

Appendix C – NATA Worksheets

Environment: Water Environment

| Description of study area / Summary of potential impacts | Feature | Attributes / Services | Quality | Scale | Rarity | Substitutability | Importance | Magnitude | Significance |
|---|-------------------|-----------------------------|---|-------|--------|------------------|------------|---------------|-------------------------|
| <p>STUDY AREA: The corridor of the proposed scheme crosses the catchments of eight principal watercourses, the Oxhey, Threaphurst, Norbury, Poynton, Lady Spath, Gatley and Baguley Brooks. Most drain northwards through both rural and urban area to join the Upper River Mersey, with the exception of the Spath Brook which drains southwards to join the River Dean. There are numerous small ponds scattered throughout the rural areas of the corridor. The study area is also underlain by three distinct groundwater bodies: the Manchester and East Cheshire (M&EC) Carboniferous Aquifers, the M&EC Permo-Triassic Aquifers, the Dane and Weaver Quaternary Sand and Gravel Aquifers.</p> | | | | | | | | | |
| <p>IMPACT: Pollution due to increased sedimentation and increased risk of accidental spillage of pollutants such as oil, fuel and concrete during construction</p> | Oxhey Brook | Water Quality, Biodiversity | WFD – B CFFD – n/a Bio – ZoI | Local | Common | Limited | Low | Minor Adverse | Insignificant |
| | Threaphurst Brook | | WFD – B CFFD – IP/GF Bio - District | Local | Common | Limited | Medium | Minor Adverse | Insignificant |
| | Norbury Brook | | HMWB WFD – GEP CFFD – IP/GF Bio - District | Local | Medium | Limited | High | Minor Adverse | Low Significance |
| | Poynton Brook | | WFD – M CFFD – IP/GF Bio - District | Local | Medium | Limited | Medium | Negligible | Insignificant |
| | Lady Brook | | WFD – M CFFD – IP/GF Bio - District | Local | Medium | Limited | Medium | Minor Adverse | Insignificant |
| | Spath Brook | | WFD – M CFFD – n/a Bio – Local | Local | Common | Limited | Medium | Minor Adverse | Insignificant |

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|--|---|---|--|-------|--------|------------------|------------|---------------|----------------------|
| | Gatley Brook | | WFD – M CFFD – IP/GF Bio - Local | Local | Common | Limited | Medium | Minor Adverse | Insignificant |
| | Baguley Brook | | WFD – M CFFD – IP/GF Bio – Local | Local | Common | Limited | Medium | Minor Adverse | Insignificant |
| | Standing Waters (ponds) | | No WQ data Bio - District | Local | Common | Limited | Medium | Negligible | Insignificant |
| | M&EC Carboniferous Aquifers | Water Supply, Water Quality, River Baseflow, Biodiversity | Secondary aquifer, low vulnerability QQ – Good CQ – Poor No abstractions | Local | Common | Limited | Low | Negligible | Insignificant |
| | M&EC Permo-Triassic Aquifers | | Primary aquifer, low vulnerability QQ – Poor CQ – Poor Scheme passes within SPZ3 of public supply BH, BH within 1.5km of scheme, 3 non potable abstractions within 750m of scheme | Local | Common | Limited | Medium | Negligible | Insignificant |
| | Dane and Weaver Quaternary Sand & Gravel Aquifers | | Secondary aquifer, high vulnerability QQ – Good CQ – Poor No abstractions | Local | Common | Limited | Low | Negligible | Insignificant |

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|--|-------------------|-----------------------------|---|-------|--------|------------------|------------|------------|----------------------|
| IMPACT: Pollution due to operational routine road runoff from individual outfalls | Threaphurst Brook | Water Quality, Biodiversity | WFD – B CFFD – IP/GF Bio - District | Local | Common | Limited | Medium | Negligible | Insignificant |
| | Lady Brook | | WFD – M CFFD – IP/GF Bio – District | Local | Medium | Limited | Medium | Negligible | Insignificant |
| | Spath Brook | | WFD – M CFFD – n/a Bio – Local | Local | Common | Limited | Medium | Negligible | Insignificant |
| | Gatley Brook | | WFD – M CFFD – IP/GF Bio - Local | Local | Common | Limited | Medium | Negligible | Insignificant |
| | Baguley Brook | | WFD – M CFFD – IP/GF Bio - Local | Local | Common | Limited | Medium | Negligible | Insignificant |
| IMPACT: Pollution due to operational routine road runoff from cumulative outfalls | Spath Brook | | WFD – M CFFD – n/a Bio – Local | Local | Common | Limited | Medium | Minor | Insignificant |
| IMPACT: Pollution due to operational accidental spillage from individual outfalls | Threaphurst Brook | Water Quality, Biodiversity | WFD – B CFFD – IP/GF Bio - District | Local | Common | Limited | Medium | Negligible | Insignificant |
| | Lady Brook | | WFD – M CFFD – IP/GF Bio - District | Local | Medium | Limited | Medium | Negligible | Insignificant |
| | Spath Brook | | WFD – M CFFD – n/a | Local | Common | Limited | Medium | Minor | Insignificant |

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|---|-------------------|-----------------------|---|-------|--------|------------------|------------|------------|----------------------|
| | | | Bio – Local | | | | | | |
| | Gatley Brook | | WFD – M CFFD – IP/GF Bio - Local | Local | Common | Limited | Medium | Negligible | Insignificant |
| | Baguley Brook | | WFD – M CFFD – IP/GF Bio - Local | Local | Common | Limited | Medium | Negligible | Insignificant |
| IMPACT: Pollution due to operational accidental spillage from cumulative outfalls | Spath Brook | | WFD – M CFFD – n/a Bio – Local | Local | Common | Limited | Medium | Negligible | Insignificant |
| IMPACT: Increased flood risk due to development within the floodplain, increased runoff rates and volumes from hardstanding areas and proposed channel modifications such as outfalls, culverting and watercourse realignment. | Oxhey Brook | Floodplain | No identified flood risk | Local | Common | Limited | Low | Negligible | Insignificant |
| | Threaphurst Brook | | Flood risk to residential properties 1km downstream | Local | Common | Limited | High | Negligible | Insignificant |
| | Norbury Brook | | Minor flood risk to agricultural land | Local | Medium | Limited | Medium | Negligible | Insignificant |
| | Poynton Brook | | Minor flood risk to agricultural land | Local | Medium | Limited | Medium | Negligible | Insignificant |
| | Lady Brook | | Minor flood risk to agricultural land | Local | Medium | Limited | Medium | Negligible | Insignificant |
| | Spath Brook | | Flood risk to commercial properties adjacent to scheme, scheme impinges on 1 in | Local | Common | Limited | High | Negligible | Insignificant |

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|---|-------------------|--|--|-------|--------|------------------|------------|---------------|-------------------------|
| | | | 1000 year floodplain | | | | | | |
| | Gatley Brook | | No identified flood risk | Local | Common | Limited | Low | Negligible | Insignificant |
| | Baguley Brook | | No identified flood risk | Local | Common | Limited | Low | Negligible | Insignificant |
| IMPACT: Changes in geomorphological regime such as erosion, deposition and channel migration as a result of proposed channel modification such as outfalls, culverting and watercourse realignment. A reduction in morphological diversity can subsequently impact on water quality and biodiversity | Oxhey Brook | Geomorphology, Water Quality, Biodiversity | Small heavily modified field drain WFD – B CFFD – n/a Bio - Zol | Local | Common | Feasible | Low | Negligible | Insignificant |
| | Threaphurst Brook | | Assumed moderately diverse & active geomorphology WFD – B CFFD – IP/GF Bio – District | Local | Common | Feasible | Medium | Negligible | Insignificant |
| | Norbury Brook | | Highly active & diverse geomorphology HMWB WFD – GEP CFFD – IP/GF Bio - District | Local | Medium | Feasible | High | Minor Adverse | Low Significance |
| | Lady Brook | | Active & diverse geomorphology WFD – M CFFD – IP/GF Bio - District | Local | Medium | Feasible | High | Negligible | Insignificant |

| Description of study area / Summary of potential impacts | Feature | Attributes / Services | Quality | Scale | Rarity | Substitutability | Importance | Magnitude | Significance |
|---|-----------------------------|---|---|-------|--------|------------------|------------|------------------|-------------------------|
| | Spath Brook | | Heavily modified channel WFD – M CFFD – n/a Bio – Local | Local | Common | Feasible | Low | Negligible | Insignificant |
| | Gatley Brook | | Heavily modified channel WFD – M CFFD – IP/GF Bio - Local | Local | Common | Feasible | Low | Negligible | Insignificant |
| | Baguley Brook | | Heavily modified channel WFD – M CFFD – IP/GF Bio – Local | Local | Common | Feasible | Low | Negligible | Insignificant |
| IMPACT: Loss of standing waters where proposed scheme will be constructed through existing ponds | Standing Waters (ponds) | Water Quality, Biodiversity | No WQ data Bio - District | Local | Common | Feasible | Medium | Moderate Adverse | Low Significance |
| IMPACT: Changes in groundwater flows and levels as a result of groundwater drawdown effects | M&EC Carboniferous Aquifers | Water Supply, Water Quality, Ground-water Flow, | Secondary aquifer, low vulnerability QQ – Good CQ – Poor No abstractions | Local | Common | Limited | Low | Minor | Insignificant |

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|--|---|------------------------------|--|-------|--------|------------------|------------|------------|----------------------|
| from dewatering of deep cuttings | M&EC Permo-Triassic Aquifers | River Baseflow, Biodiversity | Primary aquifer, low vulnerability QQ – Poor CQ – Poor Scheme passes within SPZ3 of public supply BH, BH within 1.5km of scheme, 3 non potable abstractions within 750m of scheme | Local | Common | Limited | Medium | Minor | Insignificant |
| | Dane & Weaver Quaternary Sand & Gravel Aquifers | | Secondary aquifer, high vulnerability QQ – Good CQ – Poor No abstractions | Local | Common | Limited | Low | Negligible | Insignificant |

Key:

- HMWB** Heavily Modified Water Body as defined under the Water Framework Directive (WFD)
- WFD** WFD Overall Status followed by grade, H – High, G – Good, M – moderate, P – Poor, B - Bad, MEP/GEP etc – moderate/good ecological potential in relation to HMWB's etc.
- CFFD** Designated Cyprinid fishery under the EC Freshwater Fish Directive followed by Pass/Fail result for Guideline and Imperative limits i.e. GF / GP / IF / IP
- Bio** Biodiversity value as assessed by project ecologists – District / Local / Zol (zone of influence only)
- QQ** WFD Groundwater Quantitative Quality followed by Good/Poor status
- CQ** WFD Groundwater Chemical Quality followed by Good/Poor status
- SPZ1** Groundwater Source Protection Zone 1 – Inner Zone
- SPZ2** Groundwater Source Protection Zone 2 – Outer Zone
- SPZ3** Groundwater Source Protection Zone 3 – Total Catchment
- BH** Borehole (groundwater abstraction)

Reference Source(s):

Mouchel (2012) SEMMMS A6 to Manchester Airport Relief Road Draft Environmental Statement

EA. Interactive Maps. http://maps.environment-agency.gov.uk/wiyby/wiybyController?ep=maptopics&lang=_e

EA (2009) North West River Basin Management Plan. <http://www.environment-agency.gov.uk/research/planning/124837.aspx>

EA (2005). Mersey & Bollin Catchment Abstraction Management Strategy. <http://www.environment-agency.gov.uk/business/topics/water/119935.aspx>

Mouchel (2003). SEMMMS Major Road Schemes – Stage 2 Environmental Assessment (Section 2.12 Water Quality & drainage). Penny Anderson Associates Ltd on behalf of Mouchel Consulting Ltd. September 2003.

Summary assessment score:

Slight Negative

Qualitative comments:

The proposed scheme will involve the construction of a single river bridge, seven road drainage outfalls and realignment of short sections of two watercourses, potentially impacting on the water quality and geomorphology of watercourses ranging from small field drains to small rivers. The majority of the watercourses are designated cyprinid rivers and have WFD classifications ranging from 'Good' to 'Bad'. The scheme crosses or passes close to two areas of floodplain, associated with the Lady/Norbury/Poynton Brooks and the Spath Brook. The scheme also crosses one primary aquifer and two secondary aquifers. Ten road cuttings are proposed, which may impact on the groundwater levels in the underlying aquifers. The proposed design measures and construction mitigation will minimise impacts such that they are no more than slight at specific locations and are neutral overall. The discrete slight impacts are generally well dispersed throughout the proposed scheme corridor and the catchments are sufficiently large to absorb such impacts without risk to the overall WFD status of the watercourses and aquifers. Similarly the safeguarding of flood capacity and flow regimes associated with flood events along the individual reaches of watercourses would preclude the potential for cumulative impacts and effects.

The construction and operation of the SEMMMS scheme could potentially impact on surface and groundwater quality and flows, flood risk, fluvial geomorphology and water supplies. As part of the SEMMMS scheme watercourse diversions are proposed on the Oxhey Brook and Norbury Brook. The pedestrian footbridge across the Norbury Brook will be relocated downstream and a new road bridge will be constructed over the Lady Brook. Seven individual road drainage outfalls are proposed on the Threaphurst, Lady, Spath, Gatley and Baguley Brooks. The SEMMMS outfalls discharging to the upstream and downstream reaches of the Spath Brook each present potential cumulative impacts with existing road drainage outfalls associated with the A555. Eleven ponds lie under the footprint of the scheme and will be destroyed as a result. Ten road cuttings are proposed, the base of five will be located at or below the current groundwater table and will result in localised groundwater drawdown. However the assessment has concluded that, with the inclusion of the proposed design measures relative to watercourses and floodplains and mitigation measures relative to construction in the proximity to sensitive water resources, impacts related to surface waters, groundwater and flood risk would be no greater than slight at specific locations and would be slight overall.

Table 14 – WebTAG Greenhouse Gases spreadsheet Core

APPRAISAL- Greenhouse Gases

Proposal Name: SEMMMS – ‘CORE’ Scenario

Current Year of Appraisal:

2009

Proposal Opening year:

2017

Project (Road/Rail or Road and Rail):

Road

Overall Assessment Score:

Net Present Value of Carbon Emissions of Proposal (£):

(60 Year Period)

-466,974

*positive value reflects a net benefit (i.e. carbon emissions reduction)

Quantitative Assessment:

Change in Carbon Emissions over 60 year appraisal period (tonnes):

(between 'with scheme' and 'without scheme' scenarios)

10,308

Change in Carbon Emissions in Opening year (tonnes):

(between 'with scheme' and 'without scheme' scenarios)

1,019

Qualitative Comments:

The scheme is expected to have an adverse impact on non-traded carbon (Ce) emissions resulting from the difference in fuel consumption between the 'with scheme' and 'without scheme' scenarios for the whole appraisal period.

The impact on carbon dioxide (CO₂e) emissions relative to the 'without scheme' case in the scheme opening year is expected to be 0.007Mt CO₂e.

Rail emissions have not been taken into account.

Sensitivity Analysis:

Description:

Upper Estimate Net Present Value of Carbon Emissions of Proposal (£):

-705,142

Lower Estimate Net Present Value of Carbon Emissions of Proposal (£):

-228,807

Data Sources:

Emission calculations were undertaken using Defra's Emission Factor Tool Kit 4.2.2 (November 2010).

The traffic data was provided by Transport for Greater Manchester.

Table 15 – WebTAG Greenhouse Gases spreadsheet for High Growth

APPRAISAL- Greenhouse Gases

Proposal Name: SEMMMS - High Growth (Optimistic)

Current Year of Appraisal:

2009

Proposal Opening year:

2017

Project (Road/Rail or Road and Rail):

Road

Overall Assessment Score:

Net Present Value of Carbon Emissions of Proposal (£):

(60 Year Period)

-542,822

*positive value reflects a net benefit (i.e. carbon emissions reduction)

Quantitative Assessment:

Change in Carbon Emissions over 60 year appraisal period (tonnes):

(between 'with scheme' and 'without scheme' scenarios)

11,923

Change in Carbon Emissions in Opening year (tonnes):

(between 'with scheme' and 'without scheme' scenarios)

1,042

Qualitative Comments:

The scheme is expected to have an adverse impact on non-traded carbon (Ce) emissions resulting from the difference in fuel consumption between the 'with scheme' and 'without scheme' scenarios for the whole appraisal period.

The impact on carbon dioxide (CO2e) emissions relative to the 'without scheme' case in the scheme opening year is expected to be 0.009Mt CO2e.

Rail emissions have not been taken into account.

Sensitivity Analysis:

Description:

Upper Estimate Net Present Value of Carbon Emissions of Proposal (£):

-821,011

Lower Estimate Net Present Value of Carbon Emissions of Proposal (£):

-264,633

Data Sources:

Emission calculations were undertaken using Defra's Emission Factor Tool Kit 4.2.2 (November 2010). The traffic data was provided by Transport for Greater Manchester.

Table 16 – WebTAG Greenhouse Gases spreadsheet for Low Growth

APPRAISAL- Greenhouse Gases

Proposal Name: SEMMMS - Low Growth (Pessimistic)

Current Year of Appraisal:

2009

Proposal Opening year:

2017

Project (Road/Rail or Road and Rail):

Road

Overall Assessment Score:

Net Present Value of Carbon Emissions of Proposal (£):

(60 Year Period)

-510,097

*positive value reflects a net benefit (i.e. carbon emissions reduction)

Quantitative Assessment:

Change in Carbon Emissions over 60 year appraisal period (tonnes):

(between 'with scheme' and 'without scheme' scenarios)

12,115

Change in Carbon Emissions in Opening year (tonnes):

(between 'with scheme' and 'without scheme' scenarios)

3,072

Qualitative Comments:

The scheme is expected to have an adverse impact on non-traded carbon (Ce) emissions resulting from the difference in fuel consumption between the 'with scheme' and 'without scheme' scenarios for the whole appraisal period.

The impact on carbon dioxide (CO₂e) emissions relative to the 'without scheme' case in the scheme opening year is expected to be 0.009Mt CO₂e.

Rail emissions have not been taken into account.

Sensitivity Analysis:

Description:

Upper Estimate Net Present Value of Carbon Emissions of Proposal (£):

-750,783

Lower Estimate Net Present Value of Carbon Emissions of Proposal (£):

-269,412

Data Sources:

Emission calculations were undertaken using Defra's Emission Factor Tool Kit 4.2.2 (November 2010). The traffic data was provided by Transport for Greater Manchester.

Worksheet 1 Environment: Biodiversity - Plan Level

Scheme: DF4

| Area | Description of feature / attribute | Scale (at which attribute matters) | Importance (of attribute) | Trend (in relation to target) | Biodiversity and earth heritage value | Magnitude of impact | Assessment score |
|--|---|--|----------------------------------|---|--|---|-------------------------|
| Ancient Woodland: Norbury Brook Wood | 2.4 ha of the 22.2 ha Norbury Brook Wood is listed as Ancient Woodland. The site contains abundant breeding birds, badger activity and semi-mature trees with bat roost potential. Norbury Brook Wood is designated as a Site of Biological Importance (SBI). | The majority of the site is of local importance. The Ancient Woodland within the site is of National importance. | High | Regionally, broad-leaved woodland cover is below 1/2 the national average. The habitat is irreplaceable, and loss of ancient woodland can not be effectively mitigated for. | High | Intermediate negative. The scheme will result in the loss of approximately 10% of the ancient woodland which equates to 1% of the SBI | Large adverse |
| Non-statutory sites: In addition to Norbury Brook Wood there are 2 SBIs which could potentially be affected | Mill Hill Farm Wood which contains Ancient Woodland is situated adjacent to Lady Brook approximately 1 km downstream from the proposed scheme. Oxhey Pastures are located within 100 m of the scheme north-east of the A6. They comprise two unimproved fields supporting neutral to unimproved grassland. | Local | Medium | Within Greater Manchester SBIs are generally managed with the aim to increase ecological value. | Medium | Neutral. With appropriate mitigation these sites are unlikely to be affected. | Neutral |
| Semi Natural / Possible Ancient Woodland: Confluence of Norbury Brook and Lady Brook | Small area of woodland displaying similar characteristics as Ancient Woodland but not listed in the Ancient Woodland Inventory. The site contains abundant breeding birds, badger activity and trees with bat roost potential. The site qualifies as BAP habitat: ancient semi-natural broadleaved woodland. Some sites with this listing are more semi-natural than others, but the presence of ground flora at this site indicates long-standing undisturbed woodland cover. | Regional | Medium | Regionally broad-leaved woodland cover is below half the national average. | Medium | Intermediate negative. A relatively small area of the whole woodland is directly lost to the scheme | Moderate adverse |

| Area | Description of feature / attribute | Scale (at which attribute matters) | Importance (of attribute) | Trend (in relation to target) | Biodiversity and earth heritage value | Magnitude of impact | Assessment score |
|--|--|--|--|---|---------------------------------------|---|-------------------|
| Scrub: Areas of scrub located at Manchester Airport Ringway Junction and the far eastern tip of the scheme. | Two areas of continuous scrub will be lost due to the scheme. Scrub generally occurs through an absence of land management and if left undisturbed will succeed to woodland. | Local - common and widespread habitat. | Low | Scrub is transient in nature with some areas increasing and others decreasing in size depending on local land management practices. | Low | Neutral | Neutral |
| Hedgerows: 57 will be affected by the proposed route | Within the study area there is a total of 10.1 km of mostly species-poor and easily replaceable hedgerow with semi-mature standard trees. | National | Low to Medium | There is a current trend of habitat fragmentation resulting in a local decline in cover. | Low to Medium | Minor negative. Approximately 5.5 km will be lost due to the proposed scheme but can be easily replaced. | Slight adverse |
| Important hedgerow: 2 hedgerows appear to be affected by the proposed scheme. | There is 0.2 km of species-rich hedgerow within the study area which qualify under the Hedgerow Regulations 1997. | National | Medium. The sections are short resulting in reduced importance. | Current trends are of loss & fragmentation. | Medium | Intermediate negative. All important hedgerows within the study area will be lost. They are replaceable in the long term only. | Moderate adverse |
| Semi-improved grassland: Variable sections of 3 fields affected. | Sections of three field systems on the edge of Bramhall and adjacent to Norbury Brook will be affected by the proposed scheme. The field systems are all neglected, semi-improved, grasslands, over grazed by horses but have potential for restoration. | Local | Low. In current condition they are a poor example of UK BAP habitat. | 99% of unimproved grasslands have been lost in Cheshire since the 1930s with only 860ha left. In the Greater Manchester area there is 4,404 ha of unimproved grasslands remaining, Only a small proportion of this is species-rich. | Low | Intermediate negative. Some opportunities to provide grassland with semi-improved characteristics. | Slight adverse |
| Improved grassland: Variable sections of 38 fields affected. | Improved grasslands under agricultural management with low current biodiversity value. | Local | Negligible | Common in area | Negligible | Positive. 38 fields will be affected but the roadside grasslands proposed in the mitigation scheme will be beneficial for wildlife. | Slight beneficial |

| Area | Description of feature / attribute | Scale (at which attribute matters) | Importance (of attribute) | Trend (in relation to target) | Biodiversity and earth heritage value | Magnitude of impact | Assessment score |
|---|---|------------------------------------|---------------------------|---|--|--|---------------------------|
| Amenity grassland: Variable areas of 3 grasslands / Golf courses. | Managed amenity grasslands / golf course. These areas have low biodiversity value and are easily re-creatable. | Local | Negligible | Common in area, | Negligible value potential for recreation within the area and within the scheme. | Positive. Replacement areas will be of higher biodiversity value. | Neutral |
| UK BAP habitat: Streams Lady Brook and Norbury Brook are affected by the proposed scheme | Both Lady Brook and Norbury Brook are examples of the UK BAP habitat, with semi-natural features. Norbury Brook is partly within the Norbury Brook Wood SBI. | National | High. | Nationally, watercourses are improving in biodiversity value due to improvements in water quality. | High | A short section of Norbury Brook will be realigned resulting in major negative impact. Overall with mitigation in place the impact will be moderate. | Moderate adverse |
| UK BAP habitat: ponds (not associated with great crested newt) 3 ponds will be affected by the proposed scheme route option. | A total of 3 ponds will be lost due to the proposed scheme. Ponds may contain species that are protected under the Wildlife and Countryside Act 1981 and the Conservation of Habitats and Species Regulations 2010 (e.g. lesser silver diving beetle). All ponds are UK BAP habitats. | National. | High/medium | There has been a 61% decline in wet pond density in Cheshire between 1970 – 1990. | High/medium | Minor negative, as terrestrial habitat and replacement / new ponds are created within the mitigation strategy. | Slight adverse |
| Ponds and clusters containing great crested newt (GCN) populations 24 ponds appear to be affected. | A total of 24 ponds 13 of which are in 4 clusters contain GCN will be lost due to the proposed scheme. . GCN are European protected species. | International | Very High | These populations form a critical part of the wider regional population of GCN of which some 40% of 2400 known breeding ponds nationally are in Cheshire (Guest & Harmer, 2006). Populations within Greater Manchester are declining. | Very High | Minor negative/neutral due to a robust mitigation strategy and good substitution possibilities. | Slight adverse / neutral |
| Badger Activity | There are 4 badger territories within the study area occupied by 4 clans Badgers are protected for welfare reasons, but are common and widespread. As native mammals their presence can increase the value of wildlife sites. | Local | Low | Increasing in the region. | Low | Intermediate negative, 2 main, 2 annex, 1 subsidiary and 1 outlier sett will be lost through the proposed scheme. Re-establishment of the main sett and outlier can be | Slight adverse / neutral, |

| Area | Description of feature / attribute | Scale (at which attribute matters) | Importance (of attribute) | Trend (in relation to target) | Biodiversity and earth heritage value | Magnitude of impact | Assessment score |
|------------------------------------|--|--|--|--|---------------------------------------|---|--|
| | | | | | | accomplished within existing territories. | |
| Potential Bat Roosts: Trees | <p>18 Semi-mature trees with holes or other features which may provide suitable habitats for bats to roost are located in hedgerows outside the woodland areas.</p> <p>Surveys to confirm presence of bats is currently being undertaken.</p> <p>All bats are European Protected Species.</p> | International if roosts present. If roosts are not present, the trees are of local value only. | Very high, only if are roosts present. | Populations are in decline across Europe due mainly to roost & habitat loss. | Very high only if roosts present. | Minor negative/neutral with mitigation. Substitutability is dependant on bat species. | Potentially large adverse but dependant on species and response to mitigation. |
| Bat Activity | High levels of bat activity - 7 species including Leisler's bats and foraging from a nearby probable maternity colony of <i>Myotis</i> bats. Also common & soprano pipistrelle, noctule, Daubenton's and brown long-eared bats. All bats are European Protected Species. Common & soprano pipistrelle are also UK BAP species. | International | Very high, | Leisler's scarce, Noctules uncommon & declining, soprano pipistrelle and brown long-eared possibly stable, Natterer's & common pipistrelle maybe increasing. | Very high | Minor negative / neutral as new habitats proposed within mitigation strategy will offset impacts significantly. | Slight adverse / neutral |
| Breeding Birds | Assemblages of common & widespread breeding birds on farmland and woodland habitats. Habitats are suitable for 8 UK BAP species 3 of which are also on the Red Data List and confirmed to be breeding within the study area. These are the song thrush, starling and house sparrow. | National | High | UK BAP species are in decline. | High | Minor negative. Loss of breeding bird habitat is not significant and can be readily mitigated. | Slight adverse |
| Wintering Birds | There are low lying pastures within the site footprint suitable for wintering bird species. Migrant thrushes may forage on berry-bearing shrubs and trees present in the scheme footprint. Flocks of fieldfare and redwing (Red list); wigeon and teal (amber list) are present. | National | High | Farmland birds in decline due to habitat losses and fragmentation. | High | Minor negative. As area is used for feeding and not for breeding. | Slight adverse |

| Area | Description of feature / attribute | Scale (at which attribute matters) | Importance (of attribute) | Trend (in relation to target) | Biodiversity and earth heritage value | Magnitude of impact | Assessment score |
|------------------------------------|--|------------------------------------|---------------------------|---|---------------------------------------|--|------------------|
| Barn Owl nest and territory | Tree containing barn owl breeding site with year-round use to be lost to scheme. Territory also affected. Barn owls are protected on Schedule 1 of the Wildlife & Countryside Act 1981. Also a Cheshire BAP species. | National | High, | Declining due to habitat losses, fragmentation and disturbance. | High | Moderate negative. Barn owls are sensitive to road developments although mitigation is possible. | Moderate adverse |
| Kingfisher nest | Long-used nest in bank of Lady Brook to be lost. Kingfishers are specially protected on Schedule 1 of the Wildlife & Countryside Act 1981 | National | High | UK populations are stable. | High | Minor negative. Species are sensitive to disturbance but there is potential for replacement nest sites to be created nearby as part of mitigation. | Slight adverse |

Reference Source(s):

- Anon., (1995). Biodiversity the UK Steering Group Report. UK BAP. HMSO, London.
- Cheshire Region Biodiversity Partnership Steering Group, (2002). Countdown – the Cheshire Region Biodiversity Action Plan. Cheshire Wildlife Trust.
- Department of Transport (2004). Transport Analysis Guidance - WebTAG, TAG Unit 3.3.10: The Biodiversity Sub-Objective
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- Guest J. & Harmer, A. (2006). Atlas of the Amphibians of Cheshire and Wirral.
- Highways Agency, (2010). IAN 130/10 Ecology and Nature Conservation: Criteria for Impact Assessment.
- Mouchel Parkman Ongoing Survey /Draft Environmental Assessment Reports (2007).
- Penny Anderson Associates, (2004) SEMMMs Major Road Schemes – Stage 3 Environmental Assessment Ecology Reports.

Summary assessment score: Moderate Adverse

Qualitative comments: At the time of producing this WebTAG worksheet, ecological surveys are currently ongoing. As such elements of the assessment are based on 2007 survey data and the assessment scores may change when the current survey data becomes available. The assessments that are based on 2007 data include:

- hedgerows,
- breeding birds,
- bats,

- badgers, and
- habitats

There is currently no mitigation design for the scheme. The score is based upon full implementation of mitigation based on the design principles of the 2007 scheme. Once the final land-take / mitigation design has been considered in detail against current ecological data, the list of affected areas may be further reduced.

The overall assessment score of moderate adverse has been derived due to a number of individual moderate adverse assessment scores. The large adverse assessment score for the loss of a small area of ancient woodland at Norbury Brook Wood is unavoidable as the proposed scheme in this location is not subject to change due to other physical constraints. As such and in line with WebTAG guidance the overall assessment score is considered to fairly represent the scheme as a whole.

Environment: Physical Fitness

| Activity Duration per day | Change in Number of People | |
|---------------------------|----------------------------|----------|
| | Pedestrians | Cyclists |
| Less than 30 minutes | N/A | N/A |
| Greater than 30 minutes | N/A | N/A |

Reference Source(s): N/A

Summary assessment score:

Insufficient environmental assessment to provide score

Qualitative comments:

A combined, dedicated footpath and cycleway is proposed to run through the entire section, with purpose built crossing facilities which would be integrated with the existing public rights of way network. Provision of this feature as a key component of the proposed scheme would provide further opportunity to improve physical fitness by expanding the existing non-motorised user facilities.

Environment: Journey Ambience

| Factor | Sub-factor | Better | Neutral | Worse |
|-------------------|-----------------------------|--------|---------|-------|
| Traveller Care | Cleanliness | | | |
| | Facilities | ✓ | | |
| | Information | ✓ | | |
| | Environment | ✓ | | |
| Travellers' Views | - | | ✓ | |
| Traveller Stress | Frustration | ✓ | | |
| | Fear of potential accidents | ✓ | | |
| | Route uncertainty | ✓ | | |

Reference Source(s):

N/A

Summary assessment score:

Large Beneficial.

Qualitative comments:

Provision of dedicated cycle lanes and crossings, with clear signage and traveller facilities would be offered. There would be improvements to existing perceptions of the scheme corridor, with the proposal offering improvements to existing views east of Manchester International Airport through introduction of landscaping proposals in the western section of the scheme. The proposal offers some new viewing opportunities where none currently exists between the A555 and the A6, although the majority of the alignment is enclosed within cutting or mounding. There would be limited change in views around the A34 junction and in the vicinity of the airport; however traveller stress would generally be improved due to designing in accordance with latest standards.

Environment: Landscape

| Features | Description | Scale it matters | Rarity | Importance | Substitutability | Impact | Additional Mitigation |
|---------------------|---|---|---|--|--|--|---|
| Pattern | To the east of the study corridor the landscape pattern is represented by irregular shaped fields bounded typically by hedgerows and linear belts of shrubs and trees. To the west the landscape pattern becomes less coherent as a result of frequent interruption by urban fringe land uses. These include golf courses, green houses, formal and informal recreational land uses along with significant transport corridors and the open landscape of the airport. | The landscape pattern matters at the local scale with pockets of farmland comprising a largely discordant landscape particularly to the west as pattern becomes largely irrelevant. | The landscape pattern as it exists is considered commonplace and typical of the mixed agricultural landscape that extends to the south of Stockport and Manchester. | Areas of open countryside where a landscape pattern is discernable is best described as of low importance at a local level. | Landscape pattern of irregular shaped fields and elements of mature planting would be replaceable through the formation of hedgerows and small copses. | The landscape pattern of irregular shaped fields generally lacking coherence has the capacity to effectively accommodate a new linear route, the resulting impact is considered no greater than slight adverse. | Opportunities for integration with existing / ongoing Local Planning Authority initiatives to reinforce landscape pattern beyond the footprint of the scheme. |
| Tranquillity | The area is represented by typically urban fringe features and as a result have no perceptible sense of tranquillity with frequent disruptive elements e.g. roads, rail corridors, airport and urban development. At a very local level contrasting features such as Ladybrook Valley have a sense of isolation in part however perception of the wider setting results in no definable sense of tranquillity. | No definable sense of tranquillity therefore the scale it matters is not considered relevant. | No definable sense of tranquillity therefore rarity is not considered relevant. | No definable sense of tranquillity therefore relative importance is not considered relevant. | The lack of a sense of tranquillity means that levels could not be adversely impact by the introduction of the proposed scheme therefore substitutability is not considered relevant. | The lack of any perceptible sense of tranquillity means that levels could not be adversely impacted by the introduction of the proposed scheme. | To be confirmed |
| Cultural | The landscape displays few cultural associations with the open countryside comprising a relatively disturbed and heavily modified agricultural landscape. Several buildings within the study corridor are listed and their settings have the potential to be modified by the proposals – most notable of these is Norbury Hall, although the setting is heavily degraded by | Notable locations e.g. Norbury Hall which is locally listed, and a generator house at Barlowfold which is Grade II listed, has some historical influence at the very local level. Historic field boundaries and areas of ancient woodland important at the local scale as a representation of | Cultural features are considered to be commonplace and of local importance. | Elements of the cultural landscape are considered to be of medium importance at a local level e.g. listed buildings and their settings along with areas of ancient woodland. | Loss of ancient woodland would be a negative impact associated with the proposed route, In addition the proposed route is anticipated to have a limited negative impact on the setting of some of the locally important buildings. Inclusion of woodland planting would over a | Mitigation planting will serve to assist in reducing the impact on the setting of certain structures adjacent to the study corridor and replacing/replicating former field boundaries, resulting in an impact considered to be slight and adverse. | To be confirmed |

| Features | Description | Scale it matters | Rarity | Importance | Substitutability | Impact | Additional Mitigation |
|-----------------------------|---|--|---|---|--|--|--|
| | <p>adjoining residential development and road corridors.</p> <p>Ref: Heritage of Historic Resources Worksheet.</p> | historical land uses. | | | substantial period of time replace some of these landscape features lost. Interruption of historical field boundaries would require new boundaries to be planted as part of the mitigation strategy. | | |
| Landcover | <p>The study area comprises a mosaic of features considered commonplace to an urban fringe context, woodland cover is variable being more prevalent to the east and is frequently associated with watercourses and in association with elements such as golf courses. The areas of open countryside are predominantly agricultural land use and under a pastoral management regime bounded in the main by managed hedgerows with occasional copses of broad leaved woodland.</p> <p>Scattered properties associated with local roads fringing more continuous urban development to the north with a more fragmented pattern evident to the south.</p> | In keeping with the areas proximity to the urban fringe, the sense of open countryside and associated features e.g. woodland, hedgerows matter at the local scale. | Features that represent landcover are typical of the local area and also to the northern fringes of the Cheshire countryside that extends to the south. | The area's characteristics are of medium importance at a very local level. | Elements of the local landcover lost to the scheme would in the medium to longer term be able to be replicated through the development of a robust mitigation framework. | Robust mitigation strategy will serve to integrate the proposed route and construction corridor with existing features that comprise local landcover, the resulting impact is considered to be no greater than slight and adverse. | Consider targeted off-site planting to assist integration and aid screening effect of corridor in visually notable areas. |
| Summary of character | The study area is represented by a mosaic of varying land uses that are considered relatively typical of the urban fringe. Open countryside featuring elements of hedgerows and pockets of woodland forms buffers between settlements to the south and a more continuous urban context to the north. Existing significant transport corridors exist predominantly to the west. Distinctive features such as | The overall scale of the study area is considered to matter at a local level. | The landscape, features, pattern and landcover are elements of the landscape considered to be commonplace and typical within locality and wider area. | Overall the landscape is considered to be of medium importance but only at a local level. | The majority of elements affected by the proposals would over the medium to longer term be capable of being substituted where appropriate through the development of a robust mitigation strategy. | Overall the impact on the elements that contribute to the landscape are considered to be slight and adverse when considered within the context of a robust mitigation strategy as set out in the reference sources. | <p>It may be appropriate to consider targeted off-site planting in addition to the mitigation strategy to aid integration and reinforce screening of the corridor.</p> <p>Opportunities for integration with existing / ongoing Local Planning Authority initiatives to reinforce landscape pattern beyond the</p> |

| Features | Description | Scale it matters | Rarity | Importance | Substitutability | Impact | Additional Mitigation |
|----------|--|------------------|--------|------------|------------------|--------|--------------------------|
| | Ladybrook Valley represent notable features albeit at a local scale. | | | | | | footprint of the scheme. |

Reference Source(s): Mouchel Parkman - SEMMMS Major Road Schemes Stage 3 Interim Environmental Assessment Report.
 Countryside Character Map “Manchester Conurbation” - Countryside Agency.
 Countryside Character Map “Manchester Pennine Fringe” - Countryside Agency.
 Countryside Character Map “Shropshire, Cheshire and Staffordshire Plain/Cheshire Sandstone Ridge” - Countryside Agency.
 The appraisal has considered that the approach to mitigation would be consistent with the principles of the 2007 scheme. .

Summary assessment score: Slight Adverse Impact.

Qualitative comments: Landscape features are considered typical of the wider locality and display importance at the local level.
 Corridor landscape is generally ordinary to moderate quality with some areas considered moderate to good quality at the detailed level.
 Fragmented agricultural landscape with existing features of woodland and linear belts of trees demonstrating a capacity to accommodate change with the inclusion of a robust mitigation strategy.

Worksheet X Environment: Heritage or Historic Resources - Plan Level – D4 Scheme

| Part 1 | | Part 2 | | | Part 3 |
|--|---|--|--|---|--|
| Feature | Description | Scale it matters | Significance | Rarity | Impact |
| <p>Form</p> <p>Sites within the study corridor comprise a composite of Historic Hedgerows, a Listed Building (generator house at Barlowfold, Listed Grade II), a Locally Listed Building (Norbury Hall), Styal and Syddal Park Conservation Areas and sites of archaeological and/or historic significance.</p> | <p>Sites of significance within study corridor (including 50m buffer zone) comprise earthworks (including a township boundary, ridge and furrow, Norbury Mill leat and Poynton mill leat, and Lumb Lane), buildings (No 83 Stanley Road, Primrose Cottage, Firtree Cottage, Yewtree Farm, Robin Hood ph), historic building complexes (Millgate Farm, Norbury Hall and outbuildings, Millbank, Distaff Farm, Hawthorn Farm), structures (Norbury Mill, Norbury Bridge, boundary post, generator house at Barlowfold) and accumulated deposits (including possible brick kiln sites, sites of buildings and cropmark sites).</p> | <p>Listed Buildings are national designations.</p> <p>Conservation Areas are local designations.</p> <p>The local list of buildings for Stockport is maintained by the local authority as a planning consideration.</p> <p>Historical hedgerows are considered by local authorities using national guidelines.</p> <p>Archaeological sites and standing buildings (with or without a statutory designation) are considered by the local authority and other consultees currently in accordance with the new PPS 5 to be potentially significant heritage</p> | <p>There are no known remains of national importance within the study corridor.</p> <p>The Listed Building within the study corridor is Grade II and can be considered to be of regional significance.</p> <p>The Conservation Areas are of local significance</p> <p>The known remains of Norbury Mill are a site of regional significance.</p> <p>The other sites identified within the study corridor are also of a local significance.</p> | <p>The sites identified within the study corridor are not rare types.</p> | <p>Slight adverse/Moderate adverse</p> <p>Scheme will cause direct negative impacts on the historic resource and its setting.</p> <p>Particular direct adverse impacts are noted for the township boundaries, ridge and furrow, No 83 Stanley Road, the site of a house on the west side of Styal Road, ridge and furrow, a possible brick kiln site, a cropmark site, Norbury Mill leat, Norbury Mill, the site of Norbury Mill House, the environs of Norbury Hall Farm, the site of Norbury toll house, Norbury Bridge, a boundary post, Poynton Mill leat, and a former outbuilding at Hawthorn Farm.</p> <p>Impacts can be mitigated by a combination of methods, including further survey work and excavation of remains, photography, measured plans, recording site in plan and section and by detailed design of the scheme to avoid or reduce impact on the historic resource.</p> |

| Part 1 | | Part 2 | | | Part 3 |
|------------------|--|--|--|---|---------------------------------|
| | | assets, the conservation of which must be a material consideration in the planning process. DMRB may be updated during the course of the current scheme to bring it in line with PPS 5 (is currently in line with the former PPG 15 & PPG 16). | | | |
| Survival | Evaluation of the Lumb Lane earthwork was carried out for the previous scheme Stage 3 assessment and found evidence of a ditch but no road surface. The survival of other earthworks is variable, appearing moderate to good in case of mill leats and township boundaries, poor to moderate in case of ridge and furrow. Survival of buildings is moderate to good. Among the structural remains, Norbury Mill survives as buried walls, known from previous excavation. The extent of survival of accumulated deposits is unknown. | Local and national policies take the condition of the cultural heritage into account by attempting to prevent, or mitigate against, loss or damage of a site. | The survival of the known remains is of /local significance. | The survival pattern of remains is typical of the region. | Slight adverse/Moderate adverse |
| Condition | The condition of accumulated deposits within the study | Local and national policies take the condition of the | The condition of the known remains is of local | The known condition of the remains is typical of the | Slight adverse. |

| Part 1 | | Part 2 | | | Part 3 |
|-------------------|--|--|--|--|-----------------|
| | corridor is unknown. The condition other sites within the study corridor is generally good, with little evidence of ongoing erosion to earthworks. | cultural heritage into account by preventing, or mitigation against, loss or damage of a site. | significance. | region. | |
| Complexity | The complexity of sites identified in the study corridor is low. | While no policies specifically address the issue of complexity, the Ancient Monuments and Archaeological Areas Act list diversity and group value among the criteria for Scheduling Ancient Monuments. These criteria are commonly used for the wider assessment of archaeological significance. | Of local significance. | The general level of complexity of the known remains is typical of the region. | Slight adverse. |
| Context | Historically the sites within the study corridor lay within a rural or semi-rural setting, punctuated by roadways. Away from the present main roadways and associated urban fringe something of this setting is still preserved. | Local and national policies take the condition of the cultural heritage into account by attempting to prevent, or mitigate against, loss or damage to the setting of a site. | The context of the known remains is of local significance. | The context of the sites is typical of the region. | Slight adverse. |
| Period | The periods of known sites within the study area range between the Medieval (AD 1070 to AD1540), Post Medieval (AD 1540 to late 18 th century), Industrial (late 18 th | Local and national policies consider all periods of the cultural heritage. | The period of the known remains is of local significance. | The period distribution of known sites is typical of the region. | Slight adverse. |

| Part 1 | | Part 2 | | | Part 3 |
|--------|---|--------|--|--|--------|
| | century to mid 19 th century) (some sites may also be of an actual later date or multi-period). | | | | |

Reference Source(s): SEMMMS Major Road Schemes Stage 3 Assessment; Stockport MBC, Manchester City Council, Macclesfield Borough Council for information on Listed Buildings, Conservation Areas; Greater Manchester Archaeological Unit, Cheshire County Council Environmental Planning Service for information on Scheduled Ancient Monuments, Registered Parks and Gardens, and sites on the Sites and Monuments Record.

Summary assessment score: Moderate adverse. This level of impact is specifically a consequence of the impact on Norbury Mill, a site of regional importance, with the overall level of impact otherwise being slight adverse.

Qualitative comments: The potential exists for below-ground archaeological remains which may be identified during the environmental impact assessment.

Worksheet 1: Integration – Land-Use Policy

| | Land-Use Policies or Proposals |
|----------|---------------------------------------|
| Local | |
| Regional | |
| National | |

Reference Source(s): **Stockport Core Strategy, Greater Manchester LTP3, Greater Manchester Strategy, Regional Planning Guidance for the North West (RPG13)**

Assessment Score: **Neutral**

Qualitative Comments:

The SEMMMS A6 to Manchester Airport Relief Road is considered neutral towards national policies and guidance. The SEMMMS A6 to Manchester Airport Relief Road corridor has been endorsed in all the current strategic planning documents, in particular the Regional Planning Guidance for the North West (RPG13). The protected corridor (the preferred route) has been safeguarded within the Green Belt and has long been recognised within the statutory planning process at local level. The detailed status of the protected corridor has therefore been taken into account when establishing the boundaries of proposed development land, hence most designations relate well to the corridor.

The proposal would impact on a number of policies, both beneficially and adversely, at the local level. Considerable beneficial effects have been noted in terms of integration and accessibility. The preferred route is generally regarded beneficial towards policies relating to Economy.

Regarding policies relating to Environment, the preferred route would be neutral, due to the counter-balance of some individual policies which would be both beneficially and adversely impacted upon.

The integration of Land Use with Transport is the key objective running through policy making from strategic to local level. The preferred route passes around urban areas containing a complexity of mixed uses and across numerous existing roads, tracks and areas of woodland. The complexity of the preferred route would suggest scope for detailed scheme refinement in order to best meet established policy guidance.

From the Land Use Policy appraisal, an overall assessment score of **neutral** has been derived from available data for the preferred route.