and bridge is provided at Burnside.
- As described above, an access road is provided from the C25K at Cookney running north past Stoneyhill House and Meadowhead.
- An access road is provided from the C5K to the west of the route at Greens of Crynoch to Blaikiewell Farm as the existing access from Blaikiewell Road is severed by the route.

4.5 Detail of the Proposed Scheme

Road Widths

4.5.1 The mainline has been designed in accordance with DMRB in terms of carriageway width. Side roads and accesses have been designed to standards agreed with the appropriate local authority. The mainline has several road types along its length.

Northern Leg

4.5.2 The main carriageway will be dual carriageway with three lanes in each direction between North Kingswells Junction and the A96 Junction. Three lanes are required in each direction to cater for the traffic flows forecast for the proposed scheme. The main carriageway will be dual carriageway with two lanes in each direction between the A96 Junction and the A90 North Junction. The

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existing A96 and A90 dual carriageway roads will remain as per the current road widths. Single carriageway side roads are of varying widths depending on the road category (whether A, B, C or Unclassified roads) and standard. Details of road carriageway widths are given in Table 4.1 below.

Southern Leg

- 4.5.3 The main carriageway will be dual carriageway with two lanes in each direction between Charleston Junction and North Kingswells Junction. The A956 will also be dual two lane carriageway in each direction. Single carriageway side roads are of varying widths depending on the road category (whether A, B, C or Unclassified roads) and standard. Details of road carriageway widths are given in Table 4.1 below.

Fastlink

- 4.5.4 The main carriageway will be dual carriageway with two lanes in each direction between Stonehaven Junction and Cleanhill Junction where the Fastlink connects to the Southern Leg of the proposed scheme. Single carriageway side roads are of varying widths depending on the road category (whether A, B, C or Unclassified roads) and standard. Details of road carriageway widths are given in Table 4.1 below

Table 4.1 – Carriageway Widths

Road Standard	Detail	Width (m)	Total Width
Dual carriageway with two lanes in each direction	Verge	2.5	26.1m
	Hard Strip	1.0	
	Carriageway	7.3	
	Hard Strip	1.0	
	Central Reserve	2.5	
	Hard Strip	1.0	
	Carriageway	7.3	
	Hard Strip	1.0	
Dual carriageway with three lanes in each direction	Verge	2.5	33.5m
	Hard Strip	1.0	
	Carriageway	11.0	
	Hard Strip	1.0	
	Central Reserve	2.5	
	Hard Strip	1.0	
	Carriageway	11.0	
	Hard Strip	1.0	
Single carriageway	Verge	1.5 – 2.5	9.0 – 14.3m
	Hard Strip	Varies: 0 – 1.0	
	Carriageway	6.0 – 7.3	
	Hard Strip	Varies: 0 – 1.0	
	Verge	1.5 – 2.5	

Notes

- 1 Verge and central reserve widths are exclusive of adjacent hard strips.
- 2 Verge, central reserve and carriageway widths may vary at certain locations eg at junctions, tie-ins and where widened verges are required for visibility reasons.

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Pedestrian, Cyclist and Equestrian Provisions

- 4.5.5 As discussed above, footpaths, tracks and paths are being provided to accommodate non-motorised users including pedestrian, cyclist and equestrians. These tracks have been designed in accordance with the Scottish Executive's consultation document, 'Cycling by Design' (1999) and in consultation with the local authority access groups. Other groups have been consulted during the development of the proposed scheme including Sustrans, Cyclists Touring Club (CTC), British Horse Society (BHS) and the Scottish Rights of Way and Access Society (Scotways).
- 4.5.6 Access impacts are assessed and mitigation described for each of the three AWPR sections in Chapters 16, 31 and 46 (Pedestrians, Cyclists, Equestrians and Community Effects).

Earthworks

- 4.5.7 The height of the proposed route varies with sections on embankment, in cutting or close to existing ground level. Substantial embankments or cuttings occur at the following locations:

Northern Leg

- Route in cutting up to approximately 8m deep between North Kingswells Junction and Craibstone (ch315500 – 316150)
- Route on embankment up to approximately 15m high at Craibstone (ch317050)
- Route on embankment up to approximately 15m high to south of A96 at Chapel of Stoneywood (ch317350)
- Route on embankment up to approximately 12m high at South Kirkhill (ch318360 – 318700)
- Route in cutting up to approximately 11m deep at Kirkhill (ch319670 – 320250)
- Route on embankment up to approximately 21m high at Bogenjoss (ch320890)
- Route in cutting up to approximately 13m deep west of Pitmedden Home Farm (ch321600 – 322000)
- Route on embankment up to approximately 17m high east of the Aberdeen to Inverness Railway Line (ch322750 – 323010)
- Route on embankment up to approximately 12m high east of the Formartine and Buchan Way (ch324650 – 325300)
- Route in cutting up to approximately 9m deep at Corsehill (ch325500 – 325800)
- Route in cutting up to approximately 16m deep at Newtonhill (ch328100 – 328900)
- A96, A947 and A90 North Junctions (ch317090, ch324400 and ch330600 respectively)

Southern Leg

- Route in cutting up to approximately 6m deep west of Charleston Junction (ch206050 – 206550)
- Route on embankment up to approximately 9m high west of Charleston Junction (ch205750 – 206050)
- Route on embankment up to approximately 7m high between Duffshill, passing to the south of Hare Moss (ch203650 – 205100)
- Route in cutting up to approximately 15m deep to the south of Hill of Blairs (ch201400 – 202100)
- Route on embankment up to approximately 13m high at Blaikiewell Burn (ch100100 – 100300)
- Route in cutting up to approximately 14m deep at Cleanhill Wood (ch100400 – 100800)

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- Route on embankment up to approximately 11m high to the north of the River Dee (ch102300 – 102800)
- Route in cutting up to approximately 14m deep from Milltimber to Beanshill (ch102850 – 105400)
- Route on embankment up to approximately 11m high at Silverburn (ch106000 – 106550)
- Route on embankment up to approximately 7.5m high to the west of Moss of Auchlea (ch107300 – 107550)
- Route on embankment up to approximately 13m high at the A944 (ch108450 – 108750)
- Route in cutting up to approximately 7m deep to the north of the A944 (ch108850 – 109000)
- Route in cutting up to approximately 16m deep at Cloghill (ch109450 – 109850)
- Route on embankment up to approximately 10m high between Cloghill and Fairley (ch109950 – 110200)
- Route in cutting up to approximately 14m deep at Derbeth Farm (ch110400 – 111100)

Fastlink

- Route in cutting up to approximately 12m deep between Stonehaven Junction and Limpet Burn (ch50 – 1250)
- Route on embankment up to approximately 14m deep to the north and south of Limpet Burn (ch1300 – 1600)
- Route on embankment up to approximately 10m high between Kempston Hill and Howieshill (ch2450 – 3450)
- Route on embankment up to approximately 9m high at Burn of Muchalls (ch4450 – 4800)
- Route in cutting up to approximately 8m deep to the north of Burn of Muchalls (ch4900 – 5250)
- Route in cutting up to approximately 9m deep to the east of Cookney (ch6050 – 6300)
- Route in cutting up to approximately 7m deep to the north of Cookney (ch7050 – 7200)
- Route in cutting up to approximately 11m deep to the east of North Rothnick (ch8300 – 8650)
- Route on embankment up to approximately 8m high to the east of Crossley (ch8800 – 9400)
- Route in cutting up to approximately 12m deep to the east of Stranog Hill (ch9500 – 9925)
- Route on embankment up to approximately 9m high between Greens of Crynoch and Burnhead (ch9950 – 11500)

4.5.8

Cuttings and embankments are likely to have engineering slopes of 1 in 2 although this is dependent on the Contractor's choice of materials and construction methods. There will be locations where landscape and visual mitigation requirements will require the grading out of slopes, rounding of the tops and bottoms of slopes or screening by way of earth mounds (false cuttings or bunds) to provide a fit with the surrounding landscape, screen against views of the road or facilitate the return of land to agricultural use. Where cuttings are in rock, side slopes may be steeper than 1 in 2. Further details of the landscape mitigation proposals are given in Chapters 11 (Landscape) and 12 (Visual) in Part B for the Northern Leg, Chapters 26 (Landscape) and 27 (Visual) in Part C for the Southern Leg and Chapters 41 (Landscape) and 42 (Visual) in Part D for the Fastlink.

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Part A: The Scheme

Fencing

- 4.5.9 Where necessary, temporary fencing will be erected to provide a stockproof boundary to the site prior to work commencing. Where the route is in close proximity to urban areas, additional fencing may be required to prevent unauthorised public access to the site. On completion, the boundary of the new roads will be formed by a combination of permanent fencing (both existing and new), hedges and possibly walls and as with the temporary fence, it may be agreed with landowners that fencing is not required at certain locations. The fence at the boundary of the main carriageway will typically be a wooden post and rail fence.
- 4.5.10 Additional environmental barriers include ecological fencing required to provide protection for wildlife by preventing access onto the AWPR. This could include fencing for deer, otters or badgers, for example. The requirements for ecological fencing are given in three chapters on Ecology and Nature Conservation: Chapter 10 in Part B for the Northern Leg, Chapter 25 in Part C for the Southern Leg and Chapter 40 in Part D for the Fastlink.
- 4.5.11 Mitigation may be required to reduce nuisance to residential properties from traffic-related noise. This may be through provision of environmental barriers or earth mounds (false cuttings or bunds). The requirements for noise mitigation measures are given in the chapters on Traffic Noise and Vibration: Chapter 15 for the Northern Leg, Chapter 30 for the Southern Leg and Chapter 45 for the Fastlink.

Flooding Provision and Drainage

- 4.5.12 The outline drainage design has been developed in accordance with Sustainable Drainage Systems requirements with consultation with SEPA regarding the drainage proposals. The drainage system makes use of combined surface and groundwater filter drains to provide most of the carriageway drainage. Exceptions to this include bridge deck drainage and kerbed areas such as junctions where gullies will be used to collect surface water. Bridge deck drainage will most likely comprise steel channels incorporated in the roadside kerb. Pre-earthworks drainage consisting of either ditches or piped drainage will be used to collect run-off from adjacent land and field drains. A number of likely outfall locations have been identified. These are described in more detail in the chapters on the Water Environment: Chapter 9 for the Northern Leg, Chapter 24 for the Southern Leg and Chapter 39 for the Fastlink. These chapters also identify pollution treatment measures such as treatment ponds, and flood prevention measures such as attenuation basins, designed to ensure that existing flooding conditions are not exacerbated.

Wherever possible, watercourses are maintained along their existing line. However, some localised watercourse realignments will be required, although the length of these has been minimised to ensure as much of the existing watercourses as possible is retained. Culverts or bridges will be provided where necessary to take existing watercourses under new roads and access tracks. The proposed watercourse crossing structures described in this EIA have been selected based on achieving a balance between environmental, engineering and economic factors. The detailed design of these watercourse crossing structures will be a matter for the contractor subject to suitable provision being made for flood flows and ecological and geomorphological mitigation, and compliance with the environmental commitments detailed in this EIA. Specific reference should be made to the chapters on the Water Environment and on Ecology and Nature Conservation: Chapters 9 and 10 for the Northern Leg, Chapters 24 and 25 for the Southern Leg and Chapters 39 and 40 for the Fastlink. The design has taken consideration of the Controlled Activities Regulations 2005 and the contractor will have to apply for licenses for all design and construction activities affecting watercourses, including engineering works (culverts and bridges) and discharges (outfalls, attenuation and treatment) in accordance with the Regulations.

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Part A: The Scheme

Traffic Signs and Lighting

4.5.13 Traffic signs will be provided as required under the relevant design standards. The detailed design of such signs will be a matter for the Contractor, subject to compliance with the contract documents and consultations with Transport Scotland and the local authorities.

4.5.14 It is envisaged that street lighting will only be required at the following junctions:

Northern Leg

- North Kingswells Junction at the roundabout on the Chapel of Stoneywood to Fairley Road.
- A96 Junctions, the connecting road between them, the at-grade roundabout on the A96 and the A96/Dyce Drive junction.
- Goval Junction at the A947 realignment, B977 realignment and B977 roundabout, and at the junctions at the ends of the slip roads.
- A90 North Junction at the end of the AWPR, the ends of the slip roads and the grade-separated roundabout.

Southern Leg

- Charleston Junction at the ends of the slip roads, the grade-separated junction and adjacent to the junction at the AWPR and A956 approaches.
- Cleanhill Junction Roundabout.
- Signalised crossroads on A93.
- The link road between the A93 and Milltimber Junction.
- Milltimber Junction including the slip roads .
- A944 South Kingswells Junction at the ends of the slip roads and the grade-separated roundabout.

Fastlink

- Stonehaven Junction at the roundabout at the southern end of the Fastlink, including the end of the AWPR, continuing to the junction with the slip roads to the east of the existing A90 and at the end of the slip roads.
- Cleanhill Junction roundabout.

4.5.15 Architectural lighting of certain features may be considered.

Future Traffic Conditions

4.5.16 The existing traffic flows on the road network in the vicinity of the proposed scheme are discussed in Chapter 2 (Need for the Scheme). Projected traffic flows for the proposed scheme are provided by MVA and are included in Figure 4.7a-c. The traffic volumes are modelled for 2012 and 2027, opening year and design year respectively. Projected traffic flows for the network in the opening year and design year with the various MTS schemes except the AWPR implemented are also provided on Figure 4.7a-c. This set of proposals is termed the Reference Case and is the Do-minimum scheme assessed in this ES.

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Part A: The Scheme

4.6 Construction Methods and Programme

Introduction

- 4.6.1 This section provides an outline of the proposed construction programme and typical construction activities. Typical construction methods are outlined in Appendix A4.1 and include items such as roadworks, bridge construction techniques and environmental mitigation.
- 4.6.2 This methodology describes a possible construction sequence for the proposed scheme. As described previously, the proposed scheme is to be procured as a DBFO project and the design and construction process adopted by the Contractor may vary from that described in this outline methodology. The Contractor will be permitted to change the construction process and duration of the works provided that any environmental impacts are no greater than those described in the ES and that commitments given in the ES are adhered to.
- 4.6.3 It is anticipated that construction will commence in spring 2010 at the earliest and the overall construction period is anticipated to be around 34 months.

Typical Construction Activities

4.6.4 The methodology breaks the construction works into key sections and elements to describe the works likely to be undertaken and facilitate the assessment of environmental impacts. Construction will involve the following activities:

Table 4.2 – Typical Construction Activities

Section	Construction Activities
Advance Works	<ul style="list-style-type: none"> • Environmental mitigation to be implemented in advance of the main construction contract. • Advance services diversions. • Building demolitions • Archaeological investigations and excavations
Roadworks	<ul style="list-style-type: none"> • Site establishment and plant compounds at strategic locations • Temporary and permanent fencing • Site clearance and demolition • Temporary and permanent surface water outfalls • Service diversions • Topsoil stripping and storage • Pre-earthworks drainage • Earthworks (cuttings and embankments) • Environmental bunds and landscaping • Drainage, service ducts and chambers • Topsoil spreading, seeding and turfing • Pavement construction • Roadworks finishes including safety barriers, signs, road markings, lighting • Accommodation works
Structures	<ul style="list-style-type: none"> • Construction of river crossings • Bridge and underpass construction • Culvert construction • Retaining wall construction
Environmental	<ul style="list-style-type: none"> • Earthworks mitigation • Landscape and ecological mitigation planting • Noise barriers
Temporary Works	<ul style="list-style-type: none"> • Temporary works to facilitate bridge construction • Temporary carriageway to maintain traffic flows where roads are narrow or are affected by construction of the scheme • Narrow lanes, contraflows or lane / road closures • River or stream diversions to facilitate culvert construction • Temporary balancing ponds at drainage outfalls
Maintenance	<ul style="list-style-type: none"> • Landscaping maintenance • Pavement rehabilitation and other routine maintenance and defects repair works • Winter maintenance

Outline Construction Programme

4.6.5 In order to assist the EIA process the approximate duration of construction activities has been estimated. This is difficult to determine precisely as it will depend on the date construction commences as well as the particular methods employed by the contractor. An outline of the likely timing of the overall works is as follows:

- Advance Works: undertaken in 2008-2010. Some mitigation works may be required a year or more in advance of the main construction works.
- Site establishment: Spring 2010
- Fencing: Spring 2010
- Site Clearance: Spring/Summer 2010
- Main Works: Spring 2010 – 2012/13
- Environmental Mitigation: Throughout the advanced and main construction period. Landscaping and ecological planting may be later in the construction period.
- Temporary Works: Throughout the main construction period.
- Maintenance: 2013 onwards

Roadworks and Structures

4.6.6 Roadwork construction operations will commence in Spring 2010 with site establishment and clearance carried out initially to enable the main earthworks operations to commence during better weather in the spring. It is anticipated that three spring/summer periods will be required to undertake this part of the works between 2010 and 2012. However, there are locations where constraints may be imposed, due to environmental conditions, which may delay the earthworks construction programme.

4.6.7 Works such as service diversions, bridges and culverts will be undertaken in accordance with the contractor's overall programme. Factors that may influence the timing of these other works include the rate that haul-routes and earthworks are constructed to provide access to proposed bridge and culvert locations. Ecological seasonal constraints will also affect the construction programme for these works.

4.6.8 The aim in progressing the roadworks will be to provide sufficient time to complete the pavement works, which may also be affected by the weather, although to a lesser extent than the earthworks operation and the final road finishes. It is likely that pavement works will be undertaken over two years (2011 – 2012).

Environmental Mitigation

4.6.9 Where possible, environmental mitigation will be constructed as soon as possible after the main engineering elements. This is likely for elements such as earthworks mitigation which are integral to the main engineering road design. Earthworks side slopes and verges will be topsoiled and seeded as early as possible to minimise the risk of sediment run off affecting the carriageway drainage system and potential risk of pollution to watercourses. Planting works and ecological habitat creation areas are seasonally dependent and these may be left until later in the construction period occurring in 2012 or 2013 following completion of the main works. Noise barriers may be constructed early to mitigate construction noise impacts, otherwise they will be constructed later in the construction period.

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Part A: The Scheme

Landtake

- 4.6.10 All construction work will take place within the limit of the land made available to the contractor as defined within the Contract documents. This land will include the land acquired under the Compulsory Purchase Orders (CPO) together with any land to which the Scottish Ministers already have ownership of or access to, and any other areas the contractor has acquired by agreement to facilitate construction of the works. The land acquired for the proposed scheme includes land necessary to construct the scheme and associated infrastructure and to undertake essential environmental mitigation measures. Certain areas of the land compulsorily purchased may not be made available to the contractor – for example where severance has made a small parcel of land unviable, this area of land may be purchased, but will not require any construction work on it. The contractor may wish to utilise other areas of land not covered by the CPO, for construction elements such as site huts, access roads and borrow pits. The contractor will have to secure the use of these areas by agreement and through separate planning applications. As the location of these areas is currently unknown, it has not been possible to include an assessment of the impact of them within the ES.