

Appleby to Brough

Table 5-5: Summary of preliminary assessment of likely significant environmental effects – Appleby to Brough

| Factor | Preliminary assessment of likely significant environmental effects | |
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| | Construction stage | Operation stage |
| Air Quality | <ul style="list-style-type: none"> Preliminary assessment for air quality has been undertaken on the basis of the whole route (see route wide table above). | <ul style="list-style-type: none"> Preliminary assessment for air quality has been undertaken on the basis of the whole route (see route wide table above). |
| Biodiversity | <p>Black-Black-Black alternative</p> <ul style="list-style-type: none"> There is potential for significant adverse effects on River Eden SAC and River Eden and | <p>Black-Black-Black alternative</p> <ul style="list-style-type: none"> There is potential for significant adverse effects on River Eden SAC and River Eden and Tributaries SSSI, |

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| | <p>Tributaries SSSI relating to habitat loss and potential for pollution of watercourses functionally linked to the site, and on Sandford Mire CWS relating to hydrology. Subject to further design and mitigation.</p> <ul style="list-style-type: none"> • There is the potential for North Pennine Moors SAC and SPA, Argill Woods and Pastures SSSI and Augll Valley Pasture SSSI relating to air quality. Subject to further assessment. • There is potential for significant adverse effects due to loss of Priority Habitats. Subject to further design and mitigation. • Effects will be the same as River Eden SAC for rivers and streams. • Effects will be the same as route wide table above on bat roosts and bat activity, barn owls, amphibians, reptiles, terrestrial invertebrates and macrophytes, subject to ongoing surveys. • Effects will be the same as route wide table above on red squirrel and other terrestrial mammal species due to habitat loss and possible fragmentation impacts. <p>Blue Alternative (central section)</p> <ul style="list-style-type: none"> • The effects for the Blue alternative are expected to be similar to the Black alternative within the central section of this scheme. <p>Orange Alternative (eastern section)</p> <ul style="list-style-type: none"> • The effects for the Orange alternative are expected to be similar to the Black alternative within the eastern section of this scheme, though the overall loss of habitats (and | <p>due to habitat loss of watercourses functionally linked to the site.</p> <ul style="list-style-type: none"> • There is the potential for North Pennine Moors SAC and SPA, Argill Woods and Pastures SSSI and Augll Valley Pasture SSSI relating to air quality. Subject to further assessment. • Potential significant adverse effects on Sandford Mire CWS relating to hydrology. • Effects will be the same as route wide table above for rivers and streams. • Effects will be the same as route wide table above on bat roosts and bat activity, barn owls, amphibians, reptiles, terrestrial invertebrates and macrophytes, subject to ongoing surveys. • Effects will be the same as route wide table above on red squirrel and other terrestrial mammal species due to habitat loss and possible fragmentation impacts. <p>Blue Alternative (central section)</p> <ul style="list-style-type: none"> • The effects for the Blue alternative are expected to be similar to the Black alternative within the central section of this scheme. <p>Orange Alternative (eastern section)</p> <ul style="list-style-type: none"> • The effects for the Orange alternative are expected to be similar to the Black alternative within the eastern section of this scheme, though fragmentation of habitats will be greater due to the offline nature of the alternative. • Shading and habitat impacts expected to be greater for Lowgill Beck than the Black alternative for this section. |

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| | Construction stage | Operation stage |
| | <p>associated impacts on protected species) is expected to be greater.</p> <ul style="list-style-type: none"> There is potential for greater shading and habitat loss effects are anticipated through the additional crossing of Lowgill Beck. | |
| Climate | <ul style="list-style-type: none"> No likely significant effects anticipated from all alternatives. | <ul style="list-style-type: none"> No likely significant effects anticipated from all alternatives. |
| Cultural Heritage | <p>Black-Black-Black alternative</p> <ul style="list-style-type: none"> Permanent significant adverse effects are anticipated at the Warcop Roman Camp and Length Of Roman Road, 285m South West Of Moor House. <p>Blue alternative (central section)</p> <ul style="list-style-type: none"> No different likely significant effects anticipated as a result of the blue alternative for the central section. <p>Orange alternative (eastern section)</p> <ul style="list-style-type: none"> No different likely significant effects anticipated as a result of the orange alternative for the eastern section. | <ul style="list-style-type: none"> No likely significant effects anticipated from all alternatives. |
| Geology and Soils | <p>Black-Black-Black alternative</p> <ul style="list-style-type: none"> Likely significant effects due to the potential permanent land take and loss of high and medium value agricultural soil resource (Grade 3a and 3b agricultural land). <p>Blue alternative (central section)</p> <ul style="list-style-type: none"> No different likely significant effects anticipated as a result of the blue alternative for the central section. <p>Orange alternative (eastern section)</p> | <p>Black-Black-Black alternative</p> <ul style="list-style-type: none"> Potential beneficial significant effects on the UNESCO Global Geopark due to the potential for enhancement if cuttings or earthworks offer an opportunity to permanently expose geology of scientific interest. <p>Blue alternative (central section)</p> <ul style="list-style-type: none"> No different likely significant effects anticipated as a result of the blue alternative for the central section. <p>Orange alternative (eastern section)</p> |

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| | <ul style="list-style-type: none"> No different likely significant effects anticipated as a result of the orange alternative for the eastern section. | <ul style="list-style-type: none"> No different likely significant effects anticipated as a result of the orange alternative for the eastern section. |
| Landscape and Visual Effects | <p>Black-black-black</p> <ul style="list-style-type: none"> Likely significant effects on 8b Broad Valleys Landscape sub-type Likely significant effects on 11a Foothills Landscape sub-type Likely significant effects on North Pennines AONB Likely significant effects on residents at the east of Coupland, Sandford, the Warcop area, the Flitholme area, and west of Brough Likely significant effects on PRoW between Coupland and Sandford, PRoW at Warcop and Flitholme, PRoW to the west of Brough, and PRoW in the North Pennines AONB Likely significant effects on visitors to Eden Valley Railway and Brough Castle <p>Black-blue-black</p> <ul style="list-style-type: none"> Likely significant effects on 8b Broad Valleys Landscape sub-type Likely significant effects on 11a Foothills Landscape sub-type Likely significant effects on North Pennines AONB Likely significant effects on residents at the east of Coupland, Sandford, the Warcop area, the Flitholme area, and west of Brough Likely significant effects on PRoW between Coupland and Sandford, PRoW at Warcop and | <p>Black-black-black</p> <ul style="list-style-type: none"> Likely significant effects in year 1 on: <ul style="list-style-type: none"> 8b Broad Valleys Landscape sub-type 11a Foothills Landscape sub-type North Pennines AONB Residents at Sandford, the Warcop area, the Flitholme area, and west of Brough PRoW at Warcop and Flitholme, PRoW 372013 and PRoW 372022, PRoW to the west of Brough, PRoW in the North Pennines AONB Likely significant effects in year 15 on: <ul style="list-style-type: none"> 8b Broad Valleys Landscape sub-type 11a Foothills Landscape sub-type North Pennines AONB Residents at Sandford, the Warcop area, the Flitholme area, and west of Brough PRoW at Warcop and Flitholme, PRoW 372013 and PRoW 372022, PRoW to the west of Brough PRoW in the North Pennines AONB <p>Black-blue-black</p> <ul style="list-style-type: none"> Likely significant effects in year 1 on: <ul style="list-style-type: none"> 8b Broad Valleys Landscape sub-type 11a Foothills Landscape sub-type North Pennines AONB Residents at Sandford, the Warcop area, the Flitholme area, and west of Brough PRoW at Warcop and Flitholme, PRoW 372013 and PRoW 372022, PRoW to the west of |

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| | Construction stage | Operation stage |
| | <p>Flitholme, PRoW to the west of Brough, and PRoW in the North Pennines AONB</p> <ul style="list-style-type: none"> • Likely significant effects on visitors to Eden Valley Railway and Brough Castle <p>Black-black-orange</p> <ul style="list-style-type: none"> • Likely significant effects on 8b Broad Valleys Landscape sub-type • Likely significant effects on 11a Foothills Landscape sub-type • Likely significant effects on North Pennines AONB • Likely significant effects on residents at the east of Coupland, Sandford, the Warcop area, the Flitholme area, and west of Brough • Likely significant effects on PRoW between Coupland and Sandford, PRoW at Warcop and Flitholme, PRoW to the west of Brough, and PRoW in the North Pennines AONB • Likely significant effects on visitors to Eden Valley Railway and Brough Castle <p>Black-blue-orange</p> <ul style="list-style-type: none"> • Likely significant effects on 8b Broad Valleys Landscape sub-type • Likely significant effects on 11a Foothills Landscape sub-type • Likely significant effects on North Pennines AONB • Likely significant effects on residents at the east of Coupland, Sanford, the Warcop area, the Flitholme area, and west of Brough | <p>Brough, and PRoW in the North Pennines AONB</p> <ul style="list-style-type: none"> ○ Visitors to Eden Valley Railway <ul style="list-style-type: none"> • Likely significant effects in year 15 on: <ul style="list-style-type: none"> ○ 8b Broad Valleys Landscape sub-type ○ 11a Foothills Landscape sub-type ○ North Pennines AONB ○ Residents at Sandford, the Warcop area, the Flitholme area, and west of Brough ○ PRoW at Warcop and Flitholme, PRoW 372013 and PRoW 372022, PRoW to the west of Brough, and PRoW in the North Pennines AONB ○ Visitors to Eden Valley Railway <p>Black-black-orange</p> <ul style="list-style-type: none"> • Likely significant effects in year 1 on: <ul style="list-style-type: none"> ○ 8b Broad Valleys Landscape sub-type ○ 11a Foothills Landscape sub-type ○ North Pennines AONB ○ Residents at Sandford, the Warcop area, the Flitholme area, and west of Brough ○ PRoW at Warcop and Flitholme, PRoW 372013 and PRoW 372022, PRoW to the west of Brough, and PRoW 329001 in the North Pennines AONB ○ Visitors to Eden Valley Railway and Brough Castle • Likely significant effects in year 15 on: <ul style="list-style-type: none"> ○ 8b Broad Valleys Landscape sub-type ○ 11a Foothills Landscape sub-type ○ North Pennines AONB |

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| | Construction stage | Operation stage |
| | <ul style="list-style-type: none"> • Likely significant effects on PRoW between Coupland and Sandford, PRoW at Warcop and Flitholme, PRoW to the west of Brough, and PRoW in the North Pennines AONB • Likely significant effects on visitors to Eden Valley Railway and Brough Castle | <ul style="list-style-type: none"> ○ Residents at Sandford, the Warcop area, the Flitholme area, and west of Brough ○ PRoW at Warcop and Flitholme, PRoW 372013 and PRoW 372022, PRoW to the west of Brough, and PRoW 329001 in the North Pennines AONB ○ Visitors to Eden Valley Railway and Brough Castle <p>Black-blue-orange</p> <ul style="list-style-type: none"> • Likely significant effects in year 1 on: <ul style="list-style-type: none"> ○ 8b Broad Valleys Landscape sub-type ○ 11a Foothills Landscape sub-type ○ North Pennines AONB ○ Residents at Sandford, the Warcop area, the Flitholme area, and west of Brough ○ PRoW at Warcop and Flitholme, PRoW 372013 and PRoW 372022, PRoW to the west of Brough, and PRoW 329001 in the North Pennines AONB ○ Visitors to Eden Valley Railway and Brough Castle • Likely significant effects in year 15 on: <ul style="list-style-type: none"> ○ 8b Broad Valleys Landscape sub-type ○ 11a Foothills Landscape sub-type ○ North Pennines AONB ○ Residents at Sandford, the Warcop area, the Flitholme area, and west of Brough ○ PRoW at Warcop and Flitholme, PRoW 372013 and PRoW 372022, PRoW to the west of Brough, and PRoW 329001 in the North Pennines AONB |

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| | | <ul style="list-style-type: none"> ○ Visitors to Eden Valley Railway and Brough Castle |
| Material Assets and Waste | <ul style="list-style-type: none"> • Preliminary assessment for material assets and waste has been undertaken on the basis of the whole route (see route wide table above). | <ul style="list-style-type: none"> • Preliminary assessment for material assets and waste has been undertaken on the basis of the whole route (see route wide table above). |
| Noise and Vibration | <ul style="list-style-type: none"> • There is potential for significant effects across the scheme. Effects will be temporary and localized depending on the specific activity and construction stage. • The specific location and duration of these effects are yet to be determined and are subject to further assessment. | <p>Black-Black-Black alternative</p> <ul style="list-style-type: none"> • Significant adverse effects are predicted to 58 residential receptors and five non-residential receptors. Subject to on-going mitigation design and further assessment. • Significant beneficial effects are predicted to five residential receptors. <p>Black-Blue-Black alternative</p> <ul style="list-style-type: none"> • Significant adverse effects are predicted to 42 residential receptors and two non-residential receptors. Subject to on-going mitigation design and further assessment. • Significant beneficial effects are predicted to five residential receptors. <p>Black-Black-Orange alternative</p> <ul style="list-style-type: none"> • Significant adverse effects are predicted to 75 residential receptors and five non-residential receptors. Subject to on-going mitigation design and further assessment. • Significant beneficial effects are predicted to nine residential receptors and one non-residential receptor. <p>Black-Blue-Orange alternative</p> <ul style="list-style-type: none"> • Significant adverse effects are predicted to 42 residential receptors and two non-residential receptors. |

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| | | <p>Subject to on-going mitigation design and further assessment.</p> <ul style="list-style-type: none"> • Significant beneficial effects are predicted to nine residential receptors and one non-residential receptor. |
| Population and Human Health | <p>All alternatives:</p> <ul style="list-style-type: none"> • Walkers, cyclists and horse riders – potential likely significant effects due to the severance of PRow and other WCH provisions due to the land required for the construction of the project. • Agricultural land holdings – potential likely significant effects due to the loss of or damage to key characteristics, features or elements of the agricultural holdings and potential effect of this change on viability. • Residents of rural properties, potentially negative health effects on wellbeing and quality of life due to noise effects • Rural communities – potentially negative health effect due to severance caused by construction activities and traffic, leading to reduced access to services and facilities <p>Black-Black-Black alternative</p> <ul style="list-style-type: none"> • Ministry of Defence - potential likely significant effects as a result of potential loss of use/access of land during construction. • BW 350/021 - potential likely significant effects as the Bridleway will be severed by the draft DCO boundary. <p>Black-Blue-Black alternative</p> | <p>All alternatives</p> <ul style="list-style-type: none"> • Walkers, cyclists and horse riders – potential for beneficial significant effects if additional formal crossing points are introduced across the A66, that will bring improvements to WCH journey times, in some cases. However, there is also the potential for adverse significant effects due to increased journey times dependent upon the permanent scheme design. • Residents of rural properties, potentially negative health effects on wellbeing and quality of life due to noise effects • Rural communities – potentially negative health effect due to severance caused by construction activities and traffic, leading to reduced access to services and facilities |

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| | Construction stage | Operation stage |
| | <ul style="list-style-type: none"> Ministry of Defence - potential likely significant effects as there is potential for loss of use/access of land during construction. BW 350/021 - potential likely significant effects as the Bridleway will be severed by the draft DCO boundary. Potential for permanent land take from properties. At this stage potential significant effects cannot be ruled out <p>Black-Black-Orange alternative</p> <ul style="list-style-type: none"> Rowan House housing allocation - potential likely significant effects as the majority of the allocation (96%) lies within the draft DCO boundary and there is potential for construction activities to take place directly within this land. Ministry of Defence - potential likely significant effects as there is potential loss of use/access of land during construction. Property would require acquisition and demolition as part of the scheme. At this stage potential significant effects cannot be ruled out <p>Black-Blue-Orange alternative</p> <ul style="list-style-type: none"> Rowan House housing allocation - potential likely significant effects as the majority of the allocation (96%) lies within the draft DCO boundary and there is potential for construction activities to take place directly within this land. Ministry of Defence - potential likely significant effects as there is potential loss of use/access of land during construction. | |

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| | <ul style="list-style-type: none"> Property would require acquisition and demolition as part of the scheme. At this stage potential significant effects cannot be ruled out. | |
| Road Drainage and the Water Environment | <ul style="list-style-type: none"> No likely significant effects anticipated from all alternatives. | <ul style="list-style-type: none"> No likely significant effects anticipated from all alternatives. |