22 Summary of Significant Residual Impacts

22.1 Introduction

22.1.1 This chapter summarises the significant residual impacts (Tables 22.1 to 22.9) that have been identified due to construction and operation of the proposed scheme. These residual impacts comprise those which remain significant after incorporating the mitigation measures as provided in Chapters 8-18 (where applicable) and as set out in Chapter 21 (Schedule of Environmental Commitments).

22.1.2 Within this ES, significant impacts are identified according to the methodology provided for each environmental topic within Chapters 8-18 and Chapter 20. Impacts are generally defined as significant in the context of the EIA Regulations where they are assessed as Moderate or of greater significance. Residual impacts that have been assessed as not significant are also provided within Chapters 8-18 and Chapter 20, but are not considered within this chapter.

22.1.3 Environmental parameters which do not have any significant residual impacts comprise those relating to cultural heritage (Chapter 15: Cultural Heritage:) and air quality (Chapter 16: Air Quality).

22.1.4 According to the DMRB, guidance impacts on driver stress are assessed using a three-point scale and embodied carbon associated with material resources is assessed using magnitude rather than assigning significance. Driver stress and material resources are assessed in Chapter 9 (People and Communities – All Travellers) and Chapter 18 (Materials) respectively.

22.1.5 All residual impacts in Table 22.1 to 22.10 are adverse unless stated otherwise.

Table 22.1 Summary of significant residual impacts – People and Communities: Community and Private Assets (Chapter 8)

Residual Impact	Residual Impact Significance
Construction	
Commercial/Industrial Property	
Pitlochry Boating Station and Café *Access* Direct access to existing A9 changed and would require the use of the A924 Pitlochry North Junction resulting in additional journey distance for employees and customers when travelling south (1.5km). However, if employees and customers were to travel south through Pitlochry, there would be no change in journey distance. *Business Viability* Given the disturbance and impact on the amenity during the construction period it is assessed that the likely future impacts on the business viability would be **Significant Adverse** during the construction period	**Moderate/Substantial** **Significant Adverse**
Operation	
Residential Land and Property	
Littleton of Fonab Direct access stopped up and an alternative left-in, left-out access provided resulting in additional journey distance for residents when travelling north (1.4km) and travelling south (1.8km).	North: **Moderate** South: **Moderate**
Middleton and Netherton of Fonab Direct access stopped up and an alternative left-in, left-out access provided resulting in additional journey distance for residents when travelling north (1.4km) and travelling south (0.7km).	North: **Moderate** South: Slight
Balmore Cottages Direct access stopped up and an alternative left-in, left-out access provided resulting in additional journey distance for residents when travelling north (3.7km) and a reduced journey distance when travelling south (-0.2km).	North: **Moderate** South: Negligible (beneficial)
Properties at Cluniemore and Craggan Direct access to existing A9 replaced with left-in, left-out access resulting in additional journey distance when travelling south (3.5km).	North: No impact South: **Moderate**
The Gatehouse and Tombane Direct access to existing A9 replaced with left-in, left-out access resulting in additional journey distance when travelling south (3.5km).	North: No impact South: **Moderate**
Kennels Cottage Direct access stopped up and an alternative left-in, left-out access provided resulting in additional journey distance for residents when travelling north (2.8km).	North: **Moderate** South: No impact
Greengates Partial loss of woodland from main alignment (0.86ha).	**Moderate/Substantial**
Faskally Cottage West Partial loss of garden (0.03ha) from Pitlochry North Rail Underbridge, including associated wingwall.	**Moderate/Substantial**
Tigh na Beithe Demolition of property (approx. ch5500).	**Substantial**

Residual Impact	Residual Impact Significance
Commercial/Industrial Property	
Fonab Castle Hotel Direct access to existing A9 changed to left-in, left-out junction, resulting in additional journey distance for employees and customers when travelling north (1.5km).	North: **Moderate** South: No impact
Mark Murphy & Partner Ltd Direct access to existing A9 changed to left-in, left-out junction, resulting in additional journey distance for employees and customers when travelling north (1.5km).	North: **Moderate** South: No impact
Pitlochry Festival Theatre Direct access to existing A9 changed to left-in, left-out junction, resulting in additional journey distance for employees and customers when travelling north (1.0km).	North: **Moderate** South: No impact
Fonab Farm Foods Direct access stopped up and an alternative left-in, left-out access provided resulting in additional journey distance for employees and customers when travelling north (1.4km) and travelling south (0.7km).	North: **Moderate** South: Slight
Balmore Sawmill Direct access to existing A9 changed to left-in left-out junction, resulting in additional journey distance for employees and customers when travelling south (3.5km).	North: No impact South: **Moderate**
Craiglunie Demolition of commercial property due to construction of embankment. Land-take of 2.12ha.	**Substantial**
Development Land and Planning Applications	
Fonab Business Park (Employment) 0.65ha of direct land-take. This would reduce the overall development capacity of the site and as such an Adverse impact is expected.	**Significant Adverse**
Fonab Business Park (Erection of 3 units) 0.07ha of direct land-take. Proximity of the proposed scheme to the proposed development is expected to result in the loss of at least one future business unit therefore an Adverse impact is assessed.	**Significant Adverse**
Agricultural, Forestry and Sporting Interests	
West Haugh of Dalshian Farm The farm business would have permanent land-take of 22% of the total agricultural land available to the business.	**Moderate/Substantial**

Table 22.2: Summary of significant residual impacts - People and Communities: All Travellers (NMUs) (Chapter 9)

Residual Impact	Residual Impact Significance
Construction	
Footpaths/Cycleways and Other Routes Following implementation of proposed construction mitigation, it is expected that residual impacts on NMUs during the construction of the proposed scheme will be temporary but significant due to reductions in amenity value and the diversion lengths for NMUs using Paths 72 (CP04), 76a, 84 and 95. Significant residual impacts are predicted for NMUs using Paths 69, 76, 82, 85 and 96 due to anticipated reductions in amenity value.	**Moderate to Substantial**
Access to Outdoor Areas During construction, the proposed mitigation measures would reduce impacts on NMU access to outdoor facilities. However, disruption to journeys would still likely to be experienced as a result of temporary diversions, therefore it is expected that residual impacts on NMU access to Carra Beag Hill via Path 72 (CP04) during construction will be significant.	**Moderate to Substantial**
Operation	
CP05 (Path 82), Core Path affected due to decreased amenity value as a result of the retaining wall associated with the proposed scheme and the limited opportunity for mitigation measures.	**Moderate**

Table 22.3: Summary of significant residual impacts – People and Communities: All Travellers (View from the Road) (Chapter 9)

Residual Impact	Residual Impact Significance
	Winter Year of Opening
Operation	
Following the implementation of the mitigation measures described in Section 9.5 (Mitigation), the proposed scheme would result in Moderate/Substantial residual impacts during winter year of opening at the Pass of Killiecrankie LLCA (ch3050 to end of proposed scheme). By the summer 15 years after opening, following the establishment of mitigation planting, this impact would reduce to non-significant.	**Moderate/Substantial**

Table 22.4: Summary of significant residual impacts – Geology, Soils, Contaminated Land and Groundwater (Chapter 10)

Residual Impact	Residual Impact Significance
Construction/Operation	
Localised impacts on groundwater flow within superficial deposits of medium and high sensitivity (glacial deposits/glacial till and alluvium /river terrace deposits).	**Moderate** to **Moderate/Large**

Table 22.5: Summary of significant residual impacts – Road Drainage and Water Environment (Chapter 11)

Residual Impact	Residual Impact Significance
Construction	
Hydrology and Flood Risk During the construction of the proposed scheme Adverse impacts on the River Tummel (WF70) have been assessed due to the inherent risks associated with the requirement to locate temporary structures within the functional floodplain during the construction of the new Tummel Crossing.	**Moderate**
Operation	
Hydrology and Flood Risk Residual impacts have been assessed for the River Tummel (WF70), WF59, WF60 and WF61 due to localised increases in the fluvial flood depth from the 0.5% AEP (200-year) plus CC event on agricultural land that is not deemed sensitive to increased flood depths.	**Moderate**
Hydrology and Flood Risk Residual beneficial for the River Tummel (WF70), WF59, WF60 and WF61 due to decreases in the fluvial flood depth to residential properties from the 0.5% AEP (200-year) plus CC event.	**Large (Beneficial)**

Table 22.6: Summary of significant residual impacts – Ecology and Nature Conservation (Chapter 12)

Residual Impact	Residual Impact Significance
Operation	
Significant Adverse residual impact from the loss of 23.3ha of habitat designated as AWI, of which 16.8ha is currently wooded. Measures such as compensation planting of native species in candidate sites (Figure 12.14 and Figure 13.5) will be implemented to minimise the extent of the resulting significant residual impact. The AWI candidate planting sites will be prepared with appropriately stored soil from areas to be lost to maintain the microbial biodiversity and seedbank as described in Table 12.12 in Chapter 12 (Ecology & Nature Conservation).	**Significant Adverse**

Table 22.7: Summary of significant residual impacts – Landscape (Chapter 13)

Residual Impact	Residual Impact Significance	
	Winter Year of Opening	Summer (+ 15 years)
Construction/Operation		
Strath Tummel LLCA Increased prominence of road infrastructure in the landscape resulting from the following aspects associated with the proposed scheme: • Physical impact on the landscape, due to widening and new and revised cuttings and embankments affecting the natural landform along both sides of the A9 and along the southern edge of the Pitlochry South Junction; disruption to field patterns and loss of farmland, minor retaining wall required west of Port-na-Craig House and the loss of existing roadside trees, including category 1A AWI and NWSS woodland at Littleton of Fonab and west of Port-na-Craig House. • Construction of the new River Tummel Underbridge alongside the existing bridge across the River Tummel (ch1000) and formation of the new Pitlochry South grade separated junction arrangement with associated large-scale earthworks and signage.	**Moderate**	Slight/Moderate

Residual Impact	Residual Impact Significance	
	Winter Year of Opening	Summer (+ 15 years)
• Introduction of two SuDS on the valley floor (at ch800 and ch1300), resulting in the loss of two small areas of open pasture and localised impact on the valley floor topography. • Introduction of signage along the road corridor, resulting in the loss of small areas of roadside vegetation and localised impact on the valley floor topography. This level of impact would be incurred as a direct result of the medium magnitude of change associated with the loss of defining features of the LLCA including areas of farmland from ch0 to ch1600, in addition to areas of AWI woodland from ch1600 to ch3100. While most of the physical impacts to the features within the LLCA would be limited to a relatively narrow corridor closely associated with the existing A9, the proposed scheme would in the winter year of opening constitute a prominent feature within the LLCA.		
<u>Pass of Killiecrankie LLCA</u> The impacts on the defining elements and features of the LLCA would result from an increased prominence of road infrastructure in the landscape resulting from the following aspects associated with the proposed scheme: • Proposed online widening along the southbound carriageway plus associated cutting, resulting in physical changes to the local landform and loss of woodland south of Balmore Cottages, narrow strip of AWI and NWSS woodland adjoining Foss Road and minor loss of AWI (Category 1a) woodland south of Loch Faskally. • Proposed new side road at ch3500 connecting to local road along western bank of Loch Faskally and associated reinforced earthwork slope south of Balmore, as well as a new large-scale retaining wall between the A9 and embankment adjoining the eastern shore of Loch Faskally to accommodate the level change (ch3760 to ch4200), affecting the local character and views from the side road, with those across the loch screened/ partially screened by mature trees on the loch side. • Proposed new bridge adjacent to the existing Clunie Bridge at ch4200 to enable the dualling of the A9 and associated revised embankment along the southbound side north of the crossing and resultant localised change to landform and loss of existing mixed species mature woodland. • Proposed realignment of the dualled A9 north-east of the existing road corridor between Faskally Cottages (approx. ch4600) to Faskally Home Farm (approx. ch6200) and large-scale associated earthworks (high embankment on the northbound side and deep cutting into the hillside, potentially including rock cutting on the southbound side) on either side of the Pitlochry North Viaduct and along the Pitlochry North Junction Underbridge and southbound and northbound merge roads, resulting in physical changes to the landform and loss of a significant number of AWI trees and NWSS woodland (part of the Tay Forest Park) at Craiglunie. • Proposed new slip roads, underbridge and junction arrangement between the B8019/A924 plus large scale associated new retaining structures, cuttings and embankments which although graded to improve integration with the landform towards the valley, would together be visually prominent and would result in the loss of Tigh na Beithe Steading and one property at Craiglunie as well as a large number of AWI and NWSS trees (part of the Tay Forest Park) on the lower slopes of Creag na Ciche and Craigower. • Proposed online widening of existing A9 and associated southbound roadside cutting between ch6000 and ch6700 which would impact on the natural landform, with potential exposure of rock cuttings, as well as loss of a small area of farmland. • Introduction of SuDS at ch4700, affecting local landform and resulting in the loss of a small area of woodland including AWI and a grassed area adjacent to the existing A924 underbridge. • Introduction of SuDS to the north-east of Dunmore Hill (ch5200) and to the east of Faskally Caravan Park (ch6300), affecting local landform and resulting in the loss of a small area of enclosed grassland between the existing A9 and the Highland Main Line railway. • Introduction of signage along the road corridor, affecting local landform and resulting in the loss of small areas of roadside vegetation, farmland north of Faskally Caravan Park and woodland including AWI east of Cluniemore House and beyond the northern extents of the proposed scheme. This level of impact would be incurred as a direct result of the medium magnitude of change associated with the loss of defining features	**Moderate/Substantial**	**Moderate/Substantial**

Residual Impact	Residual Impact Significance	
	Winter Year of Opening	Summer (+ 15 years)
of the LLCA including areas of areas of AWI woodland from ch3100 to ch6000. While most of the physical impacts to the features within the LLCA would be limited to a relatively narrow corridor closely associated with the existing A9, the proposed scheme would in the winter year of opening constitute a prominent feature within the LLCA.		

Table 22.8: Summary of significant residual impacts – Visual (Chapter 14)

Residual Impact	Residual Impact Significance
Construction	
24 (41%) built receptors and 16 (41%) outdoor receptors are predicted to be significantly affected by visual impacts of the proposed scheme during construction. However, these impacts will be temporary in duration.	**Moderate to Substantial**
Operation	
In the Winter Year of Opening of the proposed scheme, 13 (22%) built receptors and 14 (36%) outdoor receptors are predicted to be significantly affected by visual impacts of the proposed scheme. By the summer, 15 years after the proposed scheme opening, mitigation mostly in the form of sensitive grading of earthworks and new woodland planting would reduce the total number of built receptors affected by significant Adverse impacts to five (9%) built receptors and seven (18%) outdoor receptors.	**Moderate to Substantial**

Table 22.9: Summary of significant residual impacts – Noise & Vibration (Chapter 17)

Residual Impact	Residual Impact Significance
Operation	
Predicted daytime noise levels at ground floor level for the short-term assessment indicates that there are two noise sensitive receptors (NSR) that are considered to have a residual significant noise impact. These are: • East Lodge; and • Greengates	**Slight/Moderate Adverse**
When considering all receptor points around an NSR there are an additional 5 NSR which are considered to have a residual significant noise impact. These are: • 1 Craighulan Cottage, Pitlochry, PH16 5JZ; • 2 Craighulan Cottage, Pitlochry, PH16 5JZ; • 1 Greengates Cottage, Pitlochry, PH16 5JZ; • 2 Greengates Cottage, Pitlochry, PH16 5JZ; and • Railside House, Pitlochry, PH16 5JZ.	**Slight/Moderate Adverse**

Table 22.10: Summary of significant residual impacts – Cumulative Impacts (Chapter 20)

Residual Impact	Residual Impact Significance
Cumulative impacts of the proposed scheme (Type 1 impacts) Type 1: Six significant cumulative impacts are expected as a result of the proposed scheme for Greengates, Faskally Cottage West, Balmore Cottages, Fonab Castle Hotel and the Pitlochry Boating Station and Café: • Greengates: predominately as a result of the loss of woodland (0.86ha) combined with significant noise increases at the property. • Faskally Cottage West: predominantly as a result of the loss of garden (0.03ha) and visual impacts associated with Pitlochry North Rail Underbridge, including associated wingwall. • Littleton of Fonab: predominately as a result of additional journey distance when travelling north (1.4km) and travelling south (1.8km), significant visual impacts and non-significant increases in noise at ground and first floor levels in the daytime. • Balmore Cottages: predominately as a result of changes in access for residents when travelling north (3.7km) and significant visual impacts which are only partially mitigated through seeding and planting. • Fonab Castle and the Pitlochry Boating Station and Café: significance is predominantly due to the changes in access resulting in additional journey times, and visual impacts lasting 15 years, before the mitigation effectively reduces the impact.	**Significant Adverse**
Cumulative impacts of the proposed scheme in combination with other developments (Type 2 impacts) Cumulative loss of AWI, as although compensation planting is proposed, this will not mitigate for the permanent loss of existing biodiversity.	**Significant Adverse**