Volume 3 – Alignment Assessment Tables

3 Scheme Impacts on Traffic Noise and Vibration during Construction & Operation

4 Scheme Impacts on Local Air Quality during Construction & Operation

5.1 Scheme Impacts on Landscape Character during Construction & Operation

5.2 Scheme Impacts on Visual Amenity during Construction & Operation

6 Scheme Impacts on Biodiversity Features during Construction & Operation

7 Scheme Impacts on Land Use during Construction & Operation

8 Scheme Impacts on Heritage during Construction & Operation

3 Scheme Impacts on Traffic Noise and Vibration during Construction & Operation

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Sector 1						
ALL ROUTES						
TNV-1-1 Domestic Dwellings – 'Sheep Court Cottage' 'Hill Cottage' 'Sycamore Cottage' 'Sycamore Farm' Group of houses situated to the north of the existing A48; fronting onto the road and the existing multi-lane Sycamore Cross junction.	CONSTRUCTION Temporary nuisance caused by construction works and associated traffic in close proximity to buildings.	15Yr Do Something	-	Propose contract conditions to limit noise levels from the construction site and to restrict working hours. Erect temporary mitigation measures such as environmental barriers around the construction site where land is available. Temporary re-housing, installing additional insulation and glazing should be considered.	15Yr Do Something	**0**
	OPERATION Existing junction to be replaced with large multi-lane roundabouts capable of carrying greater volumes of slower moving traffic than the current road arrangement. The slower moving traffic will cause a potential decrease in TNV.	Yr 1 Do Minimum	-	Condition the use of low-noise surfaces and restrict traffic speed. Structural planting may reduce perceived traffic noise. Limited land area available to construct environmental barriers. Barriers may introduce unacceptable visual intrusion and safety implication.	Yr 1 Do Minimum	-
		15Yr Do Minimum	--		15Yr Do Minimum	--
		15Yr Do Something	+		15Yr Do Something	+
Conclusion of Significance	Each potential route requires a similar scope of junction improvements; each of the five routes will ultimately create a beneficial, but not significant effect on the sensitive TNV receptors. **In Sector 1 there is not a preferred Do Something option.**					

No significant effects in Sector 2

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Sector 3						
ALL ROUTES						
TNV-3-1 Domestic Dwellings and Associated Farm Buildings – 'Blackland Farm' 'Tynant' Buildings situated to the west of the existing A4226 and fronting onto the road.	CONSTRUCTION Temporary nuisance caused by construction works and associated traffic in close proximity to buildings.	15Yr Do Something	- -	Propose contract conditions to limit noise levels from the construction site and to restrict working hours. Erect temporary mitigation measures such as environmental barriers around the construction site where land is available. Temporary re-housing, installing additional insulation and glazing should be considered.	15Yr Do Something	**0**
	OPERATION Improved carriageway design may increase traffic speeds, volume and noise levels.	Yr 1 Do Minimum	-	Condition the use of low-noise surfaces and restrict traffic speed. Structural planting may reduce perceived traffic noise. Land area available to construct environmental barriers.	Yr 1 Do Minimum	-
		15Yr Do Minimum	-		15Yr Do Minimum	-
		15Yr Do Something	- -		15Yr Do Something	-
BLUE ROUTE						
TNV-3-2 Domestic Dwelling – 'Whitton Lodge' House situated on a cross-road to the east of the existing A4226; fronting onto the road.	CONSTRUCTION Temporary nuisance caused by construction works and associated traffic.	15Yr Do Something	-	Propose contract conditions to limit noise levels from the construction site and to restrict working hours. Erect temporary mitigation measures such as environmental barriers around the construction site where land is available. Temporary re-housing, installing additional insulation and glazing should be considered.	15Yr Do Something	**0**

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
	OPERATION The proposed multi-lane roundabout will be constructed approximately 90m to the rear of the building. New access roads will be constructed adjacent to the property and carriageway improvements will take place. On completion, the house and garden will be enclosed on all sides by roads, however the proposed road is to be constructed at a greater distance from the property than the current road. The proposed multi-lane roundabouts could also slow the traffic.	Yr 1 Do Minimum	-	Condition the use of low-noise surfaces and restrict traffic speed. Structural planting may reduce perceived traffic noise. Land area available to construct environmental barriers.	Yr 1 Do Minimum	-
		15Yr Do Minimum	-		15Yr Do Minimum	- -
		15Yr Do Something	-		15Yr Do Something	0
PURPLE ROUTE						
TNV-3-2 Domestic Dwelling – 'Whitton Lodge'	CONSTRUCTION Temporary nuisance caused by construction works and associated traffic.	15Yr Do Something	-	Propose contract conditions to limit noise levels from the construction site and to restrict working hours. Erect temporary mitigation measures such as environmental barriers around the construction site where land is available. Temporary re-housing, installing additional insulation and glazing should be considered.	15Yr Do Something	0
	OPERATION Carriageway improvements will take place and new access roads will be constructed adjacent to the property. On completion, the house and garden will be enclosed on all sides by roads, however the proposed road is to be constructed at a greater distance from the property than the current road. The proposed multi-lane roundabouts could also slow the traffic.	Yr 1 Do Minimum	-	Condition the use of low-noise surfaces and restrict traffic speed. Structural planting may reduce perceived traffic noise. Land area available to construct environmental barriers.	Yr 1 Do Minimum	-
		15Yr Do Minimum	-		15Yr Do Minimum	- -
		15Yr Do Something	-		15Yr Do Something	0

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
RED ROUTE						
TNV-3-2 Domestic Dwelling – 'Whitton Lodge'	CONSTRUCTION This proposal will involve upgrading the existing road with minor modifications to the alignment. It will require the demolition of the dwelling and relocation of the receptor.	15Yr Do Something	**0**	N/A	15Yr Do Something	**0**
	OPERATION TNV in this will cease to be a factor in deciding the route alignment.	Yr 1 Do Minimum	**-**	N/A	Yr 1 Do Minimum	**-**
		15Yr Do Minimum	**-**		15Yr Do Minimum	**-**
		15Yr Do Something	**0**		15Yr Do Something	**0**
ORANGE ROUTE						
TNV-3-2 Domestic Dwelling – 'Whitton Lodge'	CONSTRUCTION Temporary nuisance caused by construction works and associated traffic.	15Yr Do Something	**-**	Propose contract conditions to limit noise levels from the construction site and to restrict working hours. Erect temporary mitigation measures such as environmental barriers around the construction site where land is available. Temporary re-housing, installing additional insulation and glazing should be considered.	15Yr Do Something	**0**
	OPERATION Carriageway improvements will take place and new access roads will be constructed adjacent to the property. On completion, the house and garden will be enclosed on all sides by roads, however the proposed road is to be constructed at a greater distance from the property than the current road. The proposed multi-lane roundabouts could also slow the traffic.	Yr 1 Do Minimum	**-**	Condition the use of low-noise surfaces and restrict traffic speed. Structural planting may reduce perceived traffic noise. Land area available to construct environmental barriers.	Yr 1 Do Minimum	**-**
		15Yr Do Minimum	**-**		15Yr Do Minimum	**- -**
		15Yr Do Something	**-**		15Yr Do Something	**0**

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
GREEN ROUTE						
TNV-3-2 Domestic Dwelling – 'Whitton Lodge'	CONSTRUCTION Temporary nuisance caused by construction works and associated traffic.	15Yr Do Something	-	Propose contract conditions to limit noise levels from the construction site and to restrict working hours. Erect temporary mitigation measures such as environmental barriers around the construction site where land is available. Temporary re-housing, installing additional insulation and glazing should be considered.	15Yr Do Something	**0**
	OPERATION Carriageway improvements will take place and new access roads will be constructed adjacent to the property. On completion, the house and garden will be enclosed on all sides by roads. The proposed multi-lane roundabouts could also slow the traffic but will be in extremely close proximity to the dwelling.	Yr 1 Do Minimum	-	Condition the use of low-noise surfaces and restrict traffic speed. Structural planting may reduce perceived traffic noise. Land area available to construct environmental barriers.	Yr 1 Do Minimum	-
		15Yr Do Minimum	-		15Yr Do Minimum	--
		15Yr Do Something	--		15Yr Do Something	-
Conclusion of Significance	Most potential route requires the junction improvements; all of routes will ultimately create a neutral effect or slight adverse effect on the sensitive TNV receptors as potential benefits are offset by the disbenefits. As the Red Route will required the removal of the receptor, traffic restrictions and mitigation techniques will not be necessary. **In Sector 3 the Red Route is the preferred Do Something option.**					

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Sector 5						
BLUE ROUTE						
TNV-5-1 Domestic Dwellings and Associated Farm Buildings – 'Grovelands' 'Grovelands Farm' Buildings situated to the west of the existing A4226, set 55m from the road.	CONSTRUCTION Temporary nuisance caused by construction works and associated traffic.	15Yr Do Something	-	Propose contract conditions to limit noise levels from the construction site and to restrict working hours. Erect temporary mitigation measures such as environmental barriers around the construction site where land is available.	15Yr Do Something	**0**
	OPERATION The proposals will move the main carriageway 65m further away from the buildings in a deep cutting, however improved carriageway design may increase traffic speeds, volume and noise levels.	Yr 1 Do Minimum	-	Condition the use of low-noise surfaces and restrict traffic speed. Structural planting may reduce perceived traffic noise. Land available to construct environmental barriers.	Yr 1 Do Minimum	-
		15Yr Do Minimum	--		15Yr Do Minimum	--
		15Yr Do Something	-		15Yr Do Something	+
TNV-5-2 Domestic Dwelling – 'Northcliff Cottage' House situated to the east of the existing A4226.	CONSTRUCTION Temporary nuisance caused by construction works and associated traffic. Improvements to the access roads will impact directly onto the garden of the house.	15Yr Do Something	-	Propose contract conditions to limit noise from the construction site and to restrict working hours. Temporary re-housing, installing additional insulation and glazing should be considered. Erect temporary mitigation measures such as environmental barriers around the construction site where land is available.	15Yr Do Something	**0**

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
	OPERATION The proposed route will add an additional road approximately 50m closer to the house. Improved carriageway design may increase traffic speeds, volume and noise levels.	Yr 1 Do Minimum	-	Condition the use of low-noise surfaces and restrict traffic speed. Structural planting may reduce perceived traffic noise. Land available to construct environmental barriers.	Yr 1 Do Minimum	-
		15Yr Do Minimum	--		15Yr Do Minimum	--
		15Yr Do Something	--		15Yr Do Something	-
TNV-5-3 Domestic Dwelling and Associated Farm Buildings – 'Sutton Fach Farm' Group of buildings situated to the east of the existing A4226; fronting directly onto the road.	CONSTRUCTION Temporary nuisance caused by construction works and associated traffic.	15Yr Do Something	-	Propose contract conditions to limit noise from the construction site and to restrict working hours. Temporary re-housing, installing additional insulation and glazing should be considered. Erect temporary mitigation measures such as environmental barriers around the construction site where land is available.	15Yr Do Something	**0**
	OPERATION The proposed road will be built approximately 150m to the east of the buildings. Moving the main carriageway from the house frontage to beyond the rear of the buildings.	Yr 1 Do Minimum	-	Condition the use of low-noise surfaces and restrict traffic speed. Structural planting may reduce perceived traffic noise. Land area available to construct environmental barriers.	Yr 1 Do Minimum	-
		15Yr Do Minimum	-		15Yr Do Minimum	-
		15Yr Do Something	+		15Yr Do Something	++

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
PURPLE ROUTE						
TNV-5-1 Domestic Dwellings and Associated Farm Buildings – 'Grovelands' 'Grovelands Farm' Buildings situated to the west of the existing A4226, set 55m from the road.	CONSTRUCTION Temporary nuisance caused by construction works and associated traffic.	15Yr Do Something	-	Propose contract conditions to limit noise from the construction site and to restrict working hours. Temporary re-housing, installing additional insulation and glazing should be considered. Erect temporary mitigation measures such as environmental barriers around the construction site where land is available.	15Yr Do Something	**0**
	OPERATION Improved carriageway conditions may increase traffic speed, volume and TNV level.	Yr 1 Do Minimum	-	Condition the use of low-noise surfaces and restrict traffic speed. Structural planting may reduce perceived traffic noise. Land area available to construct environmental barriers.	Yr 1 Do Minimum	-
		15Yr Do Minimum	--		15Yr Do Minimum	--
		15Yr Do Something	--		15Yr Do Something	-
TNV-5-2 Domestic Dwelling – 'Northcliff Cottage' House situated to the east of the existing A4226.	CONSTRUCTION Temporary nuisance caused by construction works and associated traffic. Improvements to the access roads will impact directly onto the garden of the house.	15Yr Do Something	-	Propose contract conditions to limit noise from the construction site and to restrict working hours. Erect temporary mitigation measures such as environmental barriers around the construction site where land is available.	15Yr Do Something	-
	OPERATION The proposed route will add an additional road approximately 10m closer to the house. Improved carriageway design may increase traffic speeds, volume and noise levels.	Yr 1 Do Minimum	-	Condition the use of low-noise surfaces and restrict traffic speed. Structural planting may reduce perceived traffic noise. Land area available to construct environmental barriers.	Yr 1 Do Minimum	-
		15Yr Do Minimum	--		15Yr Do Minimum	--
		15Yr Do Something	-		15Yr Do Something	**0**

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
TNV-5-3 Domestic Dwelling and Associated Farm Buildings – 'Sutton Fach Farm' Group of buildings situated to the east of the existing A4226; fronting directly onto the road.	CONSTRUCTION Temporary nuisance caused by construction works and associated traffic.	15Yr Do Something	-	Propose contract conditions to limit noise levels from the construction site and to restrict working hours. Temporary re-housing, installing additional insulation and glazing should be considered. Erect temporary mitigation measures such as environmental barriers around the construction site where land is available.	15Yr Do Something	**0**
	OPERATION The proposed road will be built approximately 60m to the east of the buildings. Moving the main carriageway from the house frontage to beyond the rear of the buildings. Improved carriageway conditions may increase traffic speed, volume and TNV level.	Yr 1 Do Minimum	-	Condition the use of low-noise surfaces and restrict traffic speed. Structural planting may reduce perceived traffic noise. Land area available to construct environmental barriers.	Yr 1 Do Minimum	-
		15Yr Do Minimum	-		15Yr Do Minimum	-
		15Yr Do Something	**0**		15Yr Do Something	**+**
RED ROUTE						
TNV-5-1 Domestic Dwellings and Associated Farm Buildings – 'Grovelands' 'Grovelands Farm' Buildings situated to the west of the existing A4226, set 55m from the road.	CONSTRUCTION Temporary nuisance caused by construction works and associated traffic.	15Yr Do Something	-	Propose contract conditions to limit noise from the construction site and to restrict working hours. Temporary re-housing, installing additional insulation and glazing should be considered. Erect temporary mitigation measures such as environmental barriers around the construction site where land is available.	15Yr Do Something	**0**

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
	OPERATION Improved carriageway conditions may increase traffic speed, volume and TNV level.	Yr 1 Do Minimum	-	Condition the use of low-noise surfaces and restrict traffic speed. Structural planting may reduce perceived traffic noise. Land area available to construct environmental barriers.	Yr 1 Do Minimum	-
		15Yr Do Minimum	--		15Yr Do Minimum	--
		15Yr Do Something	--		15Yr Do Something	-
TNV-5-2 Domestic Dwelling – 'Northcliff Cottage' House situated to the east of the existing A4226.	CONSTRUCTION Temporary nuisance caused by construction works and associated traffic.	15Yr Do Something	-	Propose contract conditions to limit noise from the construction site and to restrict working hours. Erect temporary mitigation measures such as environmental barriers around the construction site where land is available.	15Yr Do Something	**0**
	OPERATION Improved carriageway design may increase traffic speeds, volume and noise levels.	Yr 1 Do Minimum	-	Condition the use of low-noise surfaces and restrict traffic speed. Structural planting may reduce perceived traffic noise. Land area available to construct environmental barriers.	Yr 1 Do Minimum	-
		15Yr Do Minimum	--		15Yr Do Minimum	--
		15Yr Do Something	-		15Yr Do Something	**0**
TNV-5-3 Domestic Dwelling and Associated Farm Buildings – 'Sutton Fach Farm' Group of buildings situated to the east of the existing A4226; fronting directly onto the road.	CONSTRUCTION Temporary nuisance caused by construction works and associated traffic. New access roads will be constructed near the property and carriageway improvements will take place.	15Yr Do Something	-	Propose contract conditions to limit noise levels from the construction site and to restrict working hours. Erect temporary mitigation measures such as environmental barriers around the construction site where land is available.	15Yr Do Something	**0**
	OPERATION The proposals will move the main carriageway 90m away from the buildings and within a cutting. Improved carriageway conditions may increase traffic speed, volume and	Yr 1 Do Minimum	-	Condition the use of low-noise surfaces and restrict traffic speed. Structural planting may reduce perceived traffic noise.	Yr 1 Do Minimum	-
		15Yr Do Minimum	-		15Yr Do Minimum	-

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
	TNV level.	15Yr Do Something	+	Land area available to construct environmental barriers.	15Yr Do Something	+ +
ORANGE ROUTE						
TNV-5-1 Domestic Dwellings and Associated Farm Buildings – 'Grovelands' 'Grovelands Farm' Buildings situated to the west of the existing A4226, set 55m from the road.	CONSTRUCTION Temporary nuisance caused by construction works and associated traffic.	15Yr Do Something	-	Propose contract conditions to limit noise from the construction site and to restrict working hours. Erect temporary mitigation measures such as environmental barriers around the construction site where land is available.	15Yr Do Something	0
	OPERATION The proposed route will be 75m further away from the property within a cutting. Improved carriageway conditions may increase traffic speed, volume and TNV level, but the increased distance will offset the impact.	Yr 1 Do Minimum	-	Condition the use of low-noise surfaces and restrict traffic speed. Structural planting may reduce perceived traffic noise. Land area available to construct environmental barriers.	Yr 1 Do Minimum	-
		15Yr Do Minimum	- -		15Yr Do Minimum	- -
		15Yr Do Something	0		15Yr Do Something	+
TNV-5-2 Domestic Dwelling – 'Northcliff Cottage' House situated to the east of the existing A4226.	CONSTRUCTION Temporary nuisance caused by construction works and associated traffic. Improvements to the access roads will impact directly onto the garden of the house.	15Yr Do Something	-	Propose contract conditions to limit noise from the construction site and to restrict working hours. Erect temporary mitigation measures such as environmental barriers around the construction site where land is available.	15Yr Do Something	0
	OPERATION The proposed route will add an additional road approximately 35m closer to the house. Improved carriageway design may increase traffic speeds, volume and noise levels.	Yr 1 Do Minimum	-	Condition the use of low-noise surfaces and restrict traffic speed. Structural planting may reduce perceived traffic noise. Land available to construct environmental barriers.	Yr 1 Do Minimum	-
		15Yr Do Minimum	- -		15Yr Do Minimum	- -
		15Yr Do Something	- -		15Yr Do Something	-

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
TNV-5-3 Domestic Dwelling and Associated Farm Buildings – 'Sutton Fach Farm' Group of buildings situated to the east of the existing A4226; fronting directly onto the road.	CONSTRUCTION Temporary nuisance caused by construction works and associated traffic.	15Yr Do Something	-	Propose contract conditions to limit noise levels from the construction site and to restrict working hours. Erect temporary mitigation measures such as environmental barriers around the construction site where land is available.	15Yr Do Something	**0**
	OPERATION The proposed route will be 200m away from the property within a cutting and upon embankments Improved carriageway conditions may increase traffic speed, volume and TNV level, but the increased distance will offset the impact.	Yr 1 Do Minimum	-	Condition the use of low-noise surfaces and restrict traffic speed. Structural planting may reduce perceived traffic noise. Land area available to construct environmental barriers.	Yr 1 Do Minimum	-
		15Yr Do Minimum	-		15Yr Do Minimum	-
		15Yr Do Something	+ +		15Yr Do Something	+ + +
GREEN ROUTE						
TNV-5-1 Domestic Dwellings and Associated Farm Buildings – 'Grovelands' 'Grovelands Farm' Buildings situated to the west of the existing A4226, set 55m from the road.	CONSTRUCTION Temporary nuisance caused by construction works and associated traffic.	15Yr Do Something	-	Propose contract conditions to limit noise from the construction site and to restrict working hours. Temporary re-housing, installing additional insulation and glazing should be considered. Erect temporary mitigation measures such as environmental barriers around the construction site where land is available.	15Yr Do Something	**0**
	OPERATION Improved carriageway conditions may increase traffic speed, volume and TNV level.	Yr 1 Do Minimum	-	Condition the use of low-noise surfaces and restrict traffic speed. Structural planting may reduce perceived traffic noise. Land area available to construct environmental barriers.	Yr 1 Do Minimum	-
		15Yr Do Minimum	- -		15Yr Do Minimum	- -
		15Yr Do Something	- -		15Yr Do Something	-

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
TNV-5-2 Domestic Dwelling – 'Northcliff Cottage' House situated to the east of the existing A4226.	CONSTRUCTION Temporary nuisance caused by construction works and associated traffic.	15Yr Do Something	-	Propose contract conditions to limit noise from the construction site and to restrict working hours. Erect temporary mitigation measures such as environmental barriers around the construction site where land is available.	15Yr Do Something	**0**
	OPERATION Improved carriageway conditions may increase traffic speed, volume and TNV level.	Yr 1 Do Minimum	-	Condition the use of low-noise surfaces and restrict traffic speed. Structural planting may reduce perceived traffic noise. Land area available to construct environmental barriers.	Yr 1 Do Minimum	-
		15Yr Do Minimum	--		15Yr Do Minimum	--
		15Yr Do Something	-		15Yr Do Something	**0**
TNV-5-3 Domestic Dwelling and Associated Farm Buildings – 'Sutton Fach Farm' Group of buildings situated to the east of the existing A4226; fronting directly onto the road.	CONSTRUCTION Temporary nuisance caused by construction works and associated traffic.	15Yr Do Something	-	Propose contract conditions to limit noise levels from the construction site and to restrict working hours. Erect temporary mitigation measures such as environmental barriers around the construction site where land is available.	15Yr Do Something	**0**
	OPERATION The proposed road will be built approximately 50m to the east of the buildings. Moving the main carriageway from the house frontage to beyond the rear of the buildings. Improved carriageway conditions may increase traffic speed, volume and TNV level.	Yr 1 Do Minimum	-	Condition the use of low-noise surfaces and restrict traffic speed. Structural planting may reduce perceived traffic noise. Land area available to construct environmental barriers.	Yr 1 Do Minimum	-
		15Yr Do Minimum	-		15Yr Do Minimum	-
		15Yr Do Something	**0**		15Yr Do Something	**+**
TNV-5-4 Domestic Dwelling and Associated Farm Buildings – 'Sutton Mawr'	CONSTRUCTION Temporary nuisance caused by construction works and associated traffic within 20m of the dwelling.	15Yr Do Something	-	Propose contract conditions to limit noise levels from the construction site and to restrict working hours. Erect temporary mitigation measures such as environmental barriers around the construction site where land is available.	15Yr Do Something	**0**

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
House situated to the west of the existing A4226.	OPERATION The proposed road will be built approximately 300m to the east of the buildings. Improved carriageway conditions may increase traffic speed, volume and TNV level.	Yr 1 Do Minimum	-	Condition the use of low-noise surfaces and restrict traffic speed. Structural planting may reduce perceived traffic noise. Land area available to construct environmental barriers.	Yr 1 Do Minimum	-
		15Yr Do Minimum	-		15Yr Do Minimum	-
		15Yr Do Something	+ +		15Yr Do Something	+ + +
Conclusion of Significance	The Orange route will provide significant beneficial effects without causing any significant disbenefits. **In Sector 5 the Orange Route is the preferred Do Something option.**					

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Sector 7						
BLUE ROUTE						
TNV-7-1 Domestic Dwelling and Business Premises. Site for major new junctions / roundabout. Buildings front directly onto existing A4226 Waycock Road, Waycock Cross roundabout, Port Road West, Port Road and Pontypridd Road.	CONSTRUCTION Temporary nuisance caused by complex construction works and associated traffic in close proximity to buildings.	15Yr Do Something	- -	Propose contract conditions to limit noise levels from the construction site and to restrict working hours. Temporary re-housing, installing additional insulation and glazing should be considered. Erect temporary mitigation measures such as environmental barriers around the construction site where land is available.	15Yr Do Something	-
	OPERATION The proposed dual roundabout arrangement could reduce traffic speed and TNV levels, but could hold increased amounts of stationary traffic compared to a single roundabout.	Yr 1 Do Minimum	-	Condition the use of low-noise surfaces and restrict traffic speed. Structural planting may reduce perceived traffic noise. Land area available to construct environmental barriers.	Yr 1 Do Minimum	-
		15Yr Do Minimum	- -		15Yr Do Minimum	- -
		15Yr Do Something	- -		15Yr Do Something	-

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
OTHER ROUTES						
TNV-7-1 Domestic Dwelling and Business Premises.	CONSTRUCTION Temporary nuisance caused by construction works and associated traffic in close proximity to buildings.	15Yr Do Something	-	Propose contract conditions to limit noise levels from the construction site and to restrict working hours. Temporary re-housing, installing additional insulation and glazing should be considered. Erect temporary mitigation measures such as environmental barriers around the construction site where land is available.	15Yr Do Something	**0**
	OPERATION The proposed roundabout could reduce traffic speed and TNV levels	Yr 1 Do Minimum	-	Condition the use of low-noise surfaces and restrict traffic speed. Structural planting may reduce perceived traffic noise. Limited land available to construct environmental barriers. Barriers may introduce unacceptable visual intrusion and safety implication.	Yr 1 Do Minimum	-
		15Yr Do Minimum	--		15Yr Do Minimum	--
		15Yr Do Something	-		15Yr Do Something	**0**
Conclusion of Significance	The Blue Route will produce more significant temporary adverse effects than the other routes and potentially greater levels of queuing traffic. On completion the single roundabout arrangement offered by the Purple, Red, Orange or Green Route would produce lower TNV levels than the Blue Route. **The Purple, Red, Orange or Green Routes are the preferred Do Something options.**					

4 Scheme Impacts on Local Air Quality during Construction & Operation

RECEPTORS	ASSESSMENT	SIGNIFICANCE		MITIGATION	RESIDUAL EFFECTS	
Sector 1						
ALL ROUTES						
AQ-1-1 Domestic Dwellings – 'Sheep Court Cottage' 'Hill Cottage' 'Sycamore Cottage' 'Sycamore Farm' Group of houses situated to the north of the existing A48; fronting onto the road and the existing multi-lane Sycamore Cross junction.	Existing multi-lane junction to be replaced with large multi-lane roundabouts capable of carrying greater volumes of slower moving traffic than the current road arrangement. Increase in predicted volume of traffic and reduction in speed at the junction may lead to a deterioration in local air quality	Do Minimum	-	Design junction to allow for freely moving traffic.	Do Minimum	-
		1st Yr Do Something	--		1st Yr Do Something	--
		15Yr Do Something	+		15Yr Do Something	++
Conclusion of Significance	Each potential route requires the same scope of junction improvements; each of the five routes will ultimately create a beneficial, but not significant effect on air quality receptors. In Sector 1 there is not a preferred Do Something option.					

No significant effects in Sector 2

RECEPTORS	ASSESSMENT	SIGNIFICANCE		MITIGATION	RESIDUAL EFFECTS	
Sector 3						
ALL ROUTES						
AQ-3-1 Domestic Dwellings and Associated Farm Buildings – 'Blackland Farm' 'Tynant' Buildings situated to the west of the existing A4226 and fronting onto the road. Crossing of existing A4226 required for field access.	Cars will be predominately be travelling at a steady speed passed this receptor, therefore the upgrading of carriageway may improve traffic flow resulting in improved air quality within local vicinity.	Do Minimum	-	Minimise any unnecessary bends in road to allow for steady flow and speed of traffic. Position carriageway downwind of sensitive receptors.	Do Minimum	-
		1st Yr Do Something	-		1st Yr Do Something	-
		15Yr Do Something	+		15Yr Do Something	+ +
BLUE ROUTE						
AQ-3-2 Domestic Dwelling – 'Whitton Lodge' House situated on a cross-road to the east of	A proposed multi-lane roundabout will be constructed approximately 90m to the rear of the building. New access roads will be constructed adjacent to the property and carriageway improvements will take place. On completion, the house and garden will be enclosed on all sides by roads, however the proposed road is to be constructed at a greater distance from the property than the current road.	Do Minimum	--	Design junction to allow for freely moving traffic. Position carriageway downwind of sensitive receptors.	Do Minimum	--
		1st Yr Do Something	--		1st Yr Do Something	--

RECEPTORS	ASSESSMENT	SIGNIFICANCE		MITIGATION	RESIDUAL EFFECTS	
the existing A4226; fronting onto the road.	The proposed multi-lane roundabouts will result in a reduction of traffic speed, which may result in an increase in the amount of pollutants within the atmosphere and therefore a reduction in air quality.	15Yr Do Something	-		15Yr Do Something	+
PURPLE ROUTE						
AQ-3-2 Domestic Dwelling – 'Whitton Lodge'	The new carriageway will be constructed approximately 140m east of the existing dwelling.	Do Minimum	--	Position carriageway downwind of sensitive receptors.	Do Minimum	--
		1st Yr Do Something	-		1st Yr Do Something	-
		15Yr Do Something	+		15Yr Do Something	+ +
RED ROUTE						
AQ-3-2 Domestic Dwelling – 'Whitton Lodge'	Air quality will cease to be an important factor in deciding the route alignment.	Do Minimum	0	N/A	Do Minimum	0
		1st Yr Do Something	0		1st Yr Do Something	0
		15Yr Do Something	0		15Yr Do Something	0
ORANGE ROUTE						
AQ-3-2	The proposed road is to be constructed to the east of the dwelling, at a greater distance from the property than the	Do Minimum	--	Design junction to allow for freely moving traffic.	Do Minimum	-

RECEPTORS	ASSESSMENT	SIGNIFICANCE		MITIGATION	RESIDUAL EFFECTS	
Domestic Dwelling – 'Whitton Lodge'	current road. Road traffic speeds will be reduced by the introduction of a roundabout, located approximately 180m to the southeast of the receptor. Disruption to traffic flows may result in a reduction in air quality. However the receptor is downwind from the carriageway and impacts will therefore be reduced in significance.	1st Yr Do Something	-	Position carriageway downwind of sensitive receptors.	1st Yr Do Something	-
		15Yr Do Something	-		15Yr Do Something	+
GREEN ROUTE						
AQ-3-2 Domestic Dwelling – 'Whitton Lodge'	The proposed road is to be constructed to the east of the dwelling, at a greater distance from the property than the current road. Road traffic speeds will be reduced by the introduction of the roundabout, located approximately 240m to the north of the receptor. Disruption to traffic flows may result in a reduction in air quality. However the receptor is downwind from the carriageway and impacts will therefore be reduced in significance.	Do Minimum	--	Design junction to allow for freely moving traffic. Position carriageway downwind of sensitive receptors.	Do Minimum	--
		1st Yr Do Something	-		1st Yr Do Something	-
		15Yr Do Something	-		15Yr Do Something	+
Conclusion of Significance	The Purple Route will produce the most beneficial effects in terms of reducing impacts pollutants once mitigation measures are put in place. In Sector 3 the Purple Route would be the preferred Do Something option.					

RECEPTORS	ASSESSMENT	SIGNIFICANCE		MITIGATION	RESIDUAL EFFECTS	
Sector 5						
BLUE ROUTE						
AQ-5-1 Domestic Dwellings and Associated Farm Buildings – 'Grovelands' 'Grovelands Farm' Buildings situated to the west of the existing A4226, set 55m from the road.	The proposals will move the main carriageway 65m further away from the buildings. New access roads will be constructed near the property and carriageway improvements will take place. The proposed carriageway alignment will be located within a cutting and at greater distance from the receptor; therefore it is likely that air quality at the property may improve.	Do Minimum	--	Position carriageway within cutting/embankment to increase distance between carriageway and receptors.	Do Minimum	--
		1st Yr Do Something	-		1st Yr Do Something	-
		15Yr Do Something	+		15Yr Do Something	++
PURPLE ROUTE						
AQ-5-1 Domestic Dwellings and Associated Farm Buildings – 'Grovelands' 'Grovelands Farm' Buildings situated to the west of the existing A4226, set 55m from the road.	Disruption to traffic flow from proposed roundabout approximately 265m south of the receptor may result in a reduction in air quality despite the road being located within a cutting, as the receptor is upwind of the carriageway.	Do Minimum	--	Design junction to allow for freely moving traffic. Position carriageway within cutting/embankment to increase distance between carriageway and receptors.	Do Minimum	--
		1st Yr Do Something	--		1st Yr Do Something	-
		15Yr Do Something	-		15Yr Do Something	-
RED ROUTE						
AQ-5-1	Air quality levels may deteriorate from this receptor, despite the carriageway located within an embankment and is	Do Minimum	--	Position carriageway within cutting/embankment to increase distance between carriageway and	Do Minimum	--

RECEPTORS	ASSESSMENT	SIGNIFICANCE		MITIGATION	RESIDUAL EFFECTS	
Domestic Dwellings and Associated Farm Buildings – 'Grovelands' 'Grovelands Farm' Buildings situated to the west of the existing A4226, set >55m from the road.	downwind from the carriageway, the fluctuating speed of the traffic approaching/leaving the roundabout and the slip road may have negative effects on air quality.	1st Yr Do Something	---	receptors. Position carriageway downwind of sensitive receptors.	1st Yr Do Something	--
		15Yr Do Something	--		15Yr Do Something	-
ORANGE ROUTE						
AQ-5-1 Domestic Dwellings and Associated Farm Buildings – 'Grovelands' 'Grovelands Farm' Buildings situated to the west of the existing A4226, set 55m from the road.	The proposed route will be 75m further away from the property within a cutting.. However air quality levels may deteriorate from this receptor, as, the fluctuating speed of the traffic approaching/leaving the roundabout and the slip road may have negative effects on air quality.	Do Minimum	--	Relocate carriageway away from receptor and position carriageway within cutting/embankment to increase distance between carriageway and receptors.	Do Minimum	--
		1st Yr Do Something	---		1st Yr Do Something	--
		15Yr Do Something	--		15Yr Do Something	-
GREEN ROUTE						
AQ-5-1	The proposed route will be located within a cutting. However air quality levels may deteriorate from this receptor, as, the fluctuating speed of the traffic approaching/leaving the	Do Minimum	--	Position carriageway within cutting/embankment to increase distance between carriageway and receptors.	Do Minimum	--

RECEPTORS	ASSESSMENT	SIGNIFICANCE		MITIGATION	RESIDUAL EFFECTS	
Domestic Dwellings and Associated Farm Buildings – 'Grovelands' 'Grovelands Farm' Buildings situated to the west of the existing A4226, set >55m from the road.	roundabout and the slip road may have negative effects on air quality.	1st Yr Do Something	---		1st Yr Do Something	--
		15Yr Do Something	--		15Yr Do Something	-
BLUE ROUTE						
AQ-5-2 Domestic Dwelling – 'Northcliff Cottage' House situated to the east of the existing A4226.	The proposed route will add an additional road approximately 50m closer to the house. Improvements to the access roads will impact directly onto the garden of the house. It is therefore likely that air quality at the property will decrease significantly.	Do Minimum	-	Position carriageway within cutting/embankment to increase distance between carriageway and receptors.	Do Minimum	-
		1st Yr Do Something	---		1st Yr Do Something	--
		15Yr Do Something	--		15Yr Do Something	-
PURPLE ROUTE						
AQ-5-2 Domestic Dwelling – 'Northcliff Cottage' House situated to the east of the existing A4226.	Significant changes in air quality are unlikely to occur at this location as a result of the road realignment.	Do Minimum	**0**	N/A	Do Minimum	**0**
		1st Yr Do Something	**0**		1st Yr Do Something	**0**

RECEPTORS	ASSESSMENT	SIGNIFICANCE		MITIGATION	RESIDUAL EFFECTS	
		15Yr Do Something	0		15Yr Do Something	0
RED ROUTE						
AQ-5-2 Domestic Dwelling – 'Northcliff Cottage' House situated to the east of the existing A4226.	Air quality levels may deteriorate from this receptor, as, the fluctuating speed of the traffic approaching/leaving the roundabout and the slip road may have negative effects on air quality.	Do Minimum	0	N/A	Do Minimum	0
		1st Yr Do Something	---		1st Yr Do Something	--
		15Yr Do Something	--		15Yr Do Something	--
ORANGE ROUTE						
AQ-5-2 Domestic Dwelling – 'Northcliff Cottage' House situated to the east of the existing A4226.	Air quality levels may deteriorate from this receptor, as, the fluctuating speed of the traffic approaching/leaving the roundabout and the slip road may have negative effects on air quality. Improvements to the access roads will impact directly onto the garden of the house. Even though the carriageway will be located within a cutting, it is likely that air quality levels at the property will reduce.	Do Minimum	-	Position carriageway within cutting/embankment to increase distance between carriageway and receptors.	Do Minimum	-
		1st Yr Do Something	---		1st Yr Do Something	--
		15Yr Do Something	--		15Yr Do Something	--

RECEPTORS	ASSESSMENT	SIGNIFICANCE		MITIGATION	RESIDUAL EFFECTS	
GREEN ROUTE						
AQ-5-2 Domestic Dwelling – 'Northcliff Cottage' House situated to the east of the existing A4226.	Air quality levels may deteriorate from this receptor, as, the fluctuating speed of the traffic approaching/leaving the roundabout and the slip road may have negative effects on air quality.	Do Minimum	--	Position carriageway within cutting/embankment to increase distance between carriageway and receptors.	Do Minimum	--
		1st Yr Do Something	---		1st Yr Do Something	--
		15Yr Do Something	--		15Yr Do Something	--
PURPLE ROUTE						
AQ-5-3 Domestic Dwelling and Associated Farm Buildings – 'Sutton Fach Farm' Group of buildings situated to the east of the existing A4226; fronting directly onto the road.	The proposals will move the main carriageway 50m further away from the buildings and within a cutting. Therefore air quality may improve.	Do Minimum	--	Relocate carriageway away from receptor and position carriageway within cutting/embankment to increase distance between carriageway and receptors.	Do Minimum	--
		1st Yr Do Something	-		1st Yr Do Something	+
		15Yr Do Something	+		15Yr Do Something	++

RECEPTORS	ASSESSMENT	SIGNIFICANCE		MITIGATION	RESIDUAL EFFECTS	
RED ROUTE						
AQ-5-3 Domestic Dwelling and Associated Farm Buildings – 'Sutton Fach Farm' Group of buildings situated to the east of the existing A4226; fronting directly onto the road.	The proposals will move the main carriageway 90m further away from the buildings and within a cutting. It is therefore likely that air quality surrounding the property will improve.	Do Minimum	-	Relocate carriageway away from receptor and position carriageway within cutting/embankment to increase distance between carriageway and receptors.	Do Minimum	-
		1st Yr Do Something	-		1st Yr Do Something	+
		15Yr Do Something	+		15Yr Do Something	+ +
GREEN ROUTE						
AQ-5-3 Domestic Dwelling and Associated Farm Buildings – 'Sutton Fach Farm' Group of buildings situated to the east of the existing A4226; fronting directly onto the road.	On completion the dwelling will be enclosed on two sites by the existing and the new route. Therefore, though impacts from the new route may be slightly offset by the carriageway being located within a cutting, air quality is predicted to reduce from this property.	Do Minimum	-	Condition the use of low-noise surfaces and restrict traffic speed. Structural planting may reduce perceived traffic noise. Land area available to construct environmental barriers.	Do Minimum	-
		1st Yr Do Something	- -		1st Yr Do Something	- -
		15Yr Do Something	-		15Yr Do Something	0
Conclusion of Significance	In Sector 5 the Blue Route is the preferred Do Something option.					

RECEPTORS	ASSESSMENT	SIGNIFICANCE		MITIGATION	RESIDUAL EFFECTS	
Sector 6						
ALL ROUTES						
AQ-6-1 Approximately 13 hectares of Barry Woodland SSSI is located to the east and west of the existing carriageway.	Any effects on air quality are likely to be absorbed by the surrounding woodland. Therefore impacts are likely to be neutral.	Do Minimum	**0**	N/A	Do Minimum	**0**
		1st Yr Do Something	**0**		1st Yr Do Something	**0**
		15Yr Do Something	**0**		15Yr Do Something	**0**
Conclusion of Significance	There are likely to be no overall change in impacts on air quality if any of the five route alignments are selected. There is not a preferred Do Something option.					

RECEPTORS	ASSESSMENT	SIGNIFICANCE		MITIGATION	RESIDUAL EFFECTS	
Sector 7						
BLUE ROUTE						
AQ-7-1 Domestic Dwelling and Business Premises. Site for major new junctions / roundabout.	The proposed dual roundabout arrangement could reduce traffic speed and in conjunction with anticipated increase in volume of traffic, there may be an increase in emissions, leading to a reduction in air quality.	Do Minimum	--	Design junction to allow for freely moving traffic.	Do Minimum	--
		1st Yr Do Something	---		1st Yr Do Something	--

RECEPTORS	ASSESSMENT	SIGNIFICANCE		MITIGATION	RESIDUAL EFFECTS	
Buildings front directly onto existing A4226 Waycock Road, Waycock Cross roundabout, Port Road West, Port Road and Pontypridd Road.		15Yr Do Something	--		15Yr Do Something	-
PURPLE **RED**	**ORANGE** **GREEN**					
AQ-7-1 Domestic Dwelling and Business Premises. Site for major new junctions / roundabout. Buildings front directly onto existing A4226 Waycock Road, Waycock Cross roundabout, Port Road West, Port Road and Pontypridd Road.	Reduction in air quality may occur from disruption in traffic flow/increased volume of traffic approaching and accelerating away from the existing roundabout.	Do Minimum	-	Design junction to allow for freely moving traffic.	Do Minimum	-
		1st Yr Do Something	--		1st Yr Do Something	-
		15Yr Do Something	-		15Yr Do Something	**0**
Conclusion of Significance	The Blue Route will produce the most significant adverse effects in terms of impacts on air quality compared to the four other routes. Routes 2-5 Purple, Red, Orange, Green are the preferred Do Something options.					

5.1 Scheme Impacts on Landscape Character during Construction & Operation

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECT	
Sector 1						
All Routes						
LC-1-1 **Ridgeline and Ridge Slopes** Hedgerows, tree groups, pastoral agricultural fields, settlements on high ground **Moderate capacity**	<u>CONSTRUCTION</u> Option 1 (double roundabout): Option 2 (large roundabout serving all roads): Option 3 (large roundabout and T-junction) - Loss of medium category hedgerow respectively = 260m:400m:470m. - Loss of tree groups in both medium and high categories - Loss of pastoral field **Temporary high/medium magnitude of effect = moderate adverse significance**	Winter's Day	--	Replacement of hedgerows around junctions and plant new vegetative screens between receptors and junction wherever practicable (limited space). Replacement of tree groups. Moderate adverse impact in short term reducing to slight as planting matures	15Yr Do Something	-
	<u>OPERATION</u> As above with some reduction in effect assuming grass would be reseeded. **Option 1 Low Magnitude (depending on signage) = slight adverse significance** **Option 2 Low/Medium Magnitude (depending on signage) = slight/moderate adverse significance** **Option 3 Medium magnitude = moderate adverse significance**	Winter's Day - Year 1	--			
Recommendation	**Option 1 (small double roundabout) is preferable in terms of landscape impact as the scale is in keeping and retains most existing landscape structure of all the options**					

No significant effects in Sector 2

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Sector 3						
Red Route						
LC-3-1 **Broad Gently Sloping Valley /The Rolling Ridge Slopes** **Moderate Capacity** Hedgerows, tree groups, pastoral agricultural fields, settlements.	CONSTRUCTION **High magnitude = Moderate/Severe adverse significance**	Winter's Day	---	Woodland - replant edges and enhance woodland Knotweed treatment Consider woodland edge planting to mitigate potential windblow effect. Minimise loss of existing woodland, hedgerows, grassland and scrub Opportunity to extend woodland across road to enhance integration	15Yr Do Something	--
	OPERATION Loss of Amelia Trust woodland (mainly oak in this area), grassland and scrub habitat along length. Potential further loss post construction caused by windblow. **High Magnitude = Moderate/Severe adverse significance**	Winter's Day - Year 1	---			
Blue / **Purple** / **Orange** / **Green**						
LC-3-1 **Broad Gently Sloping Valley /The Rolling Ridge Slopes** **Moderate Capacity** Hedgerows, tree groups, pastoral agricultural fields, settlements.	CONSTRUCTION **Medium magnitude = Moderate adverse significance**	Winter's Day	--	Woodland - replant edges and enhance woodland Knotweed treatment. Consider woodland edge planting to mitigate potential windblow effect. Opportunity to extend woodland across road to enhance integration	15Yr Do Something	-
	OPERATION Loss of woodland with high contribution to landscape character to east of existing road. Potential further loss post construction caused by windblow. **Medium Magnitude = Moderate adverse significance**	Winter's Day - Year 1	--			
Red Route						

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
LC-3-2 **The Plateau and Broad Gently Sloping Valley /The Rolling Ridge Slopes** **Moderate/Low Capacity** Extensive views, exposed. Trimmed hedgerows around large, more often arable fields	CONSTRUCTION Cuttings and embankments– earthworks Loss of existing roadside hedgerows along Five Mile Lane to high magnitude. New junctions to side access roads **High magnitude of effect = Severe adverse significance**	Winter's Day	---	Retain existing hedgerow as far as practicable and plant new roadside hedgerows, tie in to restore character. Woodland screen to west for visual amenity. Potential location for a balancing pond and habitat enhancements. Opportunity to open out views for vehicle travellers	15Yr Do Something	-
	OPERATION As above with some lessening of effect after reinstatement and mitigation works are complete. Vertical alignment sympathetic to landform. **High magnitude of effect = Severe adverse significance**	Winter's Day - Year 1	---			
Blue / **Purple** / **Orange** / **Green**						
LC-3-2 **The Plateau** **Moderate/Low Capacity** Extensive views, exposed. Trimmed hedgerows around large, more often arable fields	CONSTRUCTION Extensive cuttings and embankments – earthworks **Medium magnitude of effect = Moderate adverse significance**	Winter's Day	--	Grading out cuttings to east for vehicle travellers and landscape character Woodland screen to west for visual amenity either roadside (less sympathetic treatment to landscape character) or screen offsite out with Plateau LCA. Potential location for a balancing pond and habitat enhancements. Opportunity to open out views for vehicle travellers	15Yr Do Something	-
	OPERATION Cuttings through broad plateau landscape. Embankments through Witton Mawr Field (which forms a local valley/head to stream/brook) Lit junctions - set on plateau except for Green which is set lower at AOD. Purple employs simple junction onto existing side road to Dyffryn – loss of high category oak tree group, but not sympathetic to landform. **Medium magnitude of effect = Moderate adverse significance**	Winter's Day - Year 1	--			
Sector 3 Conclusion	**Red option causes the most extensive loss of landscape resource, although it is sympathetic to landform.** **Minimise loss of woodland (especially to west of existing carriageway) as far as practicable for any option and maximise extent/quality of woodland.**					

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Sector 4						
Blue Route						
LC-4-1 **The Plateau** **Moderate/Low Capacity** Extensive views, exposed. Trimmed hedgerows around large, more often arable fields	CONSTRUCTION The Blue option would, on initial evaluation, appear to involve the most efficient earthworks which reduces the impact of cutting (notch) through this high point on the plateau ridge. **Low magnitude of effect = Slight adverse significance**	Winter's Day	-	Grading out cuttings and returning to agriculture with roadside hedgerows And Utilise a field ditch to west of carriageway (arable fields) to allow expansive views from the road where cuttings are minor.	15Yr Do Something	+
	OPERATION Cuttings through broad plateau landscape - embankment at 1.8 metres and cutting 1.4 metres. Loss of 60 linear metres of hedgerow within sector 4 - best performing option **Low magnitude of effect = Slight adverse significance**	Winter's Day - Year 1	-			
Red **Purple** **Green**						
LC-4-1 **The Plateau** **Moderate/Low Capacity** Extensive views, exposed. Trimmed hedgerows around large, more often arable fields	CONSTRUCTION More extensive earthworks required than Blue option **Low / Medium magnitude of effect = Moderate adverse significance**	Winter's Day	--	Grading out cuttings and returning to agriculture with roadside hedgerows And in limited areas where cutting /embankments are minor utilise a field ditch (arable fields) to allow expansive views from the road. Red provides more opportunities than Purple or Green for views form the road.	15Yr Do Something	**0**
	OPERATION Cuttings through broad plateau landscape. Loss of hedgerow: Purple –730 linear metres Green –800 linear metres Red –900 linear metres – this option is sympathetic to landform **Medium magnitude of effect = Moderate adverse significance**	Winter's Day - Year 1	--			

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Orange						
LC-4-1 **The Plateau** **Moderate/Low Capacity** Extensive views, exposed. Trimmed hedgerows around large, more often arable fields	CONSTRUCTION Extensive cuttings – earthworks **High magnitude of effect = Severe adverse significance**	Winter's Day	**- - -**	Grading out cuttings and returning to agriculture with roadside hedgerows.	15Yr Do Something	**-**
	OPERATION Deep cuttings through broad plateau landscape. Worst performing option in sector for loss of hedgerow - 1050 linear metres **High magnitude of effect = Severe adverse significance**	Winter's Day - Year 1	**- - -**			
Sector 4 Conclusion	**Blue option is preferable due to minimising loss of hedgerows and shallower cuttings.** **Blue also offers the opportunity to allow expansive views across landscape unlike baseline.**					

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Sector 5						
Blue **Purple**						
LC-5-1 **The Plateau** **Moderate/Low Capacity** Extensive views, exposed. Trimmed hedgerows around large, more often arable fields	CONSTRUCTION Extensive cuttings – earthworks Overbridge construction (Blue option) Roundabout construction (Purple option) **Medium magnitude of effect = Moderate adverse significance**	Winter's Day	--	Grading out cuttings and plant roadside hedgerows. (Blue option) Use overbridge siting and planting to lessen effect of notch created by cutting through ridge.	15Yr Do Something	**0**
	OPERATION Cuttings through broad plateau landscape creating potential notch. Blue: Cuts through 3 medium and 3 high category hedgerows Amongst best options in terms of following topography Best option in terms of loss of resource Purple: Cuts through 2 medium and 3 high category hedgerows Amongst best options in terms of following topography Loss of lengths of hedgerow = 570 linear metres) **Medium magnitude of effect = Moderate adverse significance**	Winter's Day - Year 1	--			
Red **Orange** **Green**						
LC-5-1 **The Plateau** **Moderate/Low**	CONSTRUCTION Extensive cuttings – earthworks Longer side roads required compared to Blue or Purple. **High magnitude of effect = Severe adverse significance**	Winter's Day	---	Grading out cuttings and plant roadside hedgerows. Any tree planting to lessen effect of notch, side roads and roundabouts may alter landscape character if used extensively.	15Yr Do Something	--

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Capacity Extensive views, exposed. Trimmed hedgerows except in vicinity of Grovelands/ Northcliff around large, more often arable fields	<u>OPERATION</u> Cuttings through broad plateau landscape. Longer side roads required compared to Blue or Purple. Loss of hedgerows would be greater for Red and Green Options but Orange is less sympathetic to local topography. Red: Cuts through 4 medium and 5 high category hedgerows, loss of 325 linear metres of hedgerow, loss of 1 medium category tree group, One of the most sympathetic options to landform Orange: Cuts through 3 low, 4 medium and 5 high category hedgerows Green: Cuts through 2 medium and 7 high category hedgerows, loss of 410 linear metres of hedgerow, loss of 1 medium category tree group One of the most sympathetic options to landform **High magnitude of effect = Severe adverse significance**	Winter's Day - Year 1	---			
Blue						
LC-5-2 **The Plateau** **Moderate/Low Capacity** South east facing pastoral valley slopes with specimen oaks.	<u>CONSTRUCTION</u> Extensive earthworks visible from existing road and Sutton Fach Farm. **Medium magnitude of effect = Moderate adverse significance**	Winter's Day	--	Grading out cuttings and plant roadside hedgerows and specimen oaks/woodland.	15Yr Do Something	**0**
	<u>OPERATION</u> Cuttings and embankments through rolling landscape. Loss of 1 high category oak One of the most sympathetic options to landform **Medium magnitude of effect = Moderate adverse significance**	Winter's Day - Year 1	--			
Purple **Green**						

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
LC-5-2 **The Plateau** **Moderate/Low Capacity** South east facing pastoral valley slopes with specimen oaks.	CONSTRUCTION Extensive earthworks visible from existing road and Sutton Fach Farm. **Medium magnitude of effect = Moderate adverse significance**	Winter's Day	--	Grading out cuttings and plant roadside hedgerows and specimen oaks/woodland.	15Yr Do Something	-
	OPERATION Cuttings and embankments through rolling landscape. Purple: Loss of 2 high category oaks Green: Loss of 3 high category oak One of the most sympathetic to landform **Medium magnitude of effect = Moderate adverse significance**	Winter's Day - Year 1	--			
Red **Orange**						
LC-5-2 **The Plateau** **Moderate/Low Capacity** South east facing pastoral valley slopes with specimen oaks.	CONSTRUCTION Extensive earthworks visible from existing road and Sutton Fach Farm. **High magnitude of effect = Severe adverse significance**	Winter's Day	---	Grading out cuttings and plant roadside hedgerows and specimen oaks/woodland. Consider woodland edge planting to mitigate potential windblow effect.	15Yr Do Something	--
	OPERATION Cuttings and embankments through rolling landscape. Red: Loss of 1 high category oak Loss of high category woodland - 1075m2 One of most sympathetic to landform Orange: Loss of 1 high category oak Loss of high category woodland - 2000m2 Potential further loss, post construction caused by windblow. **High magnitude of effect = Severe adverse significance**	Winter's Day - Year 1	---			

RECEPTORS	ASSESSMENT	SIGNIFICANCE	POTENTIAL MITIGATION	RESIDUAL EFFECTS
Sector 5 Conclusion	**Loss of the high category oaks would cause a long term impact so alignments that avoid them fair better (Blue). Similarly alignments that are sympathetic to landform also fair better (Green, Red, Blue) (5-2).** **Blue and Purple cause the least adverse significance of effect on landscape character on the plateau (5-1) due to reduced junction land take, and lower loss of landscape resource**			

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Sector 6						
Blue						
LC-6-1 **The Valley Floor and Wooded Valley Sides** **Low Capacity** River Waycock Valley floor, pastoral with trimmed and outgrown hedgerows.	CONSTRUCTION Construction of earthworks, main carriageway, river bridge crossing, side roads and roundabout. **High magnitude of effect = Severe adverse significance**	Winter's Day	---	Woodland –wayleave required along overhead powerlines. Plant 'overgrown' hedgerow and grade out embankments to north of main road. Plant specimen trees.	15Yr Do Something	-
	OPERATION Loss of hedgerows of low magnitude (661lm) Loss of woodland of medium magnitude (2360m2) Loss of one high category tree of low magnitude **Extensive earthworks of high magnitude of effect.** Alignment provides opportunities to improve landscape quality of resource. Whilst this alignment removes existing vegetation it provides opportunities for mitigation measures that are in character - to beneficial medium magnitude. **High magnitude of effect = Severe adverse significance**	Winter's Day - Year 1	---			
Purple						
LC-6-1 **The Valley Floor and Wooded Valley Sides**	CONSTRUCTION Construction of earthworks, main carriageway and river bridge crossing. **Medium magnitude of effect = Moderate adverse significance**	Winter's Day	--	Woodland –wayleave required along overhead powerlines Plant 'overgrown' hedgerow and grade out embankments to north of main road. Plant specimen trees.	15Yr Do Something	**0**

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Low Capacity River Waycock Valley floor, pastoral with trimmed and outgrown hedgerows.	OPERATION Loss of hedgerows to medium magnitude (770lm) Loss of woodland - none **Loss of three high category trees to high magnitude** Good fit with landform – on embankment as enter Waycock Valley quickly changing to shallow cutting along valley floor to low magnitude of effect. Alignment provides opportunities for mitigation in character to beneficial medium magnitude. Alignment does not include roundabout and side roads. **Medium magnitude of effect = Moderate adverse significance**	Winter's Day - Year 1	--			
Red						
LC-6-1 **The Valley Floor and Wooded Valley Sides** **Low Capacity** River Waycock Valley floor, pastoral with trimmed and outgrown hedgerows.	CONSTRUCTION Construction of earthworks, main carriageway, river bridge crossing and side road. **Medium magnitude of effect = Moderate adverse significance**	Winter's Day	--	Woodland –wayleave required along overhead powerlines Plant 'overgrown' hedgerow and grade out embankments to north of main road. Plant specimen trees.	15Yr Do Something	**0**
	OPERATION Loss of hedgerows to medium magnitude (730lm) Loss of woodland - none Loss of one high category tree to low magnitude On embankment (2m) - medium magnitude Alignment provides opportunities for mitigation in character to beneficial medium magnitude. Alignment provides opportunities to improve landscape quality of resource. Alignment does not include roundabout. **Medium magnitude of effect = Moderate adverse significance**	Winter's Day - Year 1	--			

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Orange						
LC-6-1 **The Valley Floor and Wooded Valley Sides** **Low Capacity** River Waycock Valley floor, pastoral with trimmed and outgrown hedgerows.	CONSTRUCTION Construction of earthworks, main carriageway, river bridge crossing, side roads and roundabout. **High magnitude of effect = Severe adverse significance. significance**	Winter's Day	---	Woodland –wayleave required along overhead powerlines Plant 'overgrown' hedgerow and grade out embankments to north of main road. Plant specimen trees.	15Yr Do Something	**0**
	OPERATION Loss of hedgerows to low magnitude (678lm) Loss of woodland – 80 m2 – low magnitude Loss of one high category tree to low magnitude On embankment (1.5m) with some cutting – low magnitude Alignment provides opportunities for mitigation in character to beneficial medium magnitude. Alignment provides opportunities to improve landscape quality of resource. Alignment includes side roads and roundabout. **Medium magnitude of effect = Moderate adverse significance**	Winter's Day - Year 1	--			
Green						
LC-6-1 **The Valley Floor and Wooded Valley Sides**	CONSTRUCTION Construction of earthworks, main carriageway, river bridge crossing, side roads and roundabout. **High magnitude of effect = Severe adverse significance**	Winter's Day	---	Woodland –wayleave required along overhead powerlines Plant 'overgrown' hedgerow and grade out embankments to north of main road. Plant specimen trees.	15Yr Do Something	**-**

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Low Capacity River Waycock Valley floor, pastoral with trimmed and outgrown hedgerows.	OPERATION **Loss of hedgerows to high magnitude (870lm)** Loss of woodland – none Loss of two high category trees to medium magnitude On embankment (2m) – medium magnitude Alignment provides opportunities for mitigation in character to beneficial medium magnitude. Alignment includes side roads and roundabout. **High magnitude of effect = Severe adverse significance**	Winter's Day - Year 1	---			
Blue						
LC-6-2 **The Valley Floor and Wooded Valley Sides** **Low Capacity** Wooded Valley sides supporting SSSI woodland.	CONSTRUCTION Loss of woodland and roadside woodland belts and earthworks associated with main road. **High magnitude of effect = Severe adverse significance**	Winter's Day	---	Woodland planting with consideration for verge treatment that is in character. Consider woodland edge planting to mitigate potential windblow effect.	15Yr Do Something	--
	OPERATION Loss of woodland and roadside woodland belts along road corridor – 29,850 m2. Worst performing option. Potential further loss post construction caused by windblow. **High magnitude of effect = Severe adverse significance**	Winter's Day - Year 1	---			
Purple						
LC-6-2 **The Valley Floor and Wooded Valley Sides** **Low Capacity** Wooded Valley sides supporting SSSI woodland.	CONSTRUCTION Loss of woodland and roadside woodland belts and earthworks associated with main road. **Low magnitude of effect = Slight adverse significance**	Winter's Day	-	Woodland planting	15Yr Do Something	**0**
	OPERATION Loss of woodland and roadside woodland belts along road corridor – 11,600 m2. Best performing option. **Low magnitude of effect = Slight adverse significance**	Winter's Day - Year 1	-			

RECEPTORS			ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Red	**Orange**	**Green**						
LC-6-2 **The Valley Floor and Wooded Valley Sides** **Low Capacity** Wooded Valley sides supporting SSSI woodland.			CONSTRUCTION Loss of woodland and roadside woodland belts and earthworks associated with main road. **Medium magnitude of effect = Moderate adverse significance**	Winter's Day	--	Woodland planting		
			OPERATION Loss of woodland and roadside woodland belts along road corridor: Red: 13,900 m2 Orange: 13,800 m2 Green: 14,700 m2 **Medium magnitude of effect = Moderate adverse significance**	Winter's Day - Year 1	--		15Yr Do Something	-
Sector 6 Conclusion			**Red or Purple Route Options would cause the least adverse effect landscape character (slight adverse, year 15 operation) across the valley floor.** **The Purple would cause the least adverse effect landscape character or (neutral, year 15 operation) up the wooded valley side.** **Orange and Green would be more adverse as they include roundabout junctions in the valley floor.** **Blue results in the worst effect due also to the additional and wider carriageway up the valley side and the extensive earthworks across the valley floor.**					

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Sector 7						
Blue						
LC-7-1 **The Valley Floor and Wooded Valley Sides / Barry** **Low Capacity / High Capacity** Wooded Valley sides supporting SSSI woodland.	CONSTRUCTION Loss of some existing roadside vegetation to allow for new vertical alignment. Construction of new double roundabout **Medium magnitude of effect = Moderate/Slight adverse significance**	Winter's Day	--	Woodland/hedgerow planting New planting within roundabouts to enhance urban/rural edge.	15Yr Do Something	+
	OPERATION As above with mitigation **Medium magnitude of effect = Moderate/Slight adverse significance**	Winter's Day - Year 1	--			
Purple **Red** **Orange** **Green**						
LC-7-2 **The Valley Floor and Wooded Valley Sides / Barry** **Low Capacity / High Capacity** Wooded Valley sides supporting SSSI woodland.	CONSTRUCTION Loss of some existing roadside vegetation to allow for new vertical alignment. Retain existing roundabout **Low magnitude of effect = Neutral/Slight/Moderate adverse significance**	Winter's Day	-	Woodland/hedgerow planting Planting around roundabout to enhance rural/urban edge	15Yr Do Something	+
	OPERATION As above with mitigation **Low magnitude of effect = Neutral/Slight/Moderate adverse significance**	Winter's Day - Year 1	-			
Sector 7 Conclusion	**Blue Option provides more opportunity to enhance landscape character** **Other options construction effects would be less adverse but all would result in a 15 year Do something of Slight Beneficial Significance.**					

5.2 Scheme Impacts on Visual Amenity during Construction & Operation

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Sector 1						
All Routes						
LV-1-1 Domestic dwellings adjacent to the existing Sycamore Cross junction: **High Sensitivity:** **'Sheep Court Cottage'** **'Hill Cottage'** **'Sycamore Cottage'** **'Sycamore Farm'** **'The Breach'** Moderate night time pollution	CONSTRUCTION As below: Footprint of disturbance/intrusion would be larger than during operation but the effects would be temporary. Garden vegetation largely screens views to likely roundabout footprint. **Medium Magnitude of Effect = Moderate Adverse Significance**	Winter's Day	--	Retain as much existing vegetation as practicable and supplement with new hedgerow and tree planting in keeping with agricultural landscape. Moderate adverse effect in short term reducing to slight adverse effect as planting matures.	15Yr Do Something	-
	OPERATION The new junctions would partially visually intrude into oblique views to south, would be lit and columns visible and would involve removing existing vegetation. **Medium Magnitude of Effect = Moderate Significance**	Winter's Day - Year 1	--			
		Lighting	-			

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
All Routes						
LV-1-2 Domestic dwellings situated at and adjacent to the Redland's Farm with potential views to the junction in Sector 1: **High Sensitivity:** **Redland** **Redlands House** **New build house opposite Redlands Cottage** **Ash Tree House**	CONSTRUCTION As below: Footprint of disturbance/intrusion would be larger than during operation but the effects would be temporary. **Negligible/Low Magnitude of Effect = Slight Adverse Significance**	Winter's Day	-	Retain as much existing vegetation as practicable and supplement with new hedgerow and tree planting in keeping with agricultural landscape. Moderate adverse effect in short term reducing to slight adverse effect as planting matures.	15Yr Do Something	**0**
	OPERATION The new junctions would potentially visually intrude into views to north, would be lit, and columns would be visible, and would involve removing existing vegetation. Approximately 170 metres away from change to landscape resource. Ground floor approximately 3 metres below grade of junction. Majority of views to junction are screened/filtered by existing trees within dwelling complex. **Negligible/Low Magnitude of Effect = Slight Adverse Significance**	Winter's Day - Year 1	-			
Sector 1 Conclusion	**Option 1 (small double roundabout) is preferable in terms of visual impact.** **Slight adverse impact during construction and in first year of operation, reducing to neutral assuming mitigation is adopted and planting matures.**					

No significant effects in Sector 2

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Sector 3						
All Routes						
LV-3-2 Domestic dwellings set back from existing road accessed by old route. Three hedgerows between houses and new alignment due to retained and planted hedgerows on previous and existing routes. **High Sensitivity:** **Blacklands Farm, Tynant** Slight night time pollution	CONSTRUCTION As below: **Negligible/Low Magnitude of Effect = Moderate/Slight Adverse Significance**	Winter's Day	--	Potential to utilise new planting to screen road.	15Yr Do Something	**0**
	OPERATION The parallel widening of Five Mile Lane would require removal of one the hedgerows at this point. The additional width would mean more of the road to be visible. **Negligible/Low Magnitude of Effect = Moderate/Slight Adverse Significance**	Winter's Day - Year 1	--			

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Red						
LV-3-4 Public footpath along Amelia Trust access road. The path continues beyond the road swinging south and connecting to Walterston road. **High Sensitivity: Walkers on public footpath** Due to topography and hedgerows views of the route alignments are not attainable from the full length of this footpath.	CONSTRUCTION It is likely that views to the red route alignment would be possible from the length of footpath along the Amelia Trust access road. During construction the temporary effect on visual amenity would be of high magnitude to the north of the road where hedgerows and woodland would be removed to allow for the new alignment. To the south hedgerows would be retained for sections within view. Average effect would be of medium magnitude.	Winter's Day	--	Replant roadside hedgerows and oak woodland.	15Yr Do Something	-
	OPERATION Vehicles would be on a similar alignment to existing but loss of screening hedgerows and woodland would result in the visual amenity deteriorating with a medium magnitude of effect. Lighting columns around junctions would be visible. **Medium Magnitude of Effect = Moderate Adverse Significance**	Winter's Day - Year 1	--			
Blue / **Green** / **Purple** / **Orange**						
LV-3-4 Public footpath along Amelia Trust access road. The path	CONSTRUCTION The blue, green, purple and orange route alignments run to the east of the existing road. Existing roadside hedgerows would remain and therefore effect on visual amenity would be of lower magnitude than for the red option.	Winter's Day	-	Plant roadside hedgerows and replant woodland	15Yr Do Something	**0**

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
continues beyond the road swinging south and connecting to Walterston Road. Due to topography and hedgerows views of the route alignments are not attainable from the full length of this footpath. **High Sensitivity:** **Walkers on public footpath**	OPERATION Vehicles would be visible beyond the existing road as the hedges are generally maintained at a height of 1.5-2 metres. The length of road visible would be longer due to removal of woodland to the north. Redundant stretch of existing road could be utilised as footpath/hedgerow habitat. Lighting columns around junctions would be visible. **Negligible/Low Magnitude of Effect = Slight Adverse Significance**	Winter's Day - Year 1	-			

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Blue						
LV-3-5 Domestic dwelling 200 metres to west of existing road. Potential views of roadside hedgerows and taller vehicles to east. Potential views to south east include road surface as it ascends travelling south beyond the Walterston/ Dyffryn side roads. **High Sensitivity:** **Whitton Bush Farm** Slight night time pollution	CONSTRUCTION Temporary construction activity would be visible in oblique views from above ground level (above height of intervening hedgerows). Shortest distance between receptor and source of effect would approximately be over 400 metres. Vegetation along Whitton Mawr would filter views of roundabout and road sections to the south. Vegetation and topography to the north east may filter views in that direction.	Winter's Day	-	Grade out embankments to appropriate profile and return to agricultural use where practicable and plant new roadside hedgerows. On embankment tall vehicles would be visible over hedgerows unless the vegetation is 4 metres high (as existing road) or false cuttings are utilised. Potential to manage intervening hedgerows at a height which screens the construction and operation phase. Occasional tree copses and taller hedgerows are an appropriate landscape character element in the area around the receptor if required for additional height to screening. Low trimmed hedgerows are a dominant landscape character element on The Plateau so high hedgerows are less appropriate. Hence offsite planting around the receptor may be more appropriate within The Rolling Ridge Slopes LCA.	15Yr Do Something	+
	OPERATION Embankment would potentially be screened by intervening hedgerows. Traffic travelling along the new alignment would be visible above the existing hedgerows at an oblique angle across pastoral field to east of existing road, and roundabout on cutting/embankment. Trees along Whitton Mawr filter views of the blue alignment to the south of the roundabout. Lighting columns around junctions would be visible. Distance between traffic and receptor would be further than existing. **Medium Magnitude of Effect = Moderate Adverse Significance**	Winter's Day - Year 1	-			
		Lighting	--			
Red						
LV-3-5 Domestic dwelling 200 metres to west of existing road. Potential views of roadside	CONSTRUCTION Red route alignment is over 200 metres at the shortest distance from the receptor. The visible section is in both cutting and embankment, and largely online so necessitating removal of the existing roadside hedgerows. New side roads proposed to tie into Whitton Bush access road and Walterston/Dyffryn road.	Winter's Day	--	As the cutting is approximately maximum 2 metres deep new roadside hedges would reduce adverse effects as they mature. Grade out embankments to appropriate profile and return to agricultural use where practicable and	15Yr Do Something	-

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
hedgerows and taller vehicles to east. Potential views to south east include road surface as it ascends travelling south beyond the Walterston/ Dyffryn side roads. **High Sensitivity:** **Whitton Bush Farm** Slight night time pollution	OPERATION The visible section of the route is partly in cutting (2-3 metres) which would reduce the visibility of vehicles. The opposite cutting face may be visible. Lighting columns around junctions would be visible. **High Magnitude of Effect = Severe Adverse Significance** Lighting would be of higher magnitude than Orange/Green as views to it are less oblique/distant but also lower magnitude as assumed less extensive lighting required for T-junction	Winter's Day - Year 1	---	plant new roadside hedgerows. On embankment tall vehicles would be visible over hedgerows unless the vegetation is 4 metres high (as existing road) or false cuttings are utilised.		
		Lighting	--			
Orange						
LV-3-5 Domestic dwelling 200 metres to west of existing road. Potential views of roadside hedgerows and taller vehicles to east. Potential views to south east include road surface as it ascends travelling	CONSTRUCTION The Orange route alignment is approximately 440 metres at the shortest distance from the receptor. The visible section is in both cutting and embankment. The embankment is over 500 metres long.		-	Grade out embankments to appropriate profile and return to agricultural use where practicable and plant new roadside hedgerows. On embankment tall vehicles would be visible over hedgerows unless the vegetation is 4 metres high (as existing road) or false cuttings are utilised.	15Yr Do Something	+
	OPERATION The roundabout appears to be in 2 metres of cutting. It is likely that, in tying into the existing road, hedgerows would need to be removed as they would at the end of this Sector as the route	Winter's Day - Year 1	--			

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
south beyond the Walterston/ Dyffryn side roads. **High Sensitivity: Whitton Bush Farm** Slight night time pollution	travels online. Lighting columns around junctions would be visible. Cutting may be visible. **Medium Magnitude of Effect = Moderate Adverse Significance** Lit roundabout furthest from receptor compared to other options	Lighting	-			
Green						
LV-3-5 Domestic dwelling approx. 240 metres to west of existing road and new side roads. **High Sensitivity: Whitton Bush Farm** Slight night time pollution	<u>CONSTRUCTION</u> The Green route alignment includes a lit roundabout and side roads within the large 'Whitton Mawr' field to the north east, approximately 240 metres at the shortest distance between dwelling and side roads. This section may be visible from upper storey/s. South of the roundabout the road is on embankment, approximate maximum over Ford Brook 3.4 metres. Extensive construction activities likely to be viewed from oblique views.	Winter's Day	--	Grade out embankments to appropriate profile and return to agricultural use where practicable and plant new roadside hedgerows. On embankment tall vehicles would be visible over hedgerows unless the vegetation is 4 metres high (as existing road) or false cuttings are utilised. Redundant roads and areas around side roads/roundabout could be broken out and planted with tree copses.	15Yr Do Something	**0**
	<u>OPERATION</u> The roundabout is at grade and may be visible in oblique views from the receptor. The roundabout is approximately 3 metres above the ground floor of the dwelling. Embankment would be visible. Cutting (at an approximate maximum of 4.5 metres) may be visible. Vehicles would be hidden from view within parts of the cutting. Lighting columns around junctions would be visible. **Medium Magnitude of Effect = Moderate Adverse Significance** Lit junction in oblique views.	Winter's Day - Year 1	--			
		Lighting	-			

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Purple						
LV-3-5 Purple route alignment is over 450 metres to east of dwelling. A roundabout is assumed to be located on the junction between the main road and the Walterson/Dyffryn Road. **High Sensitivity: Whitton Bush Farm** Slight night time pollution	CONSTRUCTION As with all options, an embankment (approx. max 4.5 metres) is proposed through Whitton Mawr field, and a cutting (approx. max 4.5 metres) through the crest of the high point at the south end of the Sector.	Winter's Day	--	Grade out embankments to appropriate profile and return to agricultural use where practicable and plant new roadside hedgerows. On embankment tall vehicles would be visible over hedgerows unless the vegetation is 4 metres high (as existing road) or false cuttings are utilised. Potential to manage intervening hedgerows at a height which screens the construction and operation phase. Occasional tree copses and taller hedgerows are an appropriate landscape character element in the area around the receptor if required for additional height to screening. Low trimmed hedgerows are a dominant landscape character element on The Plateau so high hedgerows are less appropriate. Hence offsite planting around the receptor may be more appropriate within The Rolling Ridge Slopes LCA.	15Yr Do Something	+
	OPERATION In tying into the existing Walterston/Dyffryn road, hedgerows and trees would need to be removed potentially opening up and mitigating views from the dwelling. Vehicles may be seen on the road as it travels along embankment. Lighting columns around junctions would be visible. **Medium Magnitude of Effect = Moderate Adverse Significance** Assumed less extensive lighting required for T-junction	Winter's Day - Year 1	--			
		Lighting	-			
Blue						
LV-3-6 All route alignments/ junctions or side roads pass near Whitton Lodge. The Red alignment involves demolishing the dwelling so is not considered	CONSTRUCTION The proximity to construction of main road, extensive earthworks roundabout and side roads to this route option would result in a scale of change that is considered to be of high magnitude.	Winter's Day	---	Grading out cuttings/embankment and returning it to agricultural use and plant roadside hedgerows. Plant a vegetative screen between dwelling and route alignments or utilise false cutting. The matured resultant scheme would be less visible than the existing road on which Whitton Lodge is located. Cuttings are not sufficiently deep to completely screen with hedgerows.	15Yr Do Something	+
	OPERATION As above and: The majority of traffic would be travelling past at a greater	Winter's Day - Year 1	--			

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
under landscape effects. **High Sensitivity: Whitton Lodge** Slight night time pollution	distance than baseline but without the screening effect of existing hedgerows. Lighting columns around junctions would be visible. **High Magnitude of Effect = Severe Adverse Significance**	Lighting	---			
Orange						
LV-3-6 All route alignments/ junctions or side roads pass near Whitton Lodge. The Red alignment involves demolishing the dwelling so is not considered under landscape effects. **High Sensitivity: Whitton Lodge** Slight night time pollution	CONSTRUCTION The proximity to construction of main road, extensive earthworks, roundabout and side roads would result in a scale of change that is considered to be of medium magnitude. Roundabout is 150 metres away and at an oblique angle.	Winter's Day	--	Grading out cuttings/embankment and returning it to agricultural use and plant roadside hedgerows. Plant a vegetative screen between dwelling and route alignments or utilise false cutting. The matured resultant scheme would be less visible than the existing on which Whitton Lodge is located. The Purple is in the most effective screening cutting followed by Green and then Orange.	15Yr Do Something	++
	OPERATION Lit junction at an oblique avenue. Traffic at a greater distance than baseline but without the screening effect of existing hedgerows. Lighting columns around junctions would be visible. **Medium Magnitude of Effect = Moderate Adverse Significance**	Winter's Day - Year 1	--			
		Lighting	--			
Green						
LV-3-6 All route alignments/ junctions or side roads pass near Whitton Lodge. The Red alignment involves	CONSTRUCTION The proximity to construction of main road, earthworks, roundabout and side roads would result in a scale of change that is considered to be of medium magnitude.	Winter's Day	--	Grading out cuttings/embankment and returning it to agricultural use and plant roadside hedgerows. Plant a vegetative screen between dwelling and route alignments or utilise false cutting. The matured resultant scheme would be less visible than the existing on which Whitton Lodge is located. Purple is in the most effective screening cutting	15Yr Do Something	+
	OPERATION The roundabout is set at a lower AOD than other alignments so	Winter's Day - Year 1	--			

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
demolishing the dwelling so is not considered under landscape effects. **High Sensitivity: Whitton Lodge** Slight night time pollution	overall effect from lighting would be less than others. Lighting columns around junctions would be visible. **Medium Magnitude of Effect = Moderate Adverse Significance**	Lighting	-	followed by Green and then Orange.		
Purple						
LV-3-6 Purple route alignment is over 450 metres to east of dwelling. A new T-junction is proposed between the main carriageway and the Walterson/Dyffryn Road. The Red alignment involves demolishing the dwelling so is not considered under landscape effects. **High Sensitivity: Whitton Bush Farm** Slight night time pollution	CONSTRUCTION The proximity to construction of main road, earthworks and T-junction would result in a scale of change that is considered to be of low magnitude - **Slight/Moderate Adverse Significance**	Winter's Day	- -	Grading out cuttings/embankment and returning it to agricultural use and plant roadside hedgerows. Plant a vegetative screen between dwelling and route alignments or utilise false cutting. The matured resultant scheme would be less visible than the existing on which Whitton Lodge is located. The Purple is in the most effective screening cutting followed by Green and then Orange.	15Yr Do Something	+ +
	OPERATION Traffic at a greater distance than baseline but without the screening effect of existing hedgerows. Lighting columns around junctions would be visible. **Low Magnitude of Effect = Moderate Adverse Significance** Assumed lighting would be less extensive on T-junction compared to roundabout	Winter's Day - Year 1	- -			
		Lighting	-			

RECEPTORS	ASSESSMENT	SIGNIFICANCE	POTENTIAL MITIGATION	RESIDUAL EFFECTS
Sector 3 Conclusion	**Construction and early operation years are significantly adverse but as mitigation planting matures the effect will be minimised generally taking traffic further away from receptors than existing Five Mile Lane. The offline options are preferable to minimise adverse effects on visual amenity.** **Screening mitigation between receptors and road would include hedgerows over 4 metres high or false cuttings in order to fully screen tall vehicles on embankment in this LCA. Tall vegetation is out of character on The Plateau and therefore would have an adverse impact on landscape character. Offsite planting within Broad Ridge Slope LCA is an option. If the lower Whitton Mawr field was utlised as a balancing pond, and/or existing habitat enhanced it would be appropriate to extend the Broad Ridge Slopes character type at this point so taller vegetation would not out of character.**			

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Sector 4						
Blue / **Orange** / **Green** / **Purple**						
LV-4-1 Over 300 metres away Sector 4 begins with all routes in cutting. The Red alignment involves demolishing the dwelling so is not considered under landscape effects. **High Sensitivity: Whitton Lodge**	CONSTRUCTION Distance between receptor and Sector and oblique nature of view would result in a scale of change that is considered to be of negligible magnitude.	Winter's Day	-	Grading out cuttings/embankment and returning it to agricultural use. Plant roadside hedgerows. The matured resultant scheme would be less visible than the existing on which Whitton Lodge is located.	15Yr Do Something	**0**
	OPERATION Majority of traffic would be further from receptor than currently. Distant and oblique views may be possible down road through cuttings - the ground floor of Whitton Lodge is approximately 4.5 metres lower than road surface and in cutting, at beginning of Sector 4. **Negligible/Low Magnitude of Effect = Slight Adverse Significance**	Winter's Day - Year 1	-			

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
All Routes						
LV-4-2 Oblique views of sector 4 from Grovelands and Grovelands Farm at a minimum distance of 150 metres. **High Sensitivity: Grovelands and Grovelands Farm.**	CONSTRUCTION Distance between receptor and Sector and oblique nature of view would result in a scale of change that is considered to be of negligible magnitude.	Winter's Day	-	Grading out cuttings/embankment and returning it to agricultural use. Plant roadside hedgerows.	15Yr Do Something	**0**
	OPERATION Views may be possible down road through cuttings. **Negligible/Low Magnitude of Effect = Slight Adverse Significance**	Winter's Day - Year 1	-			
All Routes						
LV-4-3 Oblique views of sector 4 from Northcliff Cottage at a minimum distance of 80 metres. **High Sensitivity: Northcliff Cottage**	CONSTRUCTION Distance between receptor and Sector would result in a scale of change that is considered to be of negligible magnitude.	Winter's Day	-	Grading out cuttings/embankment and returning it to agricultural use. Plant roadside hedgerows.	15Yr Do Something	**0**
	OPERATION Views may be possible down road through cuttings. **Negligible/Low Magnitude of Effect = Slight Adverse Significance**	Winter's Day - Year 1	-			
Sector 4 Conclusion	**There is little to differentiate options in terms of effect on visual amenity**					

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Sector 5						
Blue						
LV-5-1 Views towards road from a further distance of 115 and 145 metres respectively. **High Sensitivity: Grovelands and Grovelands Farm.**	CONSTRUCTION Extensive cutting and an overbridge – likely to be of high magnitude and of temporary nature thus reducing to medium magnitude.	Winter's Day	--	Retain steep cuttings to screen views from receptors. Where screening is not required grade out cuttings to east of road returning it to agricultural use where not required for screening. Plant roadside hedgerows and tree copse to screen overbridge.	15Yr Do Something	+ +
	OPERATION Road is in cutting of over 4 metres for approximately 700 metres effectively screening road and traffic from the receptor. Overbridge would be visible, approximately 1.75 metres above the existing road. Distance between receptor and traffic has increased from baseline. Assumed lighting columns around junctions would be visible but less extensive than for roundabouts. **Low/Medium Magnitude of Effect = Moderate Adverse Significance**	Winter's Day - Year 1	-			
Red **Green**						
LV-5-1 Distance to road reduced slightly. **High Sensitivity:**	CONSTRUCTION Distance between receptor and Sector would result in a scale of change that is considered to be of high magnitude.	Winter's Day	---	Grading out cuttings/embankment and returning it to agricultural use where not required for screening. Plant roadside hedgerows.	15Yr Do Something	-
	OPERATION Roadside hedges removed. New side access road serving two	Winter's Day - Year 1	---			

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Grovelands and Grovelands Farm. Slight night time pollution	properties, new side roads (feeding roundabout) and roundabout all visible. Views may be possible down road as it travels south through cuttings. Lighting columns around junctions would be visible. Assumed lighting columns around junctions would be visible but less extensive than for roundabouts. **High Magnitude of Effect = Severe Adverse Significance**	Lighting	--			
Purple						
LV-5-1 Distance to road reduced slightly. **High Sensitivity: Grovelands and Grovelands Farm.** Slight night time pollution	<u>CONSTRUCTION</u> Distance between receptor and Sector would result in a scale of change that is considered to be of medium magnitude.	Winter's Day	--	Grading out cuttings/embankment and returning it to agricultural use where not required for screening. Plant roadside hedgerows to the east.	15Yr Do Something	+
	<u>OPERATION</u> Roadside hedges removed. Roundabout further away than for Orange, Green and Red. Views may be possible down road as it travels south through cuttings. Assumed lighting columns around junctions would be visible but less extensive than for roundabouts. **Medium Magnitude of Effect = Moderate Adverse Significance**	Winter's Day - Year 1	--			
		Lighting	-			

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Orange						
LV-5-1 Distance to main road increased to more than 130 metres. Increase in number and extents of road and junctions. **High Sensitivity: Grovelands and Grovelands Farm.** Slight night time pollution	CONSTRUCTION Distance between receptor and Sector would result in a scale of change that is considered to be of medium magnitude.	Winter's Day	--	Grading out cuttings/embankment and returning it to agricultural use where not required for screening. Cutting is more than 4 metres in places. Plant roadside hedgerows.	15Yr Do Something	+
	OPERATION Roadside hedges removed. New side access road serving two properties, new side roads feeding roundabout and roundabout all visible. Views may be possible down road as it travels south through cuttings. Lighting columns would be visible. **Medium Magnitude of Effect = Moderate Adverse Significance**	Winter's Day - Year 1	--			
		Lighting	--			
Blue						
LV-5-2 Distance to main road decreased from 100 to 55 metres. New overbridge would be visible. **High Sensitivity: Northcliff Cottage**	CONSTRUCTION Distance between receptor and sector would result in a scale of change that is considered to be of medium magnitude.	Winter's Day	--	Grading out cuttings/embankment and returning it to agricultural use where not required for screening. Plant roadside hedgerows and occasional copses.	15Yr Do Something	**0**
	OPERATION Road is in cutting of more than 4 metres as it passes dwelling although local traffic would be seen over bridge. Assumed lighting columns around junctions would be visible but less extensive than for roundabouts. **Medium Magnitude of Effect = Moderate Adverse Significance**	Winter's Day - Year 1	--			

RECEPTORS		ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Red	**Green**						
LV-5-2 Distance to main road decreased from 100 to 55 metres. New overbridge would be visible. **High Sensitivity: Northcliff Cottage** Slight night time pollution		CONSTRUCTION Removal of roadside hedgerows and addition of lit roundabouts to the south west at a distance of over 230 metres away from the dwelling. Distance between receptor and sector would result in a scale of change that is considered to be of medium magnitude.	Winter's Day	--	Grading out cuttings/embankment and returning it to agricultural use where not required for screening. Plant roadside hedgerows and occasional copses.	15Yr Do Something	-
		OPERATION Road is in cutting of more than 2.5 metres as it passes dwelling. Lit junction is 350 metre away. Lighting columns would be visible. **Medium Magnitude of Effect = Moderate Adverse Significance**	Winter's Day - Year 1	--			
			Lighting	--			
Orange							
LV-5-2 Distance to main road decreased from 100 to 55 metres. Side road would be further away than existing. Increase in number and extents of road and junctions. **High Sensitivity: Northcliff Cottage** Slight night time pollution		CONSTRUCTION Distance between receptor and sector would result in a scale of change that is considered to be of high magnitude.	Winter's Day	---	Grading out cuttings/embankment and returning it to agricultural use where not required for screening. Cutting at points is more than 2.5 metres in places. Plant roadside hedgerows and occasional copses.	15Yr Do Something	--
		OPERATION New side access between Northcliff/Lidmore and new alignment to the north of dwelling; visible until establishment of any new hedgerows; moves minor road traffic further away. Lighting columns would be visible. **High Magnitude of Effect = Severe Adverse Significance**	Winter's Day - Year 1	---			
			Lighting	--			

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Purple						
LV-5-2 Distance to main road decreased from 100 to 55 metres. New overbridge would be visible. **High Sensitivity: Northcliff Cottage** Slight night time pollution	CONSTRUCTION Distance between receptor and sector would result in a scale of change that is considered to be of medium magnitude.	Winter's Day	--	Grading out cuttings/embankment and returning it to agricultural use where not required for screening. Cutting at points is more than 2.5 metres in places. Plant roadside hedgerows and occasional copses.	15Yr Do Something	**0**
	OPERATION Road is in cutting of more than 2.5 metres as it passes dwelling. Lit junction is 350 metre away. Lighting columns would be visible. **Negligible/Low Magnitude of Effect = Slight Adverse Significance**	Winter's Day - Year 1	-			
		Lighting	-			
Blue						
LV-5-3 Distance to main road increases compared to baseline. Road appears to remain in main views, east-south-east, from dwelling. **High Sensitivity: Sutton Fach Farm**	CONSTRUCTION Extensive earthworks would result in a scale of change of high magnitude	Winter's Day	---	Grading out cuttings/embankment and returning it to agricultural use where not required for screening. Plant roadside hedgerows/copses/standard oaks/woodland where required.	15Yr Do Something	**0**
	OPERATION Blue option is over 200 metres from receptor and in cutting of more than 2.5 and 4 metres. Less oblique views down valley side to road on embankment (4.5 metres high) where ground dips away locally. This takes the traffic further away from the dwelling but change to topography would be at odds with the rolling landform. North sections would be effectively screened whilst southern sections would be more visible. **Negligible/Low Magnitude of Effect = Slight Adverse Significance**	Winter's Day - Year 1	-			

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Green **Purple** **Orange** **Red**						
LV-5-3 Distance to main road increases compared to baseline. Road appears to remain in main views, east-south-east, from dwelling. **High Sensitivity: Sutton Fach Farm**	CONSTRUCTION Construction work would be visible down the valley side including extensive earthworks.	Winter's Day	**- - -**	Grading out cuttings/embankment and returning it to agricultural use where not required for screening. Plant roadside hedgerows/copses/standard oaks/woodland where required.	15Yr Do Something	**-**
	OPERATION The options take traffic further away from the dwelling but topographical change would be at odds with the rolling landform. North sections would be effectively screened whilst southern sections would be more visible: Green is on most sympathetic to landscape character on embankments but due to horizontal alignment may allow views along the road: Purple, Orange and Red options are least sympathetic to landscape character but horizontal alignment reduces likelihood of views along carriageway. **Medium Magnitude of Effect = Moderate Adverse Significance**	Winter's Day - Year 1	**- -**			
All Routes						
LV-5-4 Distance to main road	CONSTRUCTION Construction work may be visible between taller hedgerows to Sector 5.	Winter's Day	**0**	Grading out cuttings/embankment and returning it to agricultural use where not required for screening. Plant roadside hedgerows/copses/standard	15Yr Do Something	**+ +**

increases compared to baseline. Views appear to be limited to route alignments **High Sensitivity: Suddon Mawr and The Barn**	OPERATION The options take traffic further away from the dwelling, in cutting across a small angle of the view. Orange on embankment may be visible but is the furthest from receptor. Less traffic on closer existing Five Mile Lane. Changes to landform would be at odds with the rolling topography. North sections would be effectively screened whilst southern sections may be more visible: Green is on most sympathetic (to landscape character) embankments but due to horizontal alignment may allow views along the road: Purple, Orange and Red options are least sympathetic to landscape character but horizontal alignment reduces likelihood of views along road **Negligible Magnitude of Effect = Neutral Adverse Significance**	Winter's Day - Year 1	**0**	oaks/woodland where required.		
Sector 5 Conclusion	**Alignments take traffic further away from some receptors than baseline, which with appropriate mitigation can improve visual amenity. General increase in the number of roads and junctions has an adverse effect on visual amenity in areas. Blue and Purple options is preferable in this respect. Whilst worst case effects are similar within this sector across all options, Blue option residual effects average as beneficial.**					

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Sector 6						
Blue						
LV-6-1 Distance to main road increases compared to baseline. Views to road appear to be screened/filtered by hedgerows. **High Sensitivity: Residential dwellings to north of Welsh Hawking Centre**	CONSTRUCTION Construction work may be visible beyond existing roadside hedgerows **Negligible/Low Magnitude of Effect = Slight Adverse Significance.**	Winter's Day	-	Roadside hedgerows/trees on top cutting. Woodland could provide screening if required.	15Yr Do Something	+
	OPERATION The Blue option doubles the distance of main road away from the dwelling, but on 2.5 metre embankment. Existing roadside hedgerows along existing Five Mile Lane and residential boundaries would be retained. **Negligible Magnitude of Effect = Neutral Adverse Significance**	Winter's Day - Year 1	0			
Red / **Orange** / **Green** / **Purple**						
LV-6-1 Online widening - loss of roadside hedgerows **High Sensitivity: Residential dwellings to north of Welsh Hawking Centre**	CONSTRUCTION Construction work would be visible due to loss of roadside hedgerows of medium magnitude depending on residential boundary treatment at time of construction.	Winter's Day	--	Roadside hedgerows and tree or woodland planting.	15Yr Do Something	-
	OPERATION Traffic may be visible due to loss of roadside hedgerows depending on residential boundary treatment. **Medium Magnitude of Effect = Moderate Adverse Significance**	Winter's Day - Year 1	--			

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Blue						
LV-6-2 Offline alignment screened from group of buildings and car park by existing woodland. **Medium Sensitivity: Welsh Hawking Centre**	CONSTRUCTION Likely that visibility of construction through woodland would be of a scale of negligible.	Winter's Day	**0**		15Yr Do Something	**0**
	OPERATION **Medium Sensitivity + Negligible Magnitude of Effect = Moderate Adverse Significance**	Winter's Day - Year 1	**0**			
Red / **Orange** / **Green** / **Purple**						
LV-6-2 Online widening visible from group of buildings and car park. **Medium Sensitivity: Welsh Hawking Centre**	CONSTRUCTION Construction work would be visible due to loss of roadside hedgerow/trees/wall.	Winter's Day	**- -**	Roadside hedgerows on top cutting.	15Yr Do Something	**-**
	OPERATION **High Magnitude of Effect = Moderate Adverse Significance**	Winter's Day - Year 1	**- -**			
All						
LV-6-3 Views onto valley floor from parts of golf course. **Medium Sensitivity: Golfers on Brynhill Golf Course**	CONSTRUCTION Construction work on online options would be visible/glimpsed due to loss of roadside hedgerow/trees/wall. Blue would be less likely to be visible. **Average of Low magnitude of effect = Slight Adverse Significance**	Winter's Day	**-**	Roadside hedgerows/trees/woodland on top cutting.	15Yr Do Something	**0**
	OPERATION As above. Lighting columns would be visible. **Low magnitude of effect = Slight Adverse Significance**	Winter's Day - Year 1	**-**			

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Red **Orange** **Green** **Purple**						
LV-6-4 Existing road may be partially visible between woodlands and within roadside hedgerows as it ascends up the north facing Waycock Valley side but screened within valley bottom near the Welsh Hawking Centre by hedgerows. **High Sensitivity: Residents on western edge of Barry**	CONSTRUCTION Construction work would be visible between woodlands/tall hedgerows at a distance of approximately 1 kilometre.	Winter's Day	-	Roadside hedgerows on top embankments, trees and woodland planting.	15Yr Do Something	-
	OPERATION Traffic may be more visible on the proposed routes as they are wider with verges and embankments and loss of roadside vegetation along online options. Lighting columns would be visible and at night may produce an effect of Slight/Moderate Adverse. **Low Magnitude of Effect = Moderate Adverse Significance**	Winter's Day - Year 1	--			
Blue						
LV-6-5 Existing road is screened by mature and developing woodland and tall hedgerows. Distance between roads and receptor is approximately 200 metres. **Medium Sensitivity: Farm workers at Walters Farm**	CONSTRUCTION Offline alignment on embankment beyond existing road (which becomes side road) resulting in loss of woodland. Construction could be visible through existing roadside woodland.	Winter's Day	-	Replant woodland along new alignment.	15Yr Do Something	**0**
	OPERATION Traffic could be glimpsed above existing vegetation as embankment is 2.5 metres above existing road. **Low Magnitude of Effect = Slight Adverse Significance**	Winter's Day - Year 1	-			

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Red **Orange** **Green** **Purple**						
LV-6-5 Existing road is screened by mature and developing woodland and tall hedgerows. Distance between roads and receptor is approximately 200 metres. **Medium Sensitivity: Farm workers at Walters Farm**	CONSTRUCTION Online widening on embankment requires removal of roadside/intermediate woodland/hedgerows.	Winter's Day	--	Replant woodland and hedgerows along new alignment.	15Yr Do Something	**0**
	OPERATION Traffic could be glimpsed above existing vegetation as embankment is 2.5 metres above existing road. **Medium Magnitude of Effect = Moderate Adverse Significance**	Winter's Day - Year 1	--			
Sector 6 Conclusion	**As the Blue option is offline, routed beyond the existing Five Mile Lane roadside hedgerows from the receptors it results in less adverse effect on visual amenity than others, as well as being more easily screened.**					

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Sector 7						
Blue						
LV-7-1 Existing roundabout and roads are visible at close range from surrounding dwellings. **High Sensitivity: Residents around Waycock Cross roundabout and side roads.** Substantial night time pollution	CONSTRUCTION Double roundabout construction and new alignment visible to High Magnitude	Winter's Day	---	Replant woodland and hedgerows along new alignment. Planting on roundabouts to filter views across and enhance rural urban edge.	15Yr Do Something	+
	OPERATION Direction of views from dwellings vary with magnitude of effect from Medium to Low. Roundabouts would be lit and columns visible by day. **High Magnitude of Effect = Severe Adverse Significance**	Winter's Day - Year 1	---			
		Lighting	**0**			
Red **Orange** **Green** **Purple**						
LV-7-1 Existing roundabout and roads are visible at close range from surrounding dwellings. **High Sensitivity:**	CONSTRUCTION No works to roundabout but minor works to for online widening with minor earthworks.	Winter's Day	--	Replant woodland and hedgerows along new alignment.	15Yr Do Something	**0**
	OPERATION Direction of views from dwellings vary with magnitude of effect from Negligible to Low.	Winter's Day - Year 1	--			

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Residents around Waycock Cross roundabout and side roads. Substantial night time pollution	Roundabouts would be lit and columns visible by day. **Low Magnitude of Effect = Moderate Adverse Significance**	Lighting	**0**			

6 Scheme Impacts on Biodiversity Features during Construction & Operation

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Sector 1						
All Routes						
Semi-improved neutral grassland, scrub and species-poor hedgerows on existing road verge. Presence of nesting birds and reptiles, All features considered of Lower value (Based on DMRB guidance)	CONSTRUCTION Complete loss of all features to accommodate new junction. Loss of habitat for nesting birds and common reptiles. Disturbance of adjacent areas Impact of moderate magnitude		-	Minimise works footprint to allow habitat retention where practicable All vegetation clearance work to be undertaken outside bird breeding season (March – August inclusive) Capture and exclusion of reptiles from works footprint prior to works. Reptiles transferred to retained verge in Sector 2 with local enhancements (log-piles etc). Slight adverse impact		-
	OPERATION Existing multi-lane junction to be replaced with large multi-lane roundabouts. Potential for impacts on foraging bats due to requirement for additional lighting/illumination of Junction Impact of Minor magnitude	Year 1	-	Replacement of hedgerows with new planting to establish connectivity with retained vegetation outside works footprint. Creation of wildflower grassland on verges to complement retained areas in Sector 2. Appropriate design of lighting to minimise 'spill' onto adjacent hedgerows and scrub Slight adverse impact in short term reducing to neutral as planting matures	Year 1	-
		Year 15	-		Year 15	**0**
Conclusion of Significance	**Slight adverse impact during construction and in first year of operation. Reducing to Neutral assuming mitigation is adopted and as planting matures**					

No significant effects in Sector 2

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Sector 3						
Blue Route						
Semi-improved neutral grassland, woodland/scrub and species-poor hedgerows on existing road verge. Arable field north of Whitton Lodge with farmland birds including Skylark. Nesting birds within road-side hedgerows Stand of mature Oak trees east of Whitton Lodge All features considered of Lower value[13] Species-rich hedgerow at southern end of section Presence of foraging/ commuting bats (4	CONSTRUCTION Loss of existing road-side habitat (hedgerow, scrub, woodland) in northern section for on-line works. Breach of scrub/woodland and 3no. species-poor hedgerows Loss of hedgerow habitat for nesting birds and of arable land for species such as Skylark Loss of mature Oaks east of Whitton Lodge to accommodate new junction. Impact of Moderate magnitude Breach of species-rich hedgerow at southern end of section Partial loss of bat foraging/commuting areas Impact of Minor magnitude		-	Minimise works footprint to allow habitat retention where practicable All vegetation clearance work and soil strip of route alignment through arable field to be undertaken outside bird breeding season (March – August inclusive) Impact reduced to Slight adverse		-
	OPERATION Increased disturbance to farmland birds (particularly ground nesting species) from new alignment on embankment through arable field Potential for impacts on foraging bats due to requirement for additional lighting/illumination of Junction	Year 1	-	Replacement of lost hedgerows/scrub in northern part of section with new hedgerow planting at toe of road embankment (east and west sides). Embankment slopes seeded with wildflower grassland and subject to minimal management. Disturbance to farmland birds, particularly ground	Year 1 Year 15	- +

[13] Based on DMRB guidance

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
species) along road-side and adjoining hedgerows Features considered of Medium value	Impact of Minor magnitude	Year 15	-	nesting could not be effectively mitigated although birds likely to habituate to disturbance over time and as embankment planting matures Appropriate design of lighting to minimise 'spill' onto adjacent hedgerows and scrub to maintain bat feeding/flight corridors. Additional foraging areas along embankment created as planting matures. Slight adverse impact in short term reducing to neutral as planting matures. Ground nesting birds may be displaced or number reduced.	Year 1 Year 15	- 0
Conclusion of Significance	**Slight adverse impact during construction and in first year of operation. Reducing towards Neutral assuming mitigation is adopted and as planting matures. Potential for slight beneficial impact on hedgerow and grassland habitats as extent of both increased over existing condition.**					
Purple Route						
As described for Blue Route	CONSTRUCTION As described for Blue route but: with slight reduction in loss of road-side hedgerows (A4226) and of hedgerows along Whitton lane Breach of species-rich hedge east of A4226 and road-side hedge in southern part of sector Impact of Moderate magnitude		-	As described for Blue Route		-
	OPERATION As described for Blue Route	Year 1	-	As described for Blue Route	Year 1	-
		Year 15	-		Year 15	0/+
Conclusion of Significance	**Slight adverse impact during construction and in first year of operation. Reducing towards Neutral assuming mitigation is adopted and as planting matures. Potential for slight beneficial impact on hedgerow and grassland habitats as extent of both increased over existing condition.**					

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Red Route						
As described for Blue Route	CONSTRUCTION On-line improvements would remove ca. 3km of existing road-side hedgerow Loss of bird nesting habitat and bat foraging/feeding areas. Impact of Major magnitude		--	Avoidance of hedgerow loss impractical due to on-line widening. Avoidance of bird nesting season for vegetation removal		--
	OPERATION Increased disturbance of farmland birds due to loss of road-side hedgerow as a screen Fragmentation of bat foraging/feeding areas due to hedgerow loss Risk of further bat habitat fragmentation due to lighting requirement at Junctions	Year 1	--	Replacement of road-side hedgerows with comparable extent Appropriate design of site lighting to avoid 'spill' onto retained habitats.	Year 1	--
		Year 15	-		Year 15	**0**
Conclusion of Significance	**Moderate adverse impact during construction and in first year of operation. Reducing towards Neutral assuming hedgerow mitigation is adopted on a like for like basis and as planting matures.**					
Orange Route						
As described for Blue Route	CONSTRUCTION As described for Blue Route but: Reduced risk of impact on Oak trees east of Whitton Lodge Reduced hedgerow loss east of Whitton Lodge due to Junction arrangement (compared to Blue Route) Breach of species-rich hedge at southern end of Sector Impact of Moderate magnitude		-	As described for Blue Route		-

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
	OPERATION As described for Blue Route	Year 1	-	As described for Blue Route	Year 1	-
		Year 15	-		Year 15	0/+
Conclusion of Significance	**Slight adverse impact during construction and in first year of operation. Reducing towards Neutral assuming mitigation is adopted and as planting matures. Potential for slight beneficial impact on hedgerow and grassland habitats as extent of both increased over existing condition.**					
Green Route						
As described for Blue Route	CONSTRUCTION As described for Blue route but: Additional loss of road-side hedgerows at southern end and to allow for slip-roads Increased loss of arable land/farmland bird habitat to accommodate Junction Reduced risk to Oak trees east of Whitton Lodge Impact of Moderate magnitude		-	As described for Blue Route.		-
	OPERATION As described for Blue Route but: Increased risk of disturbance to ground nesting birds due to new Junction and slip-road arrangement	Year 1	-	As described for Blue Route with new hedgerow provision extended to include slip roads where practicable.	Year 1	-
		Year 15	-		Year 15	0/+
Conclusion of Significance	**Slight adverse impact during construction and in first year of operation. Reducing towards Neutral assuming mitigation is adopted and as planting matures. Potential for slight beneficial impact on hedgerow and grassland habitats as extent of both increased over existing condition.**					

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Sector 4						
Blue Route						
Species-poor native hedgerows Nesting bird habitat Road-side and adjoining hedgerows used by 3 species of foraging/ commuting bats All features of Lower value Sections of road-side hedge (species-rich). Medium Value	<u>CONSTRUCTION</u> Breach of 3 no. species poor hedgerows with associated loss of bird nesting habitat and interruption of bat flight corridors Disturbance of retained/adjacent features from noise, light Impact of Minor magnitude No direct impact to existing road-side hedgerows		-	Minimise hedgerow breaches to area required for works only. All vegetation clearance work to be undertaken outside bird breeding season Construction work to avoid additional lighting requirement along hedgerows and avoid working near dawn or dusk when bats most active. Clear demarcation of hedgerow sections to be retained/protected during works		-
			0			**0**
	<u>OPERATION</u> Potential for interruption of bat feeding areas due to hedgerow breaches. No additional lighting provision required (no junctions or slip-roads in this Sector) Impact of Minor magnitude	Year 1	-	New hedgerow provision along eastern side of alignment to provide north/south connection for breached hedgerows. Cutting slopes to include wildflower grassland subject to minimal management	Year 1	-
		Year 15	**0**		Year 15	**+**
Conclusion of Significance	**Slight adverse impact during construction and in first year of operation. Potential for slight beneficial impact in the long term on hedgerow and grassland habitats as extent of both increased over existing condition.**					

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Sector 4						
Purple Route						
Species-poor native hedgerows Nesting bird habitat Road-side and adjoining hedgerows used by 3 species of foraging/ commuting bats	<u>CONSTRUCTION</u> Loss of existing road-side hedgerows on western side of A4226 over length of ca 800m. Breach of 3 no hedgerows west of A4226 Loss of nesting bird habitat and fragmentation of bat flight corridors related to hedgerow loss. Disturbance of retained/adjacent features from noise, light		**- -**	All vegetation clearance work to be undertaken outside bird breeding season Construction work to avoid additional lighting requirement along retained adjacent hedgerows and avoid working near dawn or dusk when bats most active.		**- -**
All features of Lower value Species-rich hedge west of A4226 Medium Value	Impact of Major magnitude Breach of species-rich hedge where it adjoins existing road-side feature Impact of Minor Magnitude		**-**			**-**
	<u>OPERATION</u> Potential for interruption of bat feeding areas due to hedgerow loss. No additional lighting provision required	Year 1	**- -**	New hedgerow provision along both sides of carriageway to replace hedgerows lost during construction. Cutting slopes to include wildflower grassland subject to minimal management	Year 1	**- -**
		Year 15	**-**		Year 15	**0**
Conclusion of Significance	**Moderate adverse impact during construction and in first year of operation, reducing towards Neutral in the long term as planting matures.**					

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Sector 4						
Red **Orange** **Green**						
Species-poor native hedgerows Nesting bird habitat Road-side and adjoining hedgerows used by 3 species of foraging/ commuting bats All features of Lower value Sections of road-side hedge (species-rich). Medium Value	CONSTRUCTION Loss of all existing road-side hedgerows including species-rich sections. Total loss of ca. 1.2km Loss of nesting bird habitat and fragmentation of bat foraging/commuting areas. Impact of Major magnitude		**- -**	All vegetation clearance work to be undertaken outside bird breeding season Construction work to avoid additional lighting requirement along retained adjacent hedgerows and avoid working near dawn or dusk when bats most active.		**- -**
	OPERATION Potential for interruption of bat feeding areas due to hedgerow breaches. No additional lighting provision required Impact of Minor magnitude	Year 1	**- -**	New hedgerow provision along both sides of carriageway to replace hedgerows lost during construction. Cutting slopes to include wildflower grassland subject to minimal management	Year 1	**- -**
		Year 15	**-**		Year 15	**0**
Conclusion of Significance	**Moderate adverse impact during construction and in first year of operation, reducing towards Neutral in the long term as planting matures.**					

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Sector 5						
Blue Route						
Species-poor hedgerows Mature Oak and ash trees in centre of improved grassland field Habitat for nesting birds within hedgerows and trees All features of Lower Value	CONSTRUCTION Breach of 2no. hedgerows along Northcliff lane Breach of 5 no. species poor hedgerows with associated loss of bird nesting habitat and interruption of bat flight corridors Loss of mature Oak trees to accommodate route alignment & embankment. Disturbance of retained/adjacent features from noise, light		-	Minimise hedgerow breaches to area required for works only. All vegetation clearance work to be undertaken outside bird breeding season Seek to retain species-rich hedge (100m length) in northern section and 1 or more mature Oaks where practicable. Construction work to avoid additional lighting requirement along hedgerows and avoid working near dawn or dusk when bats most active.		-
Species-rich hedgerows Hedgerows used by 4 species of bats for foraging/commuting Bat roost within stable block at Northcliff Cottage All features of Medium value	Loss of 100m length of species-rich hedge south of Northcliff lane in northern section Breach of 2 species-rich hedgerows Interruption of bat flight corridors and disturbance of roost in stable block south west of Northcliff Cottage All Impacts of Moderate magnitude		--			-
	OPERATION Potential for interruption of bat feeding areas due to hedgerow breaches and loss of road-side hedgerows No additional lighting provision required	Year 1	--	New hedgerow provision along eastern and western sides of alignment to provide connection for breached hedgerows. Cutting and embankment slopes to include wildflower grassland subject to minimal management	Year 1	-
		Year 15	-		Year 15	+
Conclusion of Significance	**Slight adverse impact during construction and in first year of operation (increases to Moderate adverse if mitigation to retain certain trees/hedgerows could not be achieved). Potential for slight beneficial impact in the long term on hedgerow and grassland habitats as extent/quality increased over existing condition.**					

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Sector 5						
Purple Route						
Species-poor hedgerows Habitat for nesting birds within hedgerows and trees All features of Lower Value Mature Oak and ash trees alongside A4226 possibly used by roosting bats Species-rich hedgerows Hedgerows used by 4 species of bats for foraging/commuting Bat roost within stable block at Northcliff Cottage All features of Medium value	<u>CONSTRUCTION</u> Loss of road-side hedgerow in northern section to Moulton Junction – loss of ca. 1km Breach of 3 no. species poor hedgerows with associated loss of bird nesting habitat and interruption of bat flight corridors Disturbance of retained/adjacent features from noise, light		-	Minimise hedgerow breaches to area required for works only. Alignment does not allow for hedgerow retention in the north or of mature Oak/Ash alongside A4226 All vegetation clearance work to be undertaken outside bird breeding season Construction work to avoid additional lighting requirement along hedgerows and avoid working near dawn or dusk when bats most active.		-
	Loss of species-rich road-side hedgerow to Moulton Junction Breach of 3 no. species-rich hedgerows south of Moulton Junction plus 2no breaches east of Sutton Farm Loss of mature Oak and Ash east of A4226 Interruption of bat flight corridors Impacts of Moderate magnitude		--			--
	<u>OPERATION</u> Potential for interruption of bat feeding areas due to hedgerow breaches and loss of road-side hedgerows Additional potential for interruption of bat flight corridors through lighting at Moulton Junction	Year 1	--	Replacement of road-side hedgerows along eastern and western sides of alignment New hedgerow planting for off-line improvement to enhance habitat connectivity Cutting slopes to include wildflower grassland subject to minimal management	Year 1	-
		Year 15	-		Year 15	**0**
Conclusion of Significance	**Slight to Moderate adverse impact during construction and in first year of operation decreasing towards neutral in the long term as planting matures.**					

RECEPTORS		ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Sector 5							
Red	**Orange**						
Species-poor hedgerows Mature Oak and ash trees in centre of improved grassland field Habitat for nesting birds within hedgerows and trees All features of Lower Value Species-rich hedgerows Hedgerows used by 4 species of bats for foraging/commuting Bat roost within stable block at Northcliff Cottage Lidmore Wood All features of Medium value		CONSTRUCTION As described for Blue Route with additional loss of road-side hedgerow in northern section to accommodate roundabout and slip roads Potential for loss of habitat along western edge of Lidmore Wood Impacts of Moderate magnitude		-	Minimise hedgerow breaches to area required for works only. All vegetation clearance work to be undertaken outside bird breeding season Seek to retain 1 or more mature Oaks where practicable and avoid loss of woodland edge habitat (Lidmore Wood). Construction work to avoid additional lighting requirement along hedgerows and avoid working near dawn or dusk when bats most active.		-
		Breach/loss of species-rich road-side hedgerows to accommodate new roundabout and slip roads Impacts of Moderate magnitude		--			-
		OPERATION Potential for interruption of bat feeding areas due to hedgerow breaches and loss of road-side hedgerows No additional lighting provision required	Year 1	--	Replacement of road-side hedgerows in northern part of scheme New hedgerow provision along eastern and western sides of alignment to provide connection for breached hedgerows. Cutting and embankment slopes to include wildflower grassland subject to minimal management	Year 1	-
			Year 15	-		Year 15	**0**
Conclusion of Significance		**Slight to Moderate adverse impact during construction and in first year of operation (increases to Moderate adverse if mitigation to retain certain trees/woodland could not be achieved). Overall impact likely to be Neutral in the long term as planting matures.**					

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Sector 5						
Green Route						
Species-poor hedgerows Habitat for nesting birds within hedgerows and trees All features of Lower Value Mature Oak and ash trees alongside A4226 possibly used by roosting bats Species-rich hedgerows Hedgerows used by 4 species of bats for foraging/commuting Bat roost within stable block at Northcliff Cottage All features of Medium value	<u>CONSTRUCTION</u> As described for Red/Orange Routes with no risk of habitat loss along western edge of Lidmore Wood Impacts of Moderate magnitude Breach/loss of species-rich road-side hedgerows to accommodate new roundabout and slip roads Loss of mature Oak and Ash immediately east of A4226		-	Minimise hedgerow breaches to area required for works only. Alignment does not allow for hedgerow retention in the north or of mature Oak/Ash alongside A4226 All vegetation clearance work to be undertaken outside bird breeding season Construction work to avoid additional lighting requirement along hedgerows and avoid working near dawn or dusk when bats most active.		-
			--			--
	<u>OPERATION</u> Potential for interruption of bat feeding areas due to hedgerow breaches and loss of road-side hedgerows Additional potential for interruption of bat flight corridors through lighting at Moulton Junction	Year 1	--	Replacement of road-side hedgerows along eastern and western sides of alignment New hedgerow planting for off-line improvement to enhance habitat connectivity Cutting slopes to include wildflower grassland subject to minimal management	Year 1	-
		Year 15	-		Year 15	**0**
Conclusion of Significance	**Slight to Moderate adverse impact during construction and in first year of operation (increases to Moderate adverse if mitigation to retain certain trees/hedgerows could not be achieved). Overall impact likely to be Neutral in the long term as planting matures.**					

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Sector 6						
Blue Route						
Species-poor hedgerows and stream Small woodland block west of A4226 Road-side woodland/scrub (not designated) in southern section Habitat for nesting birds within hedgerows and trees All features of Lower Value Mature Oak trees alongside A4226 Species-rich hedgerows Linear woodland belt west of A4226 River Waycock Hedgerows used by 5 species of bats for foraging/commuting All features of Medium value Barry Woodland SSSI (part) Feature of High Value	CONSTRUCTION - Loss of species-poor hedgerow (ca.500m) to north of River Waycock - Loss of small woodland block to accommodate Junction west of A4226 Loss of bird nesting habitat associated with hedgerows and woodland - Loss of 2no mature Oaks to accommodate alignment and junction - Loss of section of species-rich hedgerow (ca 100m) west of A4226 - Breach of liner woodland belt at eastern edge and through central area to accommodate slip road - Breach of 2no. species rich hedgerows south of the river - New crossing of River Waycock - Interruption of bat feeding/commuting areas - Loss of swathe ca 25m wide over 500m section west of A4226 All Impacts of Moderate magnitude		-	Minimise hedgerow breaches to area required for works only. All vegetation clearance work to be undertaken outside bird breeding season Construction work to avoid additional lighting requirement along hedgerows and avoid working near dawn or dusk when bats most active. Seek to retain & protect mature Oaks where practicable Minimise breach of woodland to area required for works only Timing of works as above Construction of new bridge crossing to adopt Environmental Protection Plan to avoid or minimise risks to water quality from e.g. silt discharge, accidental chemical spillages etc Minimise works footprint Timing of works as above		-
			--			--
			---			---
	OPERATION Potential for interruption of bat feeding areas due to hedgerow/woodland breaches and loss of road-side hedgerows Additional potential for interruption of bat flight corridors through lighting at new Roundabout/Junctions Potential for effects on water quality from highways run-off Increased disturbance within woodland west of A4226	Year 1	---	Replacement of road-side hedgerows along eastern and western sides of alignment New hedgerow planting for off-line improvement to re-establish habitat connectivity Appropriate design of highways drainage to include e.g. pollution control units etc to maintain water quality in River Waycock. Management plan for retained woodland to improve existing condition.	Year 1	--
		Year 15	--		Year 15	--
Conclusion of Significance	**Large adverse impact due to loss of SSSI woodland to west with Moderate/Slight adverse impacts on less valuable receptors. Mitigation could not effectively replace habitat lost (particularly woodland) with loss compensated by management plan for retained woodland habitat .**					

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Sector 6						
Purple Route						
Species-poor hedgerows and stream Road-side woodland/scrub (not designated) in southern section Habitat for nesting birds within hedgerows and trees All features of Lower Value Mature Oak trees alongside A4226 Species-rich hedgerows River Waycock Hedgerows used by 5 species of bats for foraging/commuting All features of Medium value Barry Woodland SSSI (part) High Value	CONSTRUCTION - Loss of road-side hedgerows up to River Waycock (ca. 800m of hedgerow) and scrub/woodland in southern section - Loss of bird nesting habitat associated with hedgerows and woodland		-	All vegetation clearance work to be undertaken outside bird breeding season Construction work to avoid additional lighting requirement along hedgerows and avoid working near dawn or dusk when bats most active. Construction of new bridge crossing to adopt Environmental Protection Plan to avoid or minimise risks to water quality from e.g. silt discharge, accidental chemical spillages etc Minimise works footprint to either side of carriageway Timing of works as above		-
	- Loss of 2no mature Oaks to accommodate alignment - Loss of section of species-rich hedgerow (ca 100m) west of A4226 in northern section - New crossing of River Waycock - Interruption of bat feeding/commuting areas Impacts of Moderate magnitude		--			--
	- Loss of some woodland within SSSI to either side of existing A4226 alignment Impact of Minor magnitude		--			--
	OPERATION Potential for interruption of bat feeding areas due to hedgerow breaches and loss of road-side hedgerows Potential for effects on water quality from highways run-off	Year 1	--	Replacement of road-side hedgerows along eastern and western sides of alignment Appropriate design of highways drainage to include e.g. pollution control units etc to maintain water quality in River Waycock. Management plan for retained woodland to improve existing condition	Year 1	--
		Year 15	--		Year 15	-
Conclusion of Significance	**Slight adverse impact assuming that loss of SSSI woodland limited to areas adjacent to existing carriageway and mitigation measures implemented.**					

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Sector 6						
Red Route						
Species-poor hedgerows and stream Road-side woodland/scrub (not designated) in southern section Habitat for nesting birds within hedgerows and trees All features of Lower Value River Waycock Hedgerows used by 5 species of bats for foraging/commuting All features of Medium value Barry Woodland SSSI (part) High Value	CONSTRUCTION - Loss of road-side hedgerows north of River Waycock (ca. 300m of hedgerow) and scrub/woodland in southern section - Loss of bird nesting habitat associated with hedgerows and woodland - New crossing of River Waycock - Interruption of bat feeding/commuting areas - Loss of some woodland within SSSI to either side of existing A4226 alignment All Impacts of Minor magnitude		-	All vegetation clearance work to be undertaken outside bird breeding season Construction work to avoid additional lighting requirement along hedgerows and avoid working near dawn or dusk when bats most active. Construction of new bridge crossing to adopt Environmental Protection Plan to avoid or minimise risks to water quality from e.g. silt discharge, accidental chemical spillages etc Minimise works footprint to either side of carriageway Timing of works as above		-
			-			-
			--			--
	OPERATION Potential for interruption of bat feeding areas due to hedgerow breaches and loss of road-side hedgerows Potential for effects on water quality from highways run-off	Year 1	--	Replacement of road-side hedgerows along eastern and western sides of alignment Appropriate design of highways drainage to include e.g. pollution control units etc to maintain water quality in River Waycock. Management plan for retained woodland to improve existing condition	Year 1	--
		Year 15	--		Year 15	-
Conclusion of Significance	**Slight adverse impact assuming that loss of SSSI woodland limited to areas adjacent to existing carriageway and mitigation measures implemented. Potential for Neutral impact in the long term (15yaears +) assuming mitigation and management adopted.**					

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Sector 6						
Orange **Green**						
Species-poor hedgerows and stream Road-side woodland/scrub (not designated) in southern section Habitat for nesting birds within hedgerows and trees All features of Lower Value	CONSTRUCTION - Loss of road-side hedgerows up to River Waycock (ca. 300m of hedgerow) and scrub/woodland in southern section - Loss of bird nesting habitat associated with hedgerows and woodland		-	All vegetation clearance work to be undertaken outside bird breeding season Construction work to avoid additional lighting requirement along hedgerows and avoid working near dawn or dusk when bats most active.		-
	- Breach of hedgerow and linear woodland to allow for slip road - New crossing of River Waycock - Interruption of bat feeding/commuting areas		-	Hedgerow and woodland breaches to be minimised Construction of new bridge crossing to adopt Environmental Protection Plan to avoid or minimise risks to water quality from e.g. silt discharge, accidental chemical spillages etc		-
Species-rich hedgerow and linear woodland belt north of river River Waycock Hedgerows used by 5 species of bats for foraging/commuting All features of Medium value Barry Woodland SSSI (part) High Value	- Loss of some woodland within SSSI to either side of existing A4226 alignment All Impacts of Minor magnitude		- -	Minimise works footprint to either side of carriageway Timing of works as above		- -
	OPERATION Potential for interruption of bat feeding areas due to hedgerow breaches and loss of road-side hedgerows Potential for effects on water quality from highways run-off	Year 1	- -	Replacement of road-side hedgerows along eastern and western sides of alignment Appropriate design of highways drainage to include e.g. pollution control units etc to maintain water quality in River Waycock. Management plan for retained woodland to improve existing condition	Year 1	- -
		Year 15	- -		Year 15	-
Conclusion of Significance	**Slight adverse impact assuming that loss of SSSI woodland limited to areas adjacent to existing carriageway and mitigation measures implemented. Potential for Neutral impact in the long term (15yaears +) assuming mitigation and management adopted**					

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Sector 7						
All Routes						
Broad-leaved woodland (undesignated) alongside A4226 Dense scrub and plantation alongside A4226 Species-poor hedgerow east of A4226 Poor semi-improved grassland on verge west of Waycock Cross All features considered of Lower value[14]	CONSTRUCTION - Habitat loss adjacent to existing A4226 for all routes. - Loss of habitat for nesting birds - Disturbance of adjacent areas Impact of minor magnitude		-	Minimise works footprint to allow habitat retention where practicable – clear demarcation of limit of works All vegetation clearance work to be undertaken outside bird breeding season (March – August inclusive)		-
	OPERATION Existing roundabout to be redesigned to accommodate new A4226 alignment.	Year 1	-	Replacement of hedgerows with new planting to establish connectivity with retained vegetation outside works footprint. Appropriate design of lighting to minimise 'spill' onto adjacent hedgerows and scrub Slight adverse impact in short term reducing to neutral as planting matures	Year 1	-
		Year 15	-		Year 15	**0**
Conclusion of Significance	**Slight adverse impact during construction and in first year of operation. Reducing to Neutral assuming mitigation is adopted and planting matures**					

[14] Based on DMRB guidance

7 Scheme Impacts on Land Use during Construction & Operation

All impacts below are indicated for the '15 year do something'. The 'do nothing option', is to carry out no improvement at all. The '1 year do something' option has not been included because, for this topic, there is no difference between the impacts at 1 year or 15 years.

RECEPTOR	ASSESSMENT	SIGNIFICANCE	POTENTIAL MITIGATION	RESIDUAL EFFECTS
Sector 1				
ALL ROUTES				
Redland Farm LU-1-1 **Redland Court Farm LU-1-2** Two landholdings on the southern side of the A48 near the junction at Sycamore Cross.	CONSTRUCTION A new roundabout junction must be constructed at Sycamore Cross. This will have a greater land take than the existing junction. During the construction process some land may need to be temporarily taken out of production.	-	In the worst case, there could be further loss of productive land around the junction, due to damage during the process. This must be mitigated through a responsible construction process. See Chapter 11 Disruption Due to Construction	-
	OPERATION The new junction would cause a permanent loss of land	-	It is not possible to mitigate the loss and this needs to be considered when finalising the junction layout.	-
ALC Grade 2	The new junction would cause a permanent loss of Grade 2 agricultural land.	--	It is not possible to mitigate the loss and this needs to be considered when finalising the junction layout.	--
Conclusion of Significance	Each potential route requires the same scope of junction improvements; each of the five routes may ultimately lead to a loss of Grade 2 agricultural land affecting either one or both of the landholdings. **In Sector 1 there is not a preferred option.**			

No significant effects on Landholdings in Sector 2

RECEPTOR	ASSESSMENT	SIGNIFICANCE	POTENTIAL MITIGATION	RESIDUAL EFFECTS
Sector 2				
ALL ROUTES				
ALC Grades 2 & 4	There would be no impact on agricultural land quality in this section	**0**		**0**
Conclusion of Significance	**There are no planned works or sensitive landholdings within Sector 2.**			

RECEPTOR	ASSESSMENT	SIGNIFICANCE	POTENTIAL MITIGATION	RESIDUAL EFFECTS
Sector 3				
ALL ROUTES				
Blackland Farm LU-3-1a + b	OPERATION This landholding may be affected by severance as the improved route may be of a higher design speed than current and turning across, or to the left or right may be unsafe.	**- - -**	Measures can be taken to ensure that farm access is preserved. It may necessary to provide over bridges or underpasses.	**-**
Suddon Mawr	This holding is currently immediately to the west of Five Mile Lane. All options would go off line at this point, with the old route retained to provide safe access.	**+**	This receptor would have a slight positive benefit from all routes.	**+**
ALC Grade 3 & 4	There would be some unavoidable loss of agricultural land	**-**		**-**
ALC Grade 3	There would be some unavoidable loss of agricultural land	**-**		**-**

RECEPTOR	ASSESSMENT	SIGNIFICANCE	POTENTIAL MITIGATION	RESIDUAL EFFECTS
Sector 3				
RED ROUTE				
Whitton Rosser Farm LU-3-2 Whitton Bush Farm LU -3-4	The red route curves inwards and shaves approximately 26m maximum from the fields bordering Five Mile Lane	-	It is not possible to mitigate the loss and this needs to be considered when choosing the preferred option.	-
Whitton Lodge LU-3-3	The red route would require demolition of this property	- - -	It is not possible to mitigate the loss for the red option. The orange or purple routes provide the best opportunities for mitigation.	- - -

RECEPTOR	ASSESSMENT	SIGNIFICANCE	POTENTIAL MITIGATION	RESIDUAL EFFECTS
ORANGE ROUTE				
DogHill Farm LU-3-3	The orange route has severance and access impacts on this property.	- -	Mitigation could be provided in the form of crossing points to severed areas. The orange route has more potential, than others, I for mitigation.	-
Whitton Lodge LU-3-3	There is not a direct effect on the holding although it would be unfortunately placed between two roads.	**0**	The orange route may provide opportunities for mitigation of impacts on the dwelling	**0**
Little Hamston Farm LU-3-6	Hamston Farm who would experience fragmentation of a field from the orange route.	- -	Mitigation could be provided in the form of crossing points to severed areas, although remaining land areas may not be of sufficient size to be viable.	- -
'Llancarfan' holding LU-3-7a +7b	The Llancarfan holding could potentially be affected by loss of access to part of the holding from the orange route.	-	Mitigation could be provided in the form of crossing points to severed areas, or compensation.	**0**

RECEPTOR	ASSESSMENT	SIGNIFICANCE	POTENTIAL MITIGATION	RESIDUAL EFFECTS
GREEN ROUTE				
DogHill Farm LU-3-3	The green option would cause severance and access impacts on this property. The remaining land area between the old and new routes would be further fragmented by a roundabout.	--	Mitigation could be provided in the form of crossing points to severed areas. The orange route has more potential for mitigation.	-
Whitton Lodge LU-3-3	There is not a direct effect on the holding although it would be unfortunately placed between two roads.	-	Other routes may be preferred	-
Little Hamston Farm LU-3-6	Hamston Farm who would experience the loss of a field corner	-	The remaining corner would be likely to be too small to be viable, although the green option would be preferable to orange, blue or purple.	-
'Llancarfan' holding LU-3-7a +7b	The Llancarfan holding could potentially be affected by loss of access to part of the holding from the green route	-	Mitigation could be provided in the form of crossing points to severed areas.	**0**

RECEPTOR	ASSESSMENT	SIGNIFICANCE	POTENTIAL MITIGATION	RESIDUAL EFFECTS
BLUE ROUTE				
DogHill Farm LU-3-3	The blue option would cause severance and access impacts this property.	--	Mitigation could be provided in the form of crossing points to severed areas.	-
Whitton Lodge LU-3-3	There is not a direct effect on the holding although it would be unfortunately placed between two roads.	**0**	Other routes may be preferred	**0**
Little Hamston Farm LU-3-6	Hamston Farm who would experience severance and fragmentation from the blue option, the roundabout would located on their land.	--	Mitigation could be provided in the form of crossing points to severed areas, although remaining land areas may not be of sufficient size to be viable.	--

'Llancarfan' holding LU-3-7a +7b	The Llancarfan holding could potentially be affected by loss of access to part of the holding from the blue route	**-**	Mitigation could be provided in the form of crossing points to severed areas, or compensation.	**0**

RECEPTOR	ASSESSMENT	SIGNIFICANCE	POTENTIAL MITIGATION	RESIDUAL EFFECTS
PURPLE ROUTE	**NOTE: The current plans for the purple route do not show all junction options. When these are included in the assessment, it may be likely that more receptors would be affected.**			
DogHill Farm LU - 3-3	The purple option would cause severance and access impacts this property.	**- -**	Mitigation could be provided in the form of crossing points to severed areas.	**-**
Whitton Lodge LU - 3-3	There is not a direct effect on the holding although it would be unfortunately placed between two roads.	**0**	The purple route may provide opportunities for mitigation of impacts on the dwelling	**0**
Little Hamston Farm LU - 3-6	Hamston Farm who would experience fragmentation of fields from the purple option.	**- -**	Mitigation could be provided in the form of crossing points to severed areas, although remaining land areas may not be of sufficient size to be viable.	**- -**
'Llancarfan' holding LU - 3-7a +7b	The Llancarfan holding could potentially be affected by loss of access to part of the holding from the purple route. There would direct loss of land in several areas.	**-**	Mitigation could be provided in the form of crossing points to severed areas, or compensation.	**0**

RECEPTOR	ASSESSMENT	SIGNIFICANCE	POTENTIAL MITIGATION	RESIDUAL EFFECTS
Sector 4				
RED ROUTE				
Northcliff Farm LU-4-1	The red route would impinge against the field boundary	**-**	All routes would affect this receptor.	**-**
Highfield LU-4-2	The red route may cause impacts against boundaries.	**-**	Other routes would be preferred – blue or purple.	**-**

RECEPTOR	ASSESSMENT	SIGNIFICANCE	POTENTIAL MITIGATION	RESIDUAL EFFECTS
ORANGE ROUTE				
Northcliff Farm LU-4-1	Two fields of Northcliff farm would be affected by a slip road	-	Other routes may be preferred	-
Highfield LU-4-2	A roundabout would affect these receptors.	-	Other routes may be preferred	-

RECEPTOR	ASSESSMENT	SIGNIFICANCE	POTENTIAL MITIGATION	RESIDUAL EFFECTS
GREEN ROUTE				
Northcliff Farm LU-4-1	The green route would impinge against the field boundary	-	This receptor would be affected by all routes.	-
Highfield LU-4-2	The route may cause impacts against boundaries and property entrances	-	Other routes may be preferred	-

RECEPTOR	ASSESSMENT	SIGNIFICANCE	POTENTIAL MITIGATION	RESIDUAL EFFECTS
BLUE ROUTE				
Northcliff Farm LU-4-1	This farm would lose a wide swathe of land as the blue route is aligned further east than the current route.	-	It would not be possible to mitigate this loss other options may be preferred.	-

RECEPTOR	ASSESSMENT	SIGNIFICANCE	POTENTIAL MITIGATION	RESIDUAL EFFECTS
PURPLE ROUTE	**NOTE: The current plans for the purple route do not show all junction options. When these are included in the assessment, it may be likely that more receptors would be affected.**			

Northcliff Farm LU - 4-1	A small amount of land at the edge of a field would be affected	-	It would not be possible to mitigate this loss.	-

RECEPTOR	ASSESSMENT	SIGNIFICANCE	POTENTIAL MITIGATION	RESIDUAL EFFECTS
Sector 5				
RED ROUTE				
Groveland Farm LU-5-2	The red route may cause impacts against boundaries.	-	Other routes would be preferred – blue or purple.	-
Northcliff Cottage LU-5-1	The slip road for the roundabout in the red route affects the edge of this small landholding.	-	It would not be possible to avoid loss of land area although appropriate tree planting and other screening could reduce impacts on the dwelling.	-
Groveland House LU-5-3a+3b	The slip road for the roundabout in the red route would fragment the larger field of the holding and the main road alignment may be closer to the house.	---	Other routes may be preferred – orange, blue or purple.	---
Wood 3 Lidmore	The edge of this holding would be affected by the red alignment	-	Other routes may be preferred	-
Wood 4 Sutton	This small area of woodland would be affected by a slip road to a roundabout	-	It would not be possible to directly mitigate, although the landscape mitigation could include tree planting.	-
Highmeade LU-5-4	The slip road for the roundabout in the red route affects the edge of this small landholding.	--	Other routes may be preferred	--
Sutton Fach Farm LU-5-5	The landholding may be severed, leaving a small margin between old and new roads. The slip roads for the roundabouts affect this receptor.	---	Mitigation could be provided in the form of crossing points to severed areas.	-

RECEPTOR	ASSESSMENT	SIGNIFICANCE	POTENTIAL MITIGATION	RESIDUAL EFFECTS
ORANGE ROUTE				
Northcliff Cottage LU-5-1	This receptor would be affected by loss of land and a new road alignment closer to the dwelling	--	Other routes may be preferred	--
Groveland House LU-5-3a +3b	The field area would be truncated, however, when considered in relation to effects of the options, this may be preferred.	---	This receptor is affected by all options, the orange route may provide more opportunities for mitigation / compensation.	--
Groveland Farm LU-5-2	A roundabout would affect these receptors.	-	Other routes may be preferred	-
Wood 3 Lidmore	The edge of this holding is affected by the alignment	-	Other routes may be preferred	-
Sutton Fach Farm LU-5-5	Severance and access impacts, loss of field area.	---	This receptor is affected by all options, the orange route may provide more opportunities for mitigation.	-

RECEPTOR	ASSESSMENT	SIGNIFICANCE	POTENTIAL MITIGATION	RESIDUAL EFFECTS
GREEN ROUTE				
Groveland Farm LU-5-2	The route may cause impacts against boundaries and property entrances	-	Other routes may be preferred	-
Groveland House LU-5-3a +3b	The route may cause impacts against boundaries and property entrances. The slip road for the roundabout fragments the holding's largest field.	---	This receptor would be affected by all options, other routes provide more opportunities for mitigation.	---

RECEPTOR	ASSESSMENT	SIGNIFICANCE	POTENTIAL MITIGATION	RESIDUAL EFFECTS
GREEN ROUTE				
Northcliff Cottage LU-5-1	This property would be affected by the slip road for the roundabout, leading to loss of edge on their field, and it would be close to the house.	-	It would not be possible to avoid loss of land area although appropriate tree planting and other screening could reduce impacts on the dwelling.	-
Highmeade LU-5-4	The slip road for the roundabout in the red route affects the edge of this small landholding.	--	Other routes may be preferred	--
Sutton Fach Farm LU-5-5	The landholding may be severed, leaving a small margin between old and new roads.	---	Mitigation could be provided in the form of crossing points to severed areas.	-
Wood 4 Sutton	The wood would be affected by a slip road for the roundabout	-	It would not be possible to directly mitigate, although the landscape mitigation could include tree planting.	-

RECEPTOR	ASSESSMENT	SIGNIFICANCE	POTENTIAL MITIGATION	RESIDUAL EFFECTS
BLUE ROUTE				
Northcliff Cottage LU-5-1	The main road would be less than 50m from the house and there would be a loss of field edge	--	It would not be possible to mitigate this loss other options may be preferred.	--
Groveland House LU-5-3a +3b	The route would lead to severance of the holding	---	All routes would affect this receptor	---
Wood 4 Sutton	The wood would be affected by a slip road to the roundabout	-	It would not be possible to mitigate this loss other options may be preferred.	-
Sutton Fach Farm LU-5-5	The landholding may be severed, leaving a small margin between old and new roads.	---	Mitigation could be provided in the form of crossing points to severed areas.	-

RECEPTOR	ASSESSMENT	SIGNIFICANCE	POTENTIAL MITIGATION	RESIDUAL EFFECTS
PURPLE ROUTE	**NOTE: The current plans for the purple route do not show all junction options. When these are included in the assessment, it may be likely that more receptors would be affected.**			
Groveland House LU - 5-3a +3b	The route may lead to loss of access to a large proportion of the holding	**- -**	Mitigation could be provided in the form of crossing points to severed areas.	**-**
Highmeade LU - 5-4	This small holding would be affected by a roundabout	**- -**	It would not be possible to mitigate this loss.	**- -**
Sutton Fach Farm LU - 5-5	This holding would be affected by a roundabout, and land severance and access.	**- - -**	Mitigation could be provided in the form of crossing points to severed areas.	**-**

RECEPTOR	ASSESSMENT	SIGNIFICANCE	POTENTIAL MITIGATION	RESIDUAL EFFECTS
ORANGE ROUTE				
Waycock holding LU-6-1	The edge of this holding would be affected by a slip road to a roundabout	**-**	Other routes may be preferred	**-**
New Farm LU-6-2	A corner of this holding would be affected by a slip road to a roundabout	**-**	Other routes may be preferred	**-**
Welsh Hawking Centre LU-6-3	This would be affected by a slip road for the roundabout and need for new access arrangements	**-**	With appropriate design and consultation this would not have an adverse impact.	**0**

RECEPTOR	ASSESSMENT	SIGNIFICANCE	POTENTIAL MITIGATION	RESIDUAL EFFECTS
GREEN ROUTE				
Waycock holding LU-6-1	The edge of the holding would be affected by a slip road for the roundabout	**-**	Other routes may be preferred	**-**

RECEPTOR	ASSESSMENT	SIGNIFICANCE	POTENTIAL MITIGATION	RESIDUAL EFFECTS
New Farm LU-6-2	A corner of this holding would be affected by a slip road to a roundabout	-	Other routes may be preferred	-
Welsh Hawking Centre LU-6-3	This would be affected by a slip road for the roundabout and need for new access arrangements	-	With appropriate design and consultation this would not have an adverse impact.	**0**

RECEPTOR	ASSESSMENT	SIGNIFICANCE	POTENTIAL MITIGATION	RESIDUAL EFFECTS
BLUE ROUTE				
Waycock holding LU-6-1	This holding would lose land to the slip road for the roundabout	--	It would not be possible to mitigate this loss other options may be preferred.	--
New Farm LU- 6-2	A roundabout would be located within this landholding	--	It would not be possible to mitigate this loss other options may be preferred.	--
Wood 1 Middleton	A new roundabout and road alignment would be located here	---	It would not be possible to mitigate this loss other options may be preferred.	---
Welsh Hawking Centre LU-6-3	Would be affected by slip road	-	With appropriate design and consultation this would not have an adverse impact.	**0**

Conclusion of Significance	The **red** route is undesirable because it requires the demolition of a property. At this stage of the assessment, the **orange** or **purple** routes have the least number of severe impacts after mitigation. The **green** route is less preferred than the orange or purple, because it leaves narrower areas of land between Five Mile Lane and the new alignment. This is undesirable as smaller areas of land are less likely to be agriculturally viable. The **blue** route is least preferred due to land take,

8 Scheme Impacts on Heritage during Construction & Operation

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Sector 3/4						
Blue Route						
H-B-3-12 H-B-4-12 Roman villa site with associated enclosures. The villa has been investigated by archaeological excavation, but the site/area retains high archaeological potential The site/area is considered to be of High value[15]	GROUND INVESTIGATIONS Trial pits may remove/damage archaeological deposits ROAD CONSTRUCTION Topsoil removal, any subsoil excavation, construction traffic movement or construction of any installations may cause damage to archaeological deposits Moderate adverse impact		--	Additional survey required to fully define receptor. Minimise works footprint to reduce extent of effects. Bury site. Undertake advance archaeological excavations Impact is maintained at Moderate adverse		--
H-B-4-13 Site of post-medieval limekiln shown on historical mapping, No visible surface evidence The site is considered to be of Low value[1]	GROUND INVESTIGATIONS Trial pits may remove/damage archaeological deposits ROAD CONSTRUCTION Topsoil removal, any subsoil excavation, construction traffic movement or construction of any installations may cause damage to archaeological deposits Potential Moderate adverse impact		--	Additional survey required to fully define receptor. Minimise works footprint to reduce extent of effects. Undertake advance archaeological excavations. Bury site Impact may be reduced to Minor adverse		-
Conclusion of Significance	**Moderate adverse overall impact during construction.**					

[15] Based on DMRB guidance

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Sector 3/4						
Green Route						
H-G-3-10 Site of post-medieval limekiln shown on historical mapping, No visible surface evidence The site is considered to be of Low value[1]	<u>GROUND INVESTIGATIONS</u> Trial pits may remove/damage archaeological deposits <u>ROAD CONSTRUCTION</u> Topsoil removal, any subsoil excavation, construction traffic movement or construction of any installations may cause damage to archaeological deposits Potential Moderate adverse impact		--	Additional survey required to fully define receptor. Minimise works footprint to reduce extent of effects. Undertake advance archaeological excavations. Bury site Impact may be reduced to Minor adverse/Negligible		-
H-G-3-11 Site of inhumation. Possible Romano-British. Area has high potential for further funerary remains The site/area is considered to be of Medium value[1]	<u>GROUND INVESTIGATIONS</u> Trial pits may remove/damage archaeological deposits <u>ROAD CONSTRUCTION</u> Topsoil removal, any subsoil excavation, construction traffic movement or construction of any installations may cause damage to archaeological deposits Site may be totally removed: possible Major/Severe adverse impact		---	Additional survey required to fully define receptor. Minimise works footprint to reduce extent of effects. Bury site. Undertake advance archaeological excavations Impact may be reduced to Minor adverse/Negligible if no further burials present and/or surviving features can be successfully buried		-

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
H-G-3-12 H-G-4-12 Roman villa site with associated enclosures. The villa has been investigated by archaeological excavation, but the site/area retains high archaeological potential. Further cropmark features have been recorded to west of current road The site/area is considered to be of High value[16]	<u>GROUND INVESTIGATIONS</u> Trial pits may remove/damage archaeological deposits <u>ROAD CONSTRUCTION</u> Topsoil removal, any subsoil excavation, construction traffic movement or construction of any installations may cause damage to archaeological deposits Minor adverse impact		-	Avoids main villa site. Additional survey required to fully define receptor. Minimise works footprint to reduce extent of effects. Bury site. Undertake advance archaeological excavations Impact is maintained at Minor adverse		-
Conclusion of Significance	**Potential Moderate overall impact during construction.**					

[16] Based on DMRB guidance

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Sector 3/4						
Orange Route						
H-O-3-12 H-O-4-12 Roman villa site with associated enclosures. The villa has been investigated by archaeological excavation, but the site/area retains high archaeological potential The site/area is considered to be of High value[17]	GROUND INVESTIGATIONS Trial pits may remove/damage archaeological deposits ROAD CONSTRUCTION Topsoil removal, any subsoil excavation, construction traffic movement or construction of any installations may cause damage to archaeological deposits The land-take is restricted hence a Minor adverse impact		-	Avoids main villa site. Additional survey required to fully define receptor. Minimise works footprint to reduce extent of effects. Bury site. Undertake advance archaeological excavations Impact is maintained at Minor adverse		-
H-O-3-11 Site of inhumation. Possible Romano-British. Area has high potential for further funerary remains The site/area is considered to be of Medium value[1]	GROUND INVESTIGATIONS Trial pits may remove/damage archaeological deposits ROAD CONSTRUCTION Topsoil removal, any subsoil excavation, construction traffic movement or construction of any installations may cause damage to archaeological deposits The land-take is restricted hence a Minor adverse impact		-	Additional survey required to fully define receptor. Minimise works footprint to reduce extent of effects. Bury site. Undertake advance archaeological excavations Impact may be reduced to Minor adverse/Negligible if no further burials present and/or surviving features can be successfully buried		-
Conclusion of Significance	**Potential Moderate /Slight adverse impact during construction.**					

[17] Based on DMRB guidance

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Sector 3/4						
Purple Route						
H-P-3-11 Site of inhumation. Possible Romano-British. Area has high potential for further funerary remains The site/area is considered to be of Medium value[1]	<u>GROUND INVESTIGATIONS</u> Trial pits may remove/damage archaeological deposits <u>ROAD CONSTRUCTION</u> Topsoil removal, any subsoil excavation, construction traffic movement or construction of any installations may cause damage to archaeological deposits Site may be totally removed: possible Major/Severe adverse impact		---	Additional survey required to fully define receptor. Minimise works footprint to reduce extent of effects. Bury site. Undertake advance archaeological excavations Impact may be reduced to Minor adverse/Negligible if no further burials present and/or surviving features can be successfully buried		-
H-P-3-12 H-P-4-12 Roman villa site with associated enclosures. The villa has been investigated by archaeological excavation, but the site/area retains high archaeological potential. Further cropmark features have been recorded to west of current road The site/area is considered to be of High value[18]	<u>GROUND INVESTIGATIONS</u> Trial pits may remove/damage archaeological deposits <u>ROAD CONSTRUCTION</u> Topsoil removal, any subsoil excavation, construction traffic movement or construction of any installations may cause damage to archaeological deposits Minor adverse impact		-	Avoids main villa site. Additional survey required to fully define receptor. Minimise works footprint to reduce extent of effects. Bury site. Undertake advance archaeological excavations Impact is maintained at Minor adverse		-
Conclusion of Significance	**Potential Moderate adverse overall impact during construction.**					

[18] Based on DMRB guidance

RECEPTORS	ASSESSMENT	SIGNIFICANCE		POTENTIAL MITIGATION	RESIDUAL EFFECTS	
Sector 3/4						
Red Route						
H-R-3-10 Site of post-medieval limekiln shown on historical mapping, No visible surface evidence The site is considered to be of Low value[1]	<u>GROUND INVESTIGATIONS</u> Trial pits may remove/damage archaeological deposits <u>ROAD CONSTRUCTION</u> Topsoil removal, any subsoil excavation, construction traffic movement or construction of any installations may cause damage to archaeological deposits Potential Moderate adverse impact		--	Additional survey required to fully define receptor. Minimise works footprint to reduce extent of effects. Undertake advance archaeological excavations. Bury site Impact may be reduced to Minor adverse/Negligible		-
H-R-3-12 H-R-4-12 Roman villa site with associated enclosures. The villa has been investigated by archaeological excavation, but the site/area retains high archaeological potential The site/area is considered to be of High value[19]	<u>GROUND INVESTIGATIONS</u> Trial pits may remove/damage archaeological deposits <u>ROAD CONSTRUCTION</u> Topsoil removal, any subsoil excavation, construction traffic movement or construction of any installations may cause damage to archaeological deposits The land-take is restricted hence a Minor adverse impact		-	Avoids main villa site. Additional survey required to fully define receptor. Minimise works footprint to reduce extent of effects. Bury site. Undertake advance archaeological excavations Impact is maintained at Minor adverse		-
Conclusion of Significance	**Potential Slight/Moderate adverse impact during construction.**					

[19] Based on DMRB guidance