

## 21. Summary – Proposed Scheme

### Introduction

- 21.1 The purpose of this Chapter is to provide a summary of the outcome of the assessments reported within **Technical Chapters 7 – 18** for the Proposed Scheme, focusing on the following key objectives:
- Provide a summary of residual effects and conclude if these are significant or not; and
  - Provide a summary of the assessment of cumulative effects, including how they differ from previously identified effects and again conclude if these are significant or not.
- 21.2 The summary of the outcome of the assessments for the Project for Assessment is provided in **Chapter 20: Summary – Project for Assessment**.
- 21.3 Through delivering these objectives, BC and RBC should have sufficient information on environmental impacts to inform their decision-making process.
- 21.4 The residual effects defined within this Chapter rely upon the implementation of the mitigation set out within **Volume 3: Environmental Management Plan**. This is critical as the project team have developed detailed mitigation in order to avoid, resolve or off-set impacts. Without the implementation of **Volume 3: Environmental Management Plan**, the conclusions of the ES may change.

### Summary of Residual and Significant Effects

- 21.5 A consolidated summary of the outputs of the assessment (i.e. residual effects and the judgement on significance) for both the construction and operation stages are set out within **Table 21.1** and **Table 21.2**, respectively.
- 21.6 Where effects were identified to be significant, this is indicated by the text being in **bold** and is highlighted in red (adverse), green (beneficial) or in automatic / normal text (negligible).
- 21.7 Where Technical Chapters have identified individual level of effects for specific sensitive receptors for an assessed effect, each level of effect has been concluded in **Table 20.1** and **Table 20.2** and the greatest level of effect has been considered when considering the effects as a whole (i.e. to all receptors).

**Table 21.1: Summary of Residual Effects and Significant Effects During Construction**

| Technical Chapter                                  | Potential Effect                                                                               | Receptor                                         | Residual Effect                                  |
|----------------------------------------------------|------------------------------------------------------------------------------------------------|--------------------------------------------------|--------------------------------------------------|
| <b>Chapter 7: Socio-economics and Human Health</b> | Employment generation                                                                          | Labour force in the Local and Wider Impact Areas | <b>Moderate Beneficial</b>                       |
|                                                    | Access to Work and Training                                                                    | Labour force in the Local and Wider Impact Areas | <b>Moderate Beneficial</b>                       |
| <b>Chapter 8: Transport and Access</b>             | Construction stage effects are represented by operational stage effects in <b>Table 21.2</b> . |                                                  |                                                  |
| <b>Chapter 9: Noise and Vibration</b>              | Noise from construction works                                                                  | Residential, hotel, and educational receptors    | <b>Moderate adverse</b>                          |
|                                                    |                                                                                                | Pilsworth Fisheries                              | <b>Minor adverse</b>                             |
|                                                    | Vibration from construction works                                                              | Residential receptors                            | <b>Moderate adverse</b>                          |
|                                                    | Construction traffic noise on the road network                                                 | Residential receptors                            | <b>Minor adverse</b>                             |
| <b>Chapter 10: Air Quality</b>                     | Road Vehicle Exhaust Emissions                                                                 | Human Receptors                                  | Negligible to <b>minor adverse</b>               |
| <b>Chapter 11: Biodiversity</b>                    | Overall loss of habitat and degradation to retained habitats                                   | Broadleaved woodland                             | <b>Minor beneficial</b> to negligible beneficial |
|                                                    |                                                                                                | Hedgerows                                        | <b>Minor beneficial</b> to negligible beneficial |
|                                                    |                                                                                                | Neutral grassland                                | <b>Minor beneficial</b> to negligible beneficial |

| Technical Chapter                                          | Potential Effect                                                                                                             | Receptor                                                                                                                                                    | Residual Effect                           |
|------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|
|                                                            |                                                                                                                              | Standing water/ ponds                                                                                                                                       | Minor beneficial to negligible beneficial |
|                                                            |                                                                                                                              | Scattered trees                                                                                                                                             | Minor beneficial to negligible beneficial |
|                                                            |                                                                                                                              | Wet ditches                                                                                                                                                 | N/A                                       |
|                                                            | Risk of killing/ injury/ loss of habitat and disturbance to populations of wildlife                                          | Amphibians                                                                                                                                                  | Minor beneficial                          |
|                                                            |                                                                                                                              | Bats                                                                                                                                                        | Minor beneficial                          |
|                                                            |                                                                                                                              | Badgers                                                                                                                                                     | Negligible adverse                        |
|                                                            |                                                                                                                              | Birds (breeding and over-wintering)                                                                                                                         | Negligible beneficial                     |
|                                                            |                                                                                                                              | Otter                                                                                                                                                       | Negligible beneficial                     |
|                                                            |                                                                                                                              | Other Fauna                                                                                                                                                 | Minor adverse                             |
|                                                            |                                                                                                                              | Reptiles                                                                                                                                                    | Negligible adverse                        |
|                                                            |                                                                                                                              | Water voles                                                                                                                                                 | Negligible adverse                        |
| <b>Chapter 12: Hydrology, Flood Risk and Water Quality</b> | Flood risk as a result of flooding from failure of On-Site attenuation features installed as part of drainage strategy       | Less Vulnerable and More Vulnerable infrastructure adjacent to and within the Project for Assessment boundary                                               | Negligible adverse                        |
|                                                            | Changes to biological and morphological features within the Main Rivers from structures within the Wetland Habitat Corridors | Main Rivers (Whittle Brook, Brightley Brook, Hollins Brook, River Roch) and downstream hydraulically connected sites (Hollins Vale and Pilsworth Fisheries) | Negligible adverse                        |

| Technical Chapter                                      | Potential Effect                                                                                  | Receptor                                                                                                                                                                                                                                         | Residual Effect       |
|--------------------------------------------------------|---------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
|                                                        | Changes to chemical status of the groundwater body from works that interface with the water table | Northern Manchester Carboniferous Aquifers (Secondary A Aquifer)                                                                                                                                                                                 | Negligible adverse    |
|                                                        | Decrease in water quality due to disturbance of poor quality peat deposits                        | Main Rivers (Whittle Brook, Brightley Brook, Hollins Brook, River Roch) and all waterbody receptors such as ponds within the Assessment Boundary.<br>Downstream waterbodies within the area of interest (including Hollins Brook and River Roch) | Negligible adverse    |
| <b>Chapter 13: Ground Conditions and Contamination</b> | Potential risk of mining and ground collapse                                                      | Commercial Properties<br>Residential Properties<br>Construction Workers<br>Highways Infrastructure                                                                                                                                               | Negligible beneficial |
| <b>Chapter 14: Agriculture and Soils</b>               | Loss of agricultural land                                                                         | BMV agricultural land                                                                                                                                                                                                                            | Minor adverse         |
|                                                        |                                                                                                   | Other agricultural land                                                                                                                                                                                                                          | Minor adverse         |
|                                                        | Loss of or damage to soil resources                                                               | Soil (heavy clay loam and clay textures)                                                                                                                                                                                                         | Minor adverse         |
|                                                        |                                                                                                   | Soil (all other textures)                                                                                                                                                                                                                        | Negligible adverse    |
|                                                        | Reduction in farmable area and business viability                                                 | Main tenanted farm holding                                                                                                                                                                                                                       | Moderate adverse      |
| <b>Chapter 15: Archaeology</b>                         | Direct effects including the truncation, disturbance, or removal of                               | Castle Brook - Potential Prehistoric Camp                                                                                                                                                                                                        | N/A                   |
|                                                        |                                                                                                   | Meadowcroft Fold - Medieval Settlement and Iron Smelting Site                                                                                                                                                                                    | Moderate adverse      |

| Technical Chapter                 | Potential Effect                                                                                                                                                                  | Receptor                                                                    | Residual Effect                 |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|---------------------------------|
|                                   | known and unknown archaeological remains                                                                                                                                          | Whittle Brook - Medieval Iron Smelting Site                                 | <b>Moderate adverse</b>         |
|                                   |                                                                                                                                                                                   | Non-Designated Archaeological Assets Across the Project for Assessment      | <b>Moderate – Major adverse</b> |
| <b>Chapter 16: Built Heritage</b> | Impact on the significance (character and appearance) of Birch Village Conservation Area, as a result of direct impacts and change within its setting                             | Birch Village Conservation Area                                             | Negligible adverse              |
|                                   | Impact on the significance (special architectural and historic interest) of listed buildings and Registered Parks and Gardens (RP&Gs), as a result of change within their setting | Heaton Park (grade II RP&G)                                                 | <b>Minor adverse</b>            |
|                                   |                                                                                                                                                                                   | Temple to the north east of Heaton Hall (grade II* listed building) (HAP 1) | <b>Minor adverse</b>            |
|                                   |                                                                                                                                                                                   | Alkington Hall (grade II* listed building) (HAP 2)                          | Negligible adverse              |
|                                   |                                                                                                                                                                                   | Brick Farmhouse (grade II listed building, HAP 3)                           | <b>Minor adverse</b>            |
|                                   |                                                                                                                                                                                   | Lower Whittle Farmhouse (grade II listed building (HAP 4)                   | <b>Minor adverse</b>            |
|                                   | Impact on the significance of non-designated heritage assets as a result of their demolition                                                                                      | Moss Side Barn/Farm Griffe Lane (HAP 15)                                    | N/A                             |
|                                   |                                                                                                                                                                                   | Meadowcroft Fold Farmhouse and Barns (HAP 19)                               | <b>Minor adverse</b>            |
|                                   |                                                                                                                                                                                   | Thurston Fold (HAP 22)                                                      | N/A                             |
|                                   |                                                                                                                                                                                   | Birch Mill (HAP 34)                                                         | N/A                             |

| Technical Chapter                       | Potential Effect                              | Receptor                                                                                                       | Residual Effect          |
|-----------------------------------------|-----------------------------------------------|----------------------------------------------------------------------------------------------------------------|--------------------------|
| <b>Chapter 17: Landscape and Visual</b> |                                               | Lodge View (HAP 54)                                                                                            | N/A                      |
|                                         |                                               | Higher Fields Farm (HAP 45)                                                                                    | Minor adverse            |
|                                         |                                               | Broomhill Farm (HAP 50)                                                                                        | Minor adverse            |
|                                         | Changes to Landscape Character                | Local Landscape Character: (LCT) Mosslands and Lowland Farmland                                                | Major / Moderate adverse |
|                                         |                                               | Local Landscape Character: (LCT) Urban Fringe Farmland                                                         | Major / Moderate adverse |
|                                         |                                               | Landscape Character Area (LCA) No. 26 Prettywood, Pilsworth and Unsworth Moss                                  | Major / Moderate adverse |
|                                         |                                               | Landscape Character Area (LCA) No. 27. Simister, Slattocks and Healds Green                                    | Major / Moderate adverse |
|                                         |                                               | The Character and Features of the Assessment Boundary and Application Boundary                                 | Major / Moderate adverse |
|                                         | Changes to the character and amenity of views | Users of footpaths and roads within the western extents of the Assessment Site (Photoviewpoints 1, 2, 3 and 4) | Major / Moderate adverse |
|                                         |                                               | Users of Unsworth Academy Playing Fields (Photoviewpoint 2)                                                    | Major / Moderate adverse |
|                                         |                                               | Users of footpath BY/12WHI / Pole Lane (Photoviewpoint 5)                                                      | Major / Moderate adverse |

| Technical Chapter                 | Potential Effect   | Receptor                                                                                                              | Residual Effect                 |
|-----------------------------------|--------------------|-----------------------------------------------------------------------------------------------------------------------|---------------------------------|
|                                   |                    | Users of footpath BY/9WHI / Egypt Lane (Photoviewpoint 6)                                                             | <b>Major / Moderate adverse</b> |
|                                   |                    | Users of footpaths BY/8WHI and BY/46WHI (Photoviewpoints 7 and 8)                                                     | <b>Major / Moderate adverse</b> |
|                                   |                    | Users of footpath BY/3WHI (Photoviewpoint 11)                                                                         | <b>Major / Moderate adverse</b> |
|                                   |                    | Users of Rochdale Way Promoted Long Distance Footpath (Photoviewpoints 12, 13 and 14)                                 | <b>Major / Moderate adverse</b> |
|                                   |                    | Users of footpaths RD/Hey/Fp72, RD/Hey/Fp75 and RD/Hey/Fp74 (Photoviewpoints 16, 17 and 18)                           | <b>Major / Moderate adverse</b> |
|                                   |                    | Users of footpath BY/1WHI (along the south-eastern edge of Pilsworth Quarry) to the north (Photoviewpoints 19 and 20) | <b>Major / Moderate adverse</b> |
| <b>Chapter 18: Climate Change</b> | Construction stage | Release of GHG emissions impacting the Global Climatic System                                                         | <b>Minor adverse</b>            |

**Table 21.2: Summary of Residual Effects and their Significance During Operation**

| Technical Chapter                                  | Potential Effect                     | Receptor                                                                                                                                                                                                                                                                                                               | Residual Effect         |
|----------------------------------------------------|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| <b>Chapter 7: Socio-economics and Human Health</b> | Employment generation                | Labour force in the Local and Wider Impact Areas                                                                                                                                                                                                                                                                       | <b>Major beneficial</b> |
|                                                    | Access to Work and Training          | Labour force in the Local and Wider Impact Areas                                                                                                                                                                                                                                                                       | <b>Major beneficial</b> |
| <b>Chapter 8: Transport and Access</b>             | Increase in Severance                | Communities using the following links: <ul style="list-style-type: none"> <li>• Moss Hall Road between Pilsworth Road and Whittle Lane; and</li> <li>• Pilsworth Road, between Moss Hall Road and M66.</li> </ul>                                                                                                      | <b>Moderate adverse</b> |
|                                                    | Increase in Driver Delay             | Vehicle drivers using links: <ul style="list-style-type: none"> <li>• M62 Westbound Off-Slip;</li> <li>• Hollins Brow, between Hollins Lane and Manchester Road;</li> <li>• Manchester Road, north of Hollins Brow; and</li> <li>• Pilsworth Road, between Hareshill Road / Pilsworth Road and A58 Bury St.</li> </ul> | <b>Moderate adverse</b> |
|                                                    | Increase in Non-motorised User Delay | NMUs using links: <ul style="list-style-type: none"> <li>• Moss Hall Road, between 3 arrows (Junction 9) and Fowler Welch (Junction 10);</li> </ul>                                                                                                                                                                    | <b>Moderate adverse</b> |
|                                                    |                                      |                                                                                                                                                                                                                                                                                                                        |                         |

| Technical Chapter | Potential Effect                        | Receptor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Residual Effect         |
|-------------------|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
|                   |                                         | <ul style="list-style-type: none"> <li>• Moss Hall Road, between Pilsworth Road and Whittle Lane;</li> <li>• Pilsworth Road, between Moss Hall Road and M66;</li> <li>• Pilsworth Road, between Hareshill Road / Pilsworth Road and Heywood Distribution Park; and</li> <li>• M66 Junction 3, Southbound Off-Slip.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                               |                         |
|                   |                                         | <p>NMUs using links:</p> <ul style="list-style-type: none"> <li>• Moss Hall Road, between Pilsworth Road and Whittle Lane; and</li> <li>• Pilsworth Road, between Moss Hall Road and M66.</li> </ul> <p>Vehicle drivers / NMUs using the following routes:</p> <ul style="list-style-type: none"> <li>• Hareshill Road / Queen Elizabeth II Way Corridor, between Hareshill Road / QEII / South Heywood residential &amp; local centre (Junction 3);</li> <li>• Hareshill Road, between Hareshill Road / Queen Elizabeth II Way / South Heywood residential &amp; local centre (Junction 3) and Hill Top Road;</li> <li>• Pilsworth Road, between Hareshill Road / Pilsworth Road and Heywood Distribution Park;</li> </ul> |                         |
|                   | Reduction in Non-motorised User Amenity |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>Moderate adverse</b> |

| Technical Chapter | Potential Effect                  | Receptor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Residual Effect         |
|-------------------|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
|                   |                                   | <ul style="list-style-type: none"> <li>Pilsworth Road, between Heywood Distribution Park and Access to Committed Development on South Side of Pilsworth Road;</li> <li>Moss Hall Road, between 3 Arrows (Junction 9) and Fowler Welch (Junction 10);</li> <li>Manchester Road, between Queen Elizabeth II Way and Coronation Avenue; and</li> <li>Pilsworth Road, between Moss Hall Road and M66.</li> </ul>                                                                                                     |                         |
|                   | Increase in fear and intimidation | <p>Vehicle drivers / NMUs using the following routes:</p> <ul style="list-style-type: none"> <li>Hareshill Road / Queen Elizabeth II Way Corridor, Between Hareshill Road / QEII / South Heywood residential &amp; local centre (Junction 3);</li> <li>Hareshill Road, between Hareshill Road / Queen Elizabeth II Way / South Heywood residential &amp; local centre (Junction 3) and Hill Top Road;</li> <li>Pilsworth Road, between Hareshill Road / Pilsworth Road and Heywood Distribution Park;</li> </ul> | <b>Moderate adverse</b> |

| Technical Chapter                     | Potential Effect                                   | Receptor                                                                                                                                                                                                                                                                                                                                                                                                     | Residual Effect     |
|---------------------------------------|----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
|                                       |                                                    | <ul style="list-style-type: none"> <li>Pilsworth Road, between Heywood Distribution Park and Access to Committed Development on South Side of Pilsworth Road;</li> <li>Moss Hall Road, between 3 Arrows (Junction 9) and Fowler Welch (Junction 10);</li> <li>Manchester Road, between Queen Elizabeth II Way and Coronation Avenue; and</li> <li>Pilsworth Road, between Moss Hall Road and M66.</li> </ul> |                     |
|                                       | Increase in accidents and reduction in safety      | Vehicle drivers / NMUs                                                                                                                                                                                                                                                                                                                                                                                       | Negligible adverse  |
|                                       | Impact to Public right of Way (PRoW) Network       | PRoW and users (NMUs)                                                                                                                                                                                                                                                                                                                                                                                        | Minor beneficial    |
|                                       | Increased demand on Public Transport               | Public Transport Network and users                                                                                                                                                                                                                                                                                                                                                                           | Moderate beneficial |
| <b>Chapter 9: Noise and Vibration</b> | Noise from proposed commercial and industrial uses | Residential                                                                                                                                                                                                                                                                                                                                                                                                  | Minor adverse       |
|                                       |                                                    | Educational receptors                                                                                                                                                                                                                                                                                                                                                                                        | N/A                 |
|                                       |                                                    | Recreational facilities (Pilsworth Fisheries)                                                                                                                                                                                                                                                                                                                                                                | Negligible          |
|                                       | Noise from proposed energy infrastructure          | Residential, and receptors                                                                                                                                                                                                                                                                                                                                                                                   | Minor adverse       |
|                                       |                                                    | Recreational facilities (Pilsworth Fisheries)                                                                                                                                                                                                                                                                                                                                                                | Negligible          |

| Technical Chapter               | Potential Effect                                                                    | Receptor                                                                                                          | Residual Effect                      |
|---------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|--------------------------------------|
|                                 | General Activities (Vehicle Movements On The Internal Access Roads and Car Parking) | Residential                                                                                                       | Moderate adverse                     |
|                                 |                                                                                     | Recreational facilities (Pilsworth Fisheries)                                                                     | Minor adverse                        |
|                                 | Noise from development generated road traffic and new highway infrastructure        | Residential receptors                                                                                             | Negligible to Moderate adverse       |
|                                 |                                                                                     | Other receptors (Grade II listed buildings, Heap Village Primary School along Heap Brow and public rights of way) | Negligible to minor moderate adverse |
|                                 | Noise from existing and reasonably foreseeable future noise sources                 | Residential receptors                                                                                             | N/A                                  |
| <b>Chapter 10: Air Quality</b>  | Road Vehicle Exhaust Emissions                                                      | Human Receptors                                                                                                   | Negligible to Minor adverse          |
| <b>Chapter 11: Biodiversity</b> | Degradation through recreational pressure                                           | Non-statutory designated sites                                                                                    | Negligible adverse                   |
|                                 | Overall loss/ degradation of retained and created habitats                          | Retained and created habitats                                                                                     | Negligible beneficial                |
|                                 | Overall loss/ degradation of retained and created habitats                          | Retained and created habitats                                                                                     | Negligible beneficial                |
|                                 | Risk of killing/ injury/ loss of habitat and disturbance to populations of wildlife | Amphibians                                                                                                        | Negligible adverse                   |
|                                 |                                                                                     | Badgers                                                                                                           | Negligible adverse                   |
|                                 |                                                                                     | Bats                                                                                                              | Negligible adverse                   |
|                                 |                                                                                     | Birds (breeding and over-wintering)                                                                               | Negligible adverse                   |

| Technical Chapter                                          | Potential Effect                                                                                                                            | Receptor                                                                                                                                                    | Residual Effect    |
|------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
|                                                            |                                                                                                                                             | Otter                                                                                                                                                       | Negligible adverse |
|                                                            |                                                                                                                                             | Other Fauna                                                                                                                                                 | Negligible adverse |
|                                                            |                                                                                                                                             | Reptiles                                                                                                                                                    | Negligible adverse |
|                                                            |                                                                                                                                             | Water voles                                                                                                                                                 | Negligible adverse |
|                                                            |                                                                                                                                             |                                                                                                                                                             |                    |
| <b>Chapter 12: Hydrology, Flood Risk and Water Quality</b> | Flood risk as a result of flooding from failure of On-Site attenuation features installed as part of drainage strategy                      | Less Vulnerable and More Vulnerable infrastructure adjacent to and within the Project for Assessment boundary                                               | Negligible         |
|                                                            | Changes to biological and morphological features of the waterbody from structures within the Wetland Habitat Corridors                      | Main Rivers (Whittle Brook, Brightley Brook, Hollins Brook, River Roch) and downstream hydraulically connected sites (Hollins Vale and Pilsworth Fisheries) | Negligible         |
|                                                            | Changes to quantitative status of the groundwater body from foundations and structures that interface with the groundwater flow             | Northern Manchester Carboniferous Aquifers (Secondary A Aquifer)                                                                                            | Negligible         |
|                                                            | Decrease in water quality as a result of runoff                                                                                             | Ordinary watercourses and waterbody receptors within the Project for Assessment, Main Rivers and downstream hydraulically connected non-statutory sites     | Negligible         |
|                                                            | Increase in surface water flood risk as a result of increased overland flows from changes to topography and increased areas of hardstanding | Less Vulnerable and More Vulnerable infrastructure adjacent to and within the Project for Assessment boundary                                               | Negligible         |

| Technical Chapter                                      | Potential Effect                                                                                                                                                                  | Receptor                                                                    | Residual Effect |
|--------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|-----------------|
|                                                        | Increased demand on existing drainage networks and Waste Water Treatment Works                                                                                                    | Wastewater Treatment Works and associated infrastructure                    | Negligible      |
|                                                        | Increased demand on water resources and associated infrastructure                                                                                                                 | Aquifers and existing potable water infrastructure                          | Negligible      |
| <b>Chapter 13: Ground Conditions and Contamination</b> | No operational stage effects are reported.                                                                                                                                        |                                                                             |                 |
| <b>Chapter 14: Agriculture and Soils</b>               | No operational stage effects are reported.                                                                                                                                        |                                                                             |                 |
| <b>Chapter 15: Archaeology</b>                         | No operational stage effects are reported.                                                                                                                                        |                                                                             |                 |
| <b>Chapter 16: Built Heritage</b>                      | Impact on the significance (character and appearance) of Birch Village Conservation Area, as a result of direct impacts and change within its setting                             | Birch Village Conservation Area                                             | Minor adverse   |
|                                                        | Impact on the significance (special architectural and historic interest) of listed buildings and Registered Parks and Gardens (RP&Gs), as a result of change within their setting | Heaton Park (grade II RP&G)                                                 | Minor adverse   |
|                                                        |                                                                                                                                                                                   | Temple to the north east of Heaton Hall (grade II* listed building) (HAP 1) | Minor adverse   |
|                                                        |                                                                                                                                                                                   | Alkrington Hall (grade II* listed building) (HAP 2)                         | Minor adverse   |
|                                                        |                                                                                                                                                                                   | Brick Farmhouse (grade II listed building) (HAP 3)                          | Minor adverse   |

| Technical Chapter                       | Potential Effect                              | Receptor                                                                                                       | Residual Effect                                                 |
|-----------------------------------------|-----------------------------------------------|----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| <b>Chapter 17: Landscape and Visual</b> | Changes to Landscape Character                | Lower Whittle Farmhouse (grade II listed building) (HAP 4)                                                     | Minor adverse                                                   |
|                                         |                                               | Local Landscape Character: (LCT) Mosslands and Lowland Farmland                                                | Major / Moderate adverse                                        |
|                                         |                                               | Local Landscape Character: (LCT) Urban Fringe Farmland                                                         | Major / Moderate adverse                                        |
|                                         |                                               | Landscape Character Area (LCA) No. 26 Prettywood, Pilsworth and Unsworth Moss                                  | Major/ Moderate adverse reducing to Moderate Adverse in Year 15 |
|                                         |                                               | Landscape Character Area (LCA) No. 27. Simister, Slattocks and Healds Green                                    | Major / Moderate adverse                                        |
|                                         |                                               | The Character and Features of the Assessment Boundary and Application Boundary                                 | Major / Moderate adverse                                        |
|                                         | Changes to the character and amenity of views | Users of footpaths and roads within the western extents of the Assessment Site (Photoviewpoints 1, 2, 3 and 4) | Major / Moderate adverse                                        |
|                                         |                                               | Users of Unsworth Academy Playing Fields (Photoviewpoint 2)                                                    | Major / Moderate adverse                                        |
|                                         |                                               | Users of BY/12WHI / Pole Lane (Photoviewpoint 5)                                                               | Major / Moderate adverse                                        |

| Technical Chapter                 | Potential Effect                         | Receptor                                                                                                              | Residual Effect                                                        |
|-----------------------------------|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|
|                                   |                                          | Users of BY/9WHI / Egypt Lane (Photoviewpoint 6)                                                                      | <b>Major / Moderate adverse</b>                                        |
|                                   |                                          | Users of footpaths BY/8WHI and BY/46WHI (Photoviewpoints 7 and 8)                                                     | <b>Major / Moderate</b> reducing to <b>Moderate adverse</b> in Year 15 |
|                                   |                                          | Users of footpath BY/3WHI (Photoviewpoint 11)                                                                         | <b>Major / Moderate adverse</b>                                        |
|                                   |                                          | Users of Rochdale Way Promoted Long Distance Footpath (Photoviewpoints 12, 13 and 14)                                 | <b>Major / Moderate adverse</b>                                        |
|                                   |                                          | Users of footpaths RD/Hey/Fp72, RD/Hey/Fp75 and RD/Hey/Fp74 (Photoviewpoints 16, 17 and 18)                           | <b>Major / Moderate adverse</b>                                        |
|                                   |                                          | Users of footpath BY/1WHI (along the south-eastern edge of Pilsworth Quarry) to the north (Photoviewpoints 19 and 20) | <b>Major / Moderate adverse</b>                                        |
| <b>Chapter 18: Climate Change</b> | Operational Stage – Buildings            | Release of GHG emissions impacting the Global Climatic System                                                         | <b>Minor adverse</b>                                                   |
|                                   | Operational Stage – Transport            | Release of GHG emissions impacting the Global Climatic System                                                         | <b>Minor adverse</b>                                                   |
|                                   | Operational Stage – Green Infrastructure | Release of GHG emissions impacting the Global Climatic System                                                         | Negligible                                                             |

21.8 A summary of the technical topics is provided in **Table 21.3** below where:

- No Significant effects were identified – denoted by ✕;
- Significant adverse effects were identified – denoted by ✓;
- Significant beneficial effects were identified – denoted by ✓; and
- A mixture of Significant adverse and beneficial effects were identified – denoted by ✓.

**Table 21.3: Summary of Technical Topics**

| Technical topic                         | Significant effects?<br>(During the construction stage) | Significant effects?<br>(During the operational stage) |
|-----------------------------------------|---------------------------------------------------------|--------------------------------------------------------|
| Socio-Economics and Human Health        | ✓                                                       | ✓                                                      |
| Transport and Access                    | ✓                                                       | ✓                                                      |
| Noise and Vibration                     | ✕                                                       | ✓                                                      |
| Air Quality                             | ✕                                                       | ✕                                                      |
| Biodiversity                            | ✕                                                       | ✕                                                      |
| Hydrology, Flood Risk and Water Quality | ✕                                                       | ✕                                                      |
| Ground Conditions and Contamination     | ✕                                                       | N/A                                                    |
| Agriculture and Soils                   | ✓                                                       | N/A                                                    |
| Archaeology                             | ✓                                                       | N/A                                                    |
| Built Heritage                          | ✕                                                       | ✕                                                      |
| Landscape and Visual                    | ✓                                                       | ✓                                                      |
| Climate Change                          | ✕                                                       | ✕                                                      |

### Summary of Assessment of Cumulative Effects

21.9 An assessment of cumulative effects has been completed within **Chapter 19: Assessment of Cumulative Effects**. The assessment considered the two most common types of cumulative effect; effect interactions and in-combination cumulative effects. A summary of the outputs of the assessment for each type of cumulative effect is set out below.

#### Assessment of Effect Interactions

21.10 Effect interactions consider multiple effects generated by the Proposed Scheme impacting upon the same receptor / receptor category. These are assessed under 'factors', which is essentially broad environmental topics in accordance with the EIA Regulations.

21.11 During construction, there is one effect interaction which are considered to be Significant.

- **Population and human health (local residents)** – associated with the interaction of adverse effects associated with an increase in traffic, traffic noise, traffic emissions and views experienced by users of the public rights of way.
- 21.12 During operation, there is a single effect interaction which are considered to be Significant, very similar to those considered at the construction stage.
- **Population and human health (local residents)** – associated with the interaction of adverse effects associated with an increase in traffic, operational noise (including traffic noise), small changes in air quality (from traffic emissions) and views experienced by users of the public rights of way.
- 21.13 For both the construction and operational stages, there are also Significant beneficial effects from employment generation and training opportunities, although these cannot balance or outweigh the adverse effects set out above.

#### **Assessment of In-Combination Effects**

- 21.14 The assessment of in-combination effects considered 16 Cumulative Projects on a technical topic-by-topic basis.
- 21.15 The purpose of the in-combination assessment is to understand whether there are in-combination effects (in which case there needs to be a common receptor); how the in-combination effect differs from that considered at the project level and whether there are any in-combination effects that are significant (particularly if they were not considered significant at the project level).
- 21.16 From the in-combination assessment completed, the following topics have concluded that there are no in-combination effects: archaeology; and ground conditions. Whilst there are in-combination effects across the following topics, the conclusions at the project level do not change<sup>1</sup>: transport and access; noise and vibration; air quality; biodiversity; hydrology, flood risk and water quality; built heritage and landscape and visual.
- 21.17 The assessment of in-combination effects in relation to socio-economics and human health, concluded that construction related effects were greater (even more beneficial), with both effects concluding an effect of major beneficial as opposed to moderate beneficial at the project level, although both effects remain Significant as they were at the project level. Operational effects remained the same as assessed at the project level, albeit only because conclusions at the project level were already major beneficial and significant.
- 21.18 The assessment of agriculture and soils concluded that there were no in-combination effects in relation to soil resources and that the effects on farm business viability was the same as that considered at the project level. There is an increase in the loss of agricultural land (including best and most versatile land). The in-combination effect for the Proposed Scheme will increase from minor to moderate adverse. This still remains Not Significant.

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<sup>1</sup> i.e. the in-combination effect is no better or worse than that reported at the project level.