



**Haweswater Aqueduct Resilience Programme - Proposed Marl Hill  
Section**

**Environmental Statement**

**Volume 2**

**Chapter 14: Communities and Health**

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## Haweswater Aqueduct Resilience Programme - Proposed Marl Hill Section

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## Contents

<b>14. Communities and Health</b> .....	<b>1</b>
14.1 Introduction .....	1
14.2 Scoping and Consultations .....	2
14.3 Key Legislation and Guidance.....	2
14.4 Assessment Methodology and Assessment Criteria.....	3
14.5 Baseline Conditions.....	7
14.6 Assessment of Likely Significant Effects.....	10
14.7 Essential Mitigation and Residual Effects.....	27
14.8 Cumulative Effects.....	28
14.9 Conclusion.....	28
14.10 Glossary and Key Terms.....	29

## 14. Communities and Health

### 14.1 Introduction

- 1) This chapter presents an assessment of the likely significant effects of the Proposed Marl Hill Section on communities and health.
- 2) The report begins by reviewing the legislation and guidance relevant to communities and health. The assessment area and methodology for the assessment are then outlined. The nature, value and sensitivity of the existing baseline environment are then identified before an assessment is made of the potential effects on communities and health. Embedded and good practice mitigation measures relevant to communities and health are summarised in Section 14.4 and have been taken into account in the assessment in Section 14.6.
- 3) The assessment areas for potential community effects in the vicinity of the Proposed Marl Hill Section have been defined by local and regional communities:
  - The Regional Community Assessment Area (RCAA) considers all district council areas within 1 km of the proposed development boundary. For the purposes of this assessment, the RCAA has been defined by as the extent of the Ribble Valley Borough Council boundary as seen on Figure 14.1
  - The Local Community Assessment Area (LCAA) consists of all parish boundaries which are within a 1 km boundary around the main compound areas of the Proposed Marl Hill Section. In some cases, this results in community areas extending far from the compound locations. This is taken into account in the assessment of potential community effects. Community and health effects are not assessed for the corridor below which the tunnel would pass, as the majority of works associated with the tunnels would be located underground and would have minimal or no impacts at surface level.
- 4) The assessment of the Proposed Marl Hill Section focuses on three community areas: Bashall Eaves, Waddington and Newton-in-Bowland<sup>1</sup>. The boundaries of the communities have been established using the smallest geographical unit at which population statistics can be gathered.<sup>2</sup> As noted above, the community boundaries generally extend beyond the LCAA 1 km boundary. Professional judgement has therefore been applied to extend or reduce the community assessment area where required due to, for example, known environmental effects or the extent of traffic haulage routes. The community assessment areas for the Proposed Marl Hill Section are presented on Figure 14.2.
- 5) The chapter is presented under the following subheadings:
  - Disturbance Effects (assessed for the LCAA)
  - Severance Effects (assessed for the LCAA)
  - Tourism Accommodation Effects (assessed for the RCAA)
  - Health Effects (assessed for the RCAA, presented in full in Appendix 14.1: Health Assessment, and summarised in this chapter).
- 6) The chapter is supported by the following appendices and figures:
  - Appendix 14.1: Health Assessment
  - Figure 14.1: Regional Community Assessment Area (RCAA) Boundary
  - Figure 14.2: LCAA Boundary and Community Areas
  - Figure 14.3: Community and Health Receptors.

<sup>1</sup> The Newton-in-Bowland community area is shared across the Proposed Marl Hill Section and the Proposed Bowland Section.

<sup>2</sup> Office of National Statistics ONS (2020) *Administrative Geography – England*. Available at: <https://www.ons.gov.uk/methodology/geography/ukgeographies/administrativegeography/england> [Accessed May 2020]

## 14.2 Scoping and Consultations

### 14.2.1 Scoping

- 7) A communities and health chapter was included within the EIA Scoping Report<sup>3</sup>, which was submitted to the relevant planning authority for comment in October 2019, followed by a Scoping Addendum in February 2021 due to design changes and refinements. Ribble Valley Borough Council published its respective Scoping Opinions on both of these reports in 2020 and 2021 and these have been incorporated into the assessment. Scoping comments and responses are outlined in Appendix 4.1.
- 8) The assessment elements scoped into the assessment of effects on communities and health for the Proposed Marl Hill Section are summarised in Table 14.1.

**Table 14.1: Summary of Scope for the Assessment of Effects on Communities and Health**

Assessment Element	Overview	Scope
Disturbance effects	Where environmental effects arising from the Proposed Marl Hill Section (air quality, noise and vibration, landscape and visual, and traffic) could result in disturbance to, or affect the functioning of, the community receptors.	<ul style="list-style-type: none"> <li>▪ Residential properties</li> <li>▪ Social infrastructure</li> <li>▪ Agricultural activities</li> <li>▪ Commercial operations.</li> </ul>
Severance effects	Where the Proposed Marl Hill Section could result in severance of access to the community receptor or could disrupt access to community facilities.	<ul style="list-style-type: none"> <li>▪ Residential properties</li> <li>▪ Social infrastructure</li> <li>▪ Commercial operations</li> <li>▪ Agricultural activities.</li> </ul>
Tourism accommodation effects	Where the presence of construction workers in the community could create demand for tourism accommodation that could place pressure upon supply for visitors.	Tourism accommodation (hotels, bed and breakfasts, guest houses).
Health effects	Where environmental effects arising from the Proposed Marl Hill Section could have consequences for the health and well-being of residents of the community.	The affected population.

### 14.2.2 Consultation

- 9) During the course of this assessment, consultation has taken place with relevant statutory and non-statutory consultees, stakeholders and third parties, through both correspondence and face-to-face meetings. Consultation undertaken is summarised in Appendix 4.1.

## 14.3 Key Legislation and Guidance

- 10) Table 14.2 introduces legislation and guidance that are relevant to the communities and health assessment.

<sup>3</sup> Jacobs (2019) Haweswater Aqueduct Resilience Programme Proposed Bowland Section - EIA Scoping Report

**Table 14.2: Communities and Health Legislation and Guidance**

Legislation and Guidance	Description
<i>Design Manual for Roads and Bridges (DMRB): LA 112 Population and Human Health</i> <sup>4</sup>	DMRB sets out the requirements and advice relating to works on motorway and all-purpose trunk roads. DMRB LA 112 <i>Population and Human Health</i> sets out the requirements for assessing and reporting the environmental effects on population and health from construction, operation and maintenance of highways projects. Whilst the DMRB guidance primarily relates to highways, the principles and methodology can be applied to all linear infrastructure.
<i>Public Health England Strategy 2020 to 2025</i> <sup>5</sup>	The strategy of Public Health England sets out the governments long-term vision for the future of public health in the country. It aims to create a 'wellness' service and to strengthen both national and local leadership. It adopts the Marmot Review's <sup>6</sup> life course framework for tackling the social determinants of health and aims to support healthy communities.
<i>Human health: Ensuring a high level of protection</i> <sup>7</sup>	The reference paper for addressing human health in Environmental Impact Assessment (EIA) provides health authorities with a guide to the EIA Directive to assist in navigating the EIA process, as well as providing principles and good practice for proportionately addressing health in EIA.

- 11) National and local planning policies are covered in Chapter 5: Planning and Policy Context. Local and national health and well-being strategies are explained in Appendix 14.1: Health Assessment.

## 14.4 Assessment Methodology and Assessment Criteria

### 14.4.1 Assessment Methodology

- 12) This section describes the methodology for the assessment of community effects. The methodology for the assessment of effects on health is provided in Appendix 14.1: Health Assessment.
- 13) DMRB guidance *LA 112 Population and Human Health* standard<sup>8</sup> provided a partial basis for assessing community severance and health effects. However, in some cases, (e.g. for the assessment of community disturbance and tourism accommodation effects), there is no definitive guidance available and no prescribed method for either determining the sensitivity of community receptors or assessing the significance of effects on those receptors. This is especially the case in connection with community disturbance arising from construction vehicle movements. Jacobs therefore exercised reasonable care and professional judgement based on United Utilities' consultations with local affected communities, and an understanding of construction vehicle numbers and durations, for the assessment of such community disturbance.

<sup>4</sup> Highways England (2020) *Design Manual for Roads and Bridges: DMRB LA 112 Population and Human Health*. Available at: <https://www.standardsforhighways.co.uk/prod/attachments/1e13d6ac-755e-4d60-9735-f976bf64580a> [Accessed: May 2020]

<sup>5</sup> Department of Health (2010) *Public Health England Strategy 2020 to 2025*. Available at: <https://www.gov.uk/government/publications/phe-strategy-2020-to-2025> [Accessed May 2020]

<sup>6</sup> The Marmot Review into health inequalities in England was published on 11 February 2010. It proposes an evidence based strategy to address the social determinants of health, the conditions in which people are born, grow, live, work and age and which can lead to health inequalities

<sup>7</sup> Cave, B., et al. (2020) *Human health: Ensuring a high level of protection*. A reference paper on addressing Human Health in Environmental Impact Assessment. As per EU Directive 2011/92/EU amended by 2014/52/EU. International Association for Impact Assessment and European Public Health Association. Available at: <https://eupha.org/repository/sections/HIA/Human%20Health%20Ensuring%20Protection%20Main%20and%20Appendices.pdf> [Accessed: 02/02/2021]

<sup>8</sup> Highways England (2020) *op. cit.*

#### 14.4.2 Assessment Criteria

##### Disturbance Effects

- 14) For the purposes of this assessment, disturbance effects within the LCAA were considered to arise when a combination of two or more visual, traffic, air quality and noise effects coincided on a particular area or receptor. The assessment of disturbance effects considered community receptors within the LCAA, which comprised three community areas: Newton-in-Bowland, Bashall Eaves and Waddington.
- 15) For each community area, receptors were identified using Ordnance Survey AddressBase data, site surveys, Google imagery and stakeholder engagement. Receptors were classified into the following categories: residential properties, social infrastructure (e.g. schools, hospitals, GP facilities, village halls) and commercial operations (e.g. retail facilities, pubs, business parks). Community receptors can be seen on Figure 14.3.
- 16) For each receptor, assessment findings from each of the following topics were used in the determination of disturbance effects:
  - Chapter 6: Landscape and Arboriculture
  - Chapter 16: Transport Planning
  - Chapter 17: Noise and Vibration
  - Chapter 18: Air Quality and Climate Change.
- 17) Disturbance effects were assessed for individual receptors using professional judgement to determine whether the combination of topic effects could result in a significant disturbance effect overall for that receptor.
- 18) Overall disturbance effects are reported at a community level taking consideration of the various mitigation measures that have been proposed and the proportion of individual receptors experiencing disturbance effects compared to the total in the community.
- 19) In addition to disturbance effects associated with visual, traffic, air quality and noise factors within the LCAAs, further consideration was given to disturbance effects associated with general construction traffic using the local highway network outside the LCAAs. Once again, professional judgement was applied to evaluating the significance of community disturbance along haulage routes in the local area, taking into account community feedback received during consultation and engagement events. Settlements outside the LCAAs that would potentially be affected by one or more of the proposed haulage routes include Clitheroe, Waddington, West Bradford, Chatburn and Grindleton.
- 20) In relation to disturbance effects, therefore, it is important to note that these are reported at two levels – one reporting level addresses disturbance effects associated with the main construction compounds at Bonstone and Braddup, and is by definition confined to a relatively small area; the second reporting level considers disturbance effects associated with construction traffic passing through settlements and communities away from the main compounds, in some cases many kilometres away.

##### Severance Effects

- 21) The assessment of severance effects considers impacts on both severance and accessibility. Severance is defined as the extent to which members of communities are able (or not able) to move around their community and access services / facilities. Accessibility is defined as the ability of users to access land, property, infrastructure, businesses, and community facilities.
- 22) The assessment has drawn on the findings presented in Chapter 16: Transport Planning which considers severance as a result of the difficulty of crossing a heavily trafficked road, the road itself (as it creates a physical barrier) and pedestrian access to essential facilities impeded by minor traffic flows. Where 'slight', 'moderate' or 'substantial' severance is identified in Chapter 16: Transport Planning, the assessment has considered the implications for community receptors on access to community facilities.
- 23) The assessment presented in Chapter 16: Transport Planning does not differentiate between traffic associated with enabling or construction works, with impacts instead considered over the duration of the full construction programme, assumed to be from 2023 to 2029. The peak of activity would be during

the construction phase. Therefore, severance effects as a result of traffic flow, driver delay and pedestrian delay as well as impacts on local bus services are assessed for the construction phase only.

- 24) The assessment has also considered the ability of users to access land, property, infrastructure, businesses and community facilities, as a result of new infrastructure, road closures or delays imposed by traffic management measures. Any such changes to access have been informed by the Construction Traffic Management Plan (CTMP (RVBC-MH-APP-007\_01)).
- 25) All community receptors have been assigned a high sensitivity. The criteria used to help determine the magnitude of severance effects on community receptors are shown in Table 14.3.

**Table 14.3: Magnitude Criteria for the Assessment of Community Severance Effects<sup>9</sup>**

Magnitude	Criteria
Major	Introduction (adverse) or removal (beneficial) of complete severance with no / full accessibility provision
Moderate	Introduction (adverse) or removal (beneficial) of severe severance with limited / moderate accessibility provision
Minor	Introduction (adverse) or removal (beneficial) of severance with adequate accessibility provision
Negligible	Very minor introduction (adverse) or removal (beneficial) of severance with ample accessibility provision
No Change	No loss or alteration of accessibility; no observable impact in either direction

- 26) The sensitivity of all receptors was assumed to be high and the magnitude of impact was established using the assessment criteria presented in Table 14.3 above. The matrix in Table 14.4 was then used to determine whether likely environmental effects are considered significant. For the purposes of this Environmental Statement (ES), any effect assessed to be of moderate or major significance is considered to be significant overall.

**Table 14.4: Significance of Effects**

		Magnitude			
		Negligible	Minor	Moderate	Major
Sensitivity	Low	Negligible	Negligible / slight	Slight / moderate	Moderate
	Medium	Negligible / slight	Slight	Moderate	Moderate / major
	High	Slight	Slight / moderate	Moderate / major	Major

**Tourism Accommodation Effects**

- 27) The potential for construction workers to put pressure on demand for tourism accommodation has been assessed based on the estimated peak workforce.
- 28) The peak workforce has been compared against the available capacity or headroom within the RCAA to determine whether effects are likely to be significant. The temporal aspect of magnitude (duration and frequency) has been taken into consideration in concluding on the significance of effects, recognising that the 'peak' effect would endure for a only short period within the overall construction programme. Tourism accommodation effects are considered within the context of tourism accommodation bedspace stock within the RCAA as seen on Figure 14.1. A conservative assumption has been applied that all non-home-based workers would reside in the RCAA; however, it is likely that workers would be more widely dispersed than the RCAA, and therefore any effects would be diluted across a wider assessment area.

<sup>9</sup> Highways England (2020) *op. cit.*



- 29) The tourism accommodation sector has been assigned a high sensitivity. The criteria used to help determine the magnitude of effects on tourism accommodation are shown in Table 14.5.

**Table 14.5: Magnitude Criteria for the Assessment of Tourism Accommodation Effects**

Magnitude	Criteria
Major	Large, direct change to the availability of tourism accommodation
Moderate	Medium, direct change to the availability of tourism accommodation
Minor	Small, direct change to the availability of tourism accommodation
Negligible	Very slight change from the baseline condition
No Change	Change hardly discernible, approximating 'no change' in conditions

**Health Effects**

- 30) The full methodology for the assessment of effects on health is provided in Appendix 14.1: Health Assessment. The assessment identifies health determinants likely to be affected by the Proposed Marl Hill Section. Where significant residual effects are reported by other topics in this ES, the assessment has followed a source-pathway-receptor model to identify potential health effects, only reporting effects through which there is a clear pathway between the source and the receptor and using evidence to support the conclusions. In addition, EIA topics which have reported residual environmental effects which are not significant have also been considered in the health assessment, to allow the potential health outcomes of combinations of minor effects to be considered.

**14.4.3 Embedded Mitigation and Good Practice**

- 31) Embedded mitigation is inherent to the design, and good practice measures are standard industry methods and approaches used to manage commonly occurring environmental effects. Embedded mitigation and good practice of particular relevance to communities and health is set out under the subheadings below, and the assessments in Section 14.6 are made taking these measures into account.
- 32) As explained in the preceding section, this chapter is also informed by the findings of other topic chapters of this ES. The assessments in these chapters have also been made taking into account embedded mitigation and the good practice measures of relevance to their topic area.
- 33) The need for any topic-specific essential mitigation (generally for effects likely to be significant in the context of the EIA Regulations) is considered in Section 14.7 of this chapter.

**Embedded Mitigation**

- 34) Chapter 3: Design Evolution and Development Description explains the evolution of the design with input from the EIA team, including mitigation workshops and the use of Geographic Information Systems (GIS)-based constraints data. Consideration of potential community effects has been an integral part of the planning and design of the Proposed Marl Hill Section.

**Good Practice Measures**

- 35) Good practice measures contained in Appendix 3.2: Construction Code of Practice (CCoP) include some of particular relevance to communities and health. Regular communication between the main Contractor and affected landowners, occupiers and agents could mitigate associated adverse community impacts that may otherwise arise from ongoing construction activities. As set out in Appendix 3.2, the Contractor would:
- Take reasonable steps to engage with nearby residents, including those who may be detrimentally affected by construction activities. This would include distribution of timely communications to the community and stakeholders, providing advance information about the work in the area
  - Develop a Stakeholder and Customer Communications Management Plan, which would be regularly updated throughout the duration of work. The plan would set clear objectives and processes on how

the work would be delivered to mitigate impacts to customers, whilst striving to build stronger stakeholder relationships.

### Assumptions and Limitations

36) Assumptions and limitations of the methodology are outlined as follows:

- AddressBase data, produced by the Ordnance Survey, has been used to identify community receptors. This has been verified where possible by desk-based reviews and site surveys; however, this data source may not be entirely up to date
- The assessment of community disturbance effects is reliant on the assessments presented in Chapter 6: Landscape and Arboriculture, Chapter 16: Transport Planning, Chapter 17: Noise and Vibration, and Chapter 18: Air Quality. The limitations and assumptions presented in these chapters are therefore relevant to the assessment of community disturbance effects
- In order to gather accurate data on population and demographics, community areas have been defined using Office for National Statistics (ONS) parish boundaries. In some cases, the naming of community areas may not reflect individual notions of communities or neighbourhoods. Where effects would be experienced by a group of residents, for example on a particular street or group of streets, this is explicitly stated within the assessment
- A conservative assumption has been applied that all non-home-based workers would reside within the RCAA. It is acknowledged that there would be a small chance of workers choosing to take up accommodation closer to site in holiday cottages and B&Bs that ordinarily accommodate tourists. If workers stayed long term, this could result in a lack of availability for tourists, resulting in knock-on impacts on the tourism industry. However, given that construction is predicted to last over a year, B&B accommodation would be unsuitable for individuals working in shifts. B&B accommodation is more expensive than ordinary rental properties and, over the construction period, workers would be likely to feel the need for more social and recreative amenities, provided in more urban areas. It is reasonable to assume that workers would choose to distribute themselves more widely than within the RCAA; therefore, any effects would be diluted across a wider assessment area.

## 14.5 Baseline Conditions

37) This section details the baseline community conditions within the RCAA and LCAA assessment areas. Baseline health data are included in Appendix 14.1: Health Assessment.

38) Baseline data were collated in compiling this assessment from the following sources:

- Field surveys completed on 10 December 2019 used to identify and verify community receptors
- Desk-based assessment (as summarised in Tables 14.6 to 14.9).

39) The description of baseline conditions has focused on the defined LCAAs. As already stated, transport routes are acknowledged as extending outside the LCAAs but for completeness have been considered as part of the scope of disturbance effects.

### 14.5.1 Information Sources

40) Key data sources used to inform the baseline include statistics published by the ONS,<sup>10</sup> Ministry of Housing, Communities and Local Government,<sup>11</sup> AddressBase data provided by the Ordnance Survey,<sup>12</sup> and Tourism data from Visit Britain.<sup>13</sup>

<sup>10</sup> ONS (2021) Central Data Source. Available at: <https://www.ons.gov.uk/> [Accessed May 2020]

<sup>11</sup> Ministry of Housing, Communities & Local Government (MHCLG) (2019) *English Indices of Deprivation 2019*. Available at: <https://www.gov.uk/government/statistics/english-indices-of-deprivation-2019> [Accessed: May 2020]

<sup>12</sup> Ordnance Survey (2020) AddressBase Data. Available at: <https://www.ordnancesurvey.co.uk/business-government/products/addressbase> [Accessed: May 2020]

<sup>13</sup> Visit Britain (2016) *Accommodation Stock Audit*. Available at: <https://www.visitbritain.com/gb/en> [Accessed: May 2020]

### 14.5.2 RCAA Baseline Conditions

- 41) The RCAA is defined as the administrative area of Ribble Valley Borough Council, incorporating corridors for traffic routes. Baseline information related to this administrative area is provided in Table 14.6.

**Table 14.6: RCAA Baseline Data**

Indicator	Ribble Valley Borough Council
Tourism assets <sup>14</sup>	A substantial part of the rural area of the authority is classified as part of the Forest of Bowland Area of Outstanding Natural Beauty. The Forest of Bowland is designated as an Area of Outstanding Natural Beauty covering 803 km <sup>2</sup> . The natural environment serves tourist activities such as walking, cycling, stargazing, photography and 'family fun' events.
Tourism accommodation <sup>15</sup>	Total bedspace stock in serviced accommodation in Ribble Valley in 2016 was 3,290. This includes hotels, guest houses and bed and breakfasts.

### 14.5.3 LCAA Baseline Conditions

- 42) The LCAA includes the communities of Newton-in-Bowland, Bashall Eaves and Waddington, as seen on Figure 14.2. Baseline conditions for these communities are set out in the tables 14.7-14.9 below.

#### Newton-in-Bowland

- 43) Newton-in-Bowland is characterised as a rural community area containing approximately 90 residential properties, approximately 40 farms, a selection of tourism accommodation including guest houses and B&Bs, a village hall, and the Parkers Arms pub. The village of Newton-in-Bowland is the main hub of the community, located approximately 500 m north of the Bonstone Compound.
- 44) The baseline characteristics of Newton-in-Bowland are summarised in Table 14.7.

**Table 14.7: Newton-in-Bowland Baseline Data**

Indicator	Newton-in-Bowland
Population <sup>16</sup>	Usual resident population (Census 2011) is 315.
Population density <sup>17</sup>	Population density is 0.10 people per hectare compared to 1.0 in the RCAA, suggesting a very rural and sparse community.
Deprivation <sup>18</sup>	The parish is located in Ribble Valley 001B. This Lower Super Output Area (LSOA) <sup>19</sup> is ranked in IMD decile 5 <sup>20</sup> .
Residential properties	The community comprises approximately 90 residential properties.
Social infrastructure	Newton-in-Bowland Village Hall and United Reformed Church.
Agricultural activity	Approximately 40 farms have been identified including Manor House Farm.
Commercial operations	Receptors include Lowlands Stables, the Parkers Arms pub and a small selection of tourism accommodation facilities (total bedspaces estimate is 29).
Travel to work <sup>21</sup>	Approximately 10 % of employed residents work in Blackburn and 7 % in Preston. The main route for access to both is via the B6478 and A59 roads.

<sup>14</sup> OpenStreetMap Contributors (2020) *OpenStreetMap*. Available at: <https://www.openstreetmap.org/> [Accessed: May 2020]

<sup>15</sup> Visit Britain (2016) *Op Cit*.

<sup>16</sup> Census (2011a) KS101EW – Usual residential population. Available at: <https://www.nomisweb.co.uk/> [Accessed: May 2020]

<sup>17</sup> Census (2011a) *op. cit*.

<sup>18</sup> MHCLG (2019) *op. cit*.

<sup>19</sup> Lower Layer Super Output Areas (LSOAs) are a geographic hierarchy designed to improve the reporting of small area statistics in England and Wales.

<sup>20</sup> Deprivation deciles are based on the Index of Multiple Deprivation 2019 which is the official measure of relative deprivation. Decile 1 represents the most deprived 10% (or decile) of neighbourhoods in England and Decile 10 represents the least deprived 10% (or decile) of neighbourhoods in England.

<sup>21</sup> Census (2011b) WF01BEW – Location of usual residence and place of work (OA level). Available at: <https://www.nomisweb.co.uk/> [Accessed: May 2020]

### Bashall Eaves

- 45) Bashall Eaves is characterised as a rural community, home to approximately 190 residents. The community area consists of approximately 30 residential properties, grouped in a number of small clusters, one of which is Bashall Eaves village. There are approximately nine agricultural properties and a number of commercial operations, including a handful of businesses located on Backridge Farm Business Centre. The Braddup Compound would be located within the Bashall Eaves community.
- 46) The baseline characteristics of Bashall Eaves are summarised in Table 14.8.

**Table 14.8: Bashall Eaves Baseline Data**

Indicator	Bashall Eaves
Population <sup>22</sup>	Usual resident population (Census 2011) is 192.
Population density	Population density is 0.12 people per hectare compared to 1.0 in the RCAA, suggesting a very rural and sparse community.
Deprivation <sup>23</sup>	The parish is located in Ribble Valley 001A. This LSOA is ranked in IMD decile 6.
Residential properties	The community comprises approximately 30 residential properties.
Social infrastructure	None identified.
Agricultural activity	Nine identified, including Summit House Farm, Kitchens Farm and Braddup Farm.
Commercial operations	Receptors include two wedding venues (Bashall Barn and The Out Barn) and the commercial and retail outlets at Backridge Farm Business Centre.
Travel to work <sup>24</sup>	Approximately 8 % of employed residents work in Blackburn, accessible via the B6478 road, and 6 % in Whalley.

### Waddington

- 47) Waddington is characterised as a rural community area, home to approximately 1,000 residents. Located north-west of Clitheroe, the community is composed of approximately 480 residential properties mainly clustered in Waddington village, with a smaller group of properties to the north along Mill Lane. Additionally, there are approximately 16 farms scattered around the community area and a number of social and commercial operations located mainly in the village of Waddington. Waddington Almshouses, located in the village, offers sheltered community housing for elderly women. Shireburn Caravan Park is located in the south of the community area; it offers holiday homes and residential park homes for the over-55s.
- 48) The baseline characteristics of Waddington are summarised in Table 14.9.

**Table 14.9: Waddington Baseline Data**

Indicator	Waddington
Population <sup>25</sup>	Usual resident population (Census 2011) is 1,028.
Population density	Population density is 1.22 people per hectare compared to 1.0 in the RCAA.
Deprivation <sup>26</sup>	The parish is located in Ribble Valley 001D. This LSOA is ranked in IMD decile 9.
Residential properties	The community comprises approximately 480 residential properties.
Social infrastructure	Approximately 30 social receptors have been identified including Waddington Hospital Cottages (sheltered housing), Waddington Methodist Church, Waddow

<sup>22</sup> Census (2011a) *op. cit.*

<sup>23</sup> MHCLG (2019) *op. cit.*

<sup>24</sup> Census (2011b) *Op Cit*

<sup>25</sup> Census (2011a) *Op Cit*

<sup>26</sup> MHCLG (2019) *Op Cit*

Indicator	Waddington
	Hall Girlguiding Activity Centre, Waddington and West Bradford Primary School, and Waddington Social Bowling Club.
Agricultural activity	Approximately 16 agricultural properties have been identified including Twitter Bridge Farm, Mill Farm and Chancery Farm.
Commercial operations	Approximately 20 commercial receptors have been identified including Country Kitchen Café, Shireburn Kennels, Waddington Fell Quarry (Armstrongs Group Stone Suppliers), and a builder's yard.
Travel to work <sup>27</sup>	Approximately 9 % of employed residents work in Blackburn and 6 % in Burnley. Both are accessible via the B6478 road to Clitheroe.

## 14.6 Assessment of Likely Significant Effects

49) The following section describes the effects of the Proposed Marl Hill Section on communities and health.

### 14.6.1 Enabling Works

50) The following section presents the potential disturbance, severance, tourism accommodation and health effects on the communities surrounding the Proposed Marl Hill Section during the enabling works phase.

51) Enabling works at the main compounds, which would be expected to last approximately three months, would include fencing off working areas and preparing sites. This would consist of installing stock-proof post and wire fencing along access roads and higher Heras-type fencing or hoarding around compound areas. Working areas would be topsoil-stripped, and drainage would be installed where required. Where unavoidable, trees would be felled, and vegetation would be cleared. Compounds and laydown areas would be constructed and safe access to and egress from them would be provided via the local road network. Access points would be agreed with landowners prior to works commencing.

52) Enabling works would also include off-site highway works consisting of road widening and the introduction of passing places to allow vehicles travelling in opposite directions to safely pass each other on narrow sections of road. Junction modifications may also be required at some locations, while at others there are proposed park and ride facilities and heavy goods vehicle (HGV) holding areas to assist with traffic management plans. A 'remote' or 'satellite' compound is also proposed in the Hornby / Wray area. The effects on communities from the off-site highways works are considered separately in Volume 5, Part I.

53) A summary of enabling works effects associated with the Braddup and Bonstone Compounds is provided in Table 14.16.

### Disturbance Effects

#### Bashall Eaves LCAA

54) During enabling works, disturbance effects would be expected on seven residential properties. Four residential properties are located approximately 350 m south of the Braddup Compound on Cross Lane, including Colthurst Hall. The other properties are located within 1 km to the north of the Braddup Compound. In addition, two agricultural properties would be expected to experience minor disturbance effects due to traffic, noise and visual effects. These are New Page Fold Farm, located approximately 350 m south of the Braddup Compound on Cross Lane, and Summit House Farm. There are no social infrastructure receptors within 1 km of the compound. No disturbance effects would be expected on commercial operations.

<sup>27</sup> Census (2011b) *Op Cit*

- 55) Table 14.10 presents a summary of disturbance effects in the Bashall Eaves community during enabling works.

**Table 14.10: Disturbance Effects During Enabling Works – Bashall Eaves LCAA**

	No Disturbance Effect	Minor Disturbance Effect	Moderate Disturbance Effect	Major Disturbance Effect
Residential properties	24	7	0	0
Social infrastructure	0	0	0	0
Agricultural activities	7	2	0	0
Commercial operations	8	0	0	0
<b>Total community receptors</b>	<b>39</b>	<b>9</b>	<b>0</b>	<b>0</b>

- 56) Overall, Bashall Eaves would be likely to experience some disturbance effects during enabling works as a result of a combination of traffic, visual and noise effects. Most disturbance effects would be experienced by the properties directly opposite the Braddup Compound on Cross Lane.
- 57) As explained in Chapter 17: Noise and Vibration, mitigation measures would be put in place to avoid, reduce or offset any adverse effects caused by noise. Similarly, good practice measures would largely reduce the noise effects that could lead to the disturbance effects. The CTMP sets out the management and mitigation measures that would be employed at each site in order to avoid, reduce or offset any adverse effects of the Proposed Marl Hill Section on the local highways network.
- 58) Given that the community area contains 48 receptors and only nine of these would be expected to experience disturbance effects, which could be largely addressed through mitigation, the likely overall effect on the community of Bashall Eaves is assessed as slight adverse and not significant.

Waddington LCAA

- 59) Enabling works in the Waddington community area would include the construction of a temporary access road to the Braddup Compound in agricultural land west of Slaidburn Road B6478 and north of Cross Lane.
- 60) During enabling works minor disturbance effects would be expected on nine residential properties located in the surroundings of the Braddup Compound, due to a combination of traffic, noise, and landscape and visual effects. Five residential receptors are located on the boundary of Waddington on Cross Lane, south-east of the Braddup Compound. Two residential receptors are located directly opposite the proposed temporary access to the compound on Slaidburn Road. The last residential receptors expected to experience minor disturbance effects are located on Slaidburn Road and Freeholds Lane, north of the compound, with a direct line of sight to both the compound and the access route.
- 61) In addition, a total of three agricultural receptors would be expected to experience disturbance effects. Both Gannies Farm, located on Cross Lane south-east of the Braddup Compound, and Mitchells Farm, located on Browsholme Road, would be expected to experience minor disturbance effects due to traffic, noise and visual effects. Bookers Farm, located directly opposite the entrance to the proposed temporary access road on Slaidburn Road, would be expected to experience moderate disturbance effects due to a combination of minor noise and traffic effects and moderate landscape and visual effects.
- 62) Despite there being social infrastructure and commercial properties present within 1 km of the compound, no disturbance effects would be expected on either commercial operations or social infrastructure receptors.
- 63) Table 14.11 presents a summary of disturbance effects in the Waddington community during enabling works.

**Table 14.11: Disturbance Effects During Enabling Works – Waddington LCAA**

	No Disturbance Effect	Minor Disturbance Effect	Moderate Disturbance Effect	Major Disturbance Effect
Residential properties	473	8	0	0
Social infrastructure	28	0	0	0
Agricultural activities	13	2	1	0
Commercial operations	21	0	0	0
<b>Total community receptors</b>	<b>535</b>	<b>10</b>	<b>1</b>	<b>0</b>

- 64) Overall, Waddington would be likely to experience some disturbance effects during enabling works as a result of a combination of traffic, visual and noise effects.
- 65) As explained in Chapter 17: Noise and Vibration, mitigation measures would be put in place to avoid, reduce or offset any adverse effects caused by noise. Similarly, good practice measures would largely reduce the noise effects that could lead to the disturbance effects. The CTMP sets out the management and mitigation measures that would be employed at each site to avoid, reduce or offset any adverse effects of the Proposed Marl Hill Section on the local highways network.
- 66) Given that the Waddington community area contains 546 receptors and only 11 would be expected to experience disturbance effects, which could largely be addressed through mitigation, the likely overall effect on the community of Waddington is assessed as negligible and not significant.

Newton-in-Bowland LCAA

- 67) Enabling works in this location would include the construction of a temporary access road to the Bonstone Compound in agricultural land west of the B6478. During enabling works, minor disturbance effects would be expected on three agricultural properties (Gibbs Farm, New Laithe Farm, Storth Farm) located within 400 m of the compound as a result of minor noise effects and major landscape visual effects. No disturbance effects were identified for residential, social or commercial receptors.
- 68) Table 14.12 presents a summary of disturbance effects in the Newton-in-Bowland community during enabling works.

**Table 14.12: Disturbance Effects During Enabling Works – Newton-in-Bowland LCAA**

	No Disturbance Effect	Minor Disturbance Effect	Moderate Disturbance Effect	Major Disturbance Effect
Residential properties	87	0	0	0
Social infrastructure	2	0	0	0
Agricultural activities	33	3	0	0
Commercial operations	6	0	0	0
<b>Total community receptors</b>	<b>128</b>	<b>3</b>	<b>0</b>	<b>0</b>

- 69) Overall, Newton-in-Bowland would be likely to experience some disturbance effects during enabling works as a result of a combination of landscape and visual and noise effects.
- 70) As explained in Chapter 17: Noise and Vibration, mitigation measures would be put in place to avoid, reduce or offset any adverse effects caused by noise. These measures would include the use of generators with noise-dampening casings and exhaust silencers. It is expected that these would largely reduce disturbance effects due to noise emissions.

- 71) Given that the community area contains 131 receptors and three would be expected to experience minor disturbance effects, which could be largely addressed through mitigation, the likely overall effect on the community of Newton-in-Bowland is assessed as negligible and not significant.

Transport Routes Outside the LCAAs

- 72) While forecast traffic flows during the enabling works phase at the Marl Hill compounds are anticipated to be lower than during the main construction phase, they could still give rise to likely significant effects at locations along the transport routes to access the Braddup and Bonstone Compounds. Depending on the final transport route solutions through and around the Clitheroe area to access the compounds, there is potential for disturbance effects in settlements such as Chatburn, Grindleton, West Bradford and Waddington, as well as Clitheroe.
- 73) United Utilities recognises that during the enabling works, some villages and local residential areas would experience disturbance. Disturbance would arise mainly from the movement of heavy goods vehicles through settlements and past individual properties fronting onto the highway. A degree of disturbance is an unavoidable consequence of constructing a major infrastructure project. Some of the community disturbance may be short-term and reversible, while other disturbance could continue and extend into and throughout the duration of the construction phase.
- 74) Some stakeholder groups have already provided feedback to United Utilities expressing their concerns about the level and duration of community impacts. In response to this feedback, United Utilities has developed alternative access proposals for some of the main HARP construction compounds – for example, the Proposed Ribble Crossing could alleviate impacts on communities in the Chatburn, Grindleton and West Bradford areas. In contrast, however, some of these solutions may not fully avoid community disturbance impacts, or could give rise to other impacts.
- 75) In addition to ongoing engineering investigations, to alleviate potential impacts on transport routes, United Utilities has developed Construction Traffic Management Plans (CTMP), outlining measures to be implemented to further mitigate community disturbance. Through ongoing consultation with local people, local councils and highways authorities, United Utilities will continue to develop and refine mitigation proposals. It should be recognised that in some community areas, however, it may not be possible to fully eliminate adverse disturbance effects due to the scale of construction operations and associated vehicle movements. A precautionary position is therefore adopted in recognition of the nature, scope and duration of these adverse effects as it is anticipated that some communities would experience a disturbance effect that is significant in the context of the EIA Regulations.

**Severance Effects**

- 76) The following section summarises the predicted severance effects associated with enabling works activities.

Bashall Eaves LCAA

- 77) Severance effects on the community area of Bashall Eaves are considered in Table 14.13.

**Table 14.13: Summary of Severance Effects – Bashall Eaves LCAA**

Severance	Community Severance Effect	Significance
Public Rights of Way (PRoW)	During enabling works, the National Cycle Network (NCN) Route 90 would be affected by access to the Bonstone Compound and Braddup Compound where the route passes along Grindleton Road / West Bradford Road, crossing Waddington to join Belle Vue Lane. Whilst this could result in disturbance effects for users, it would not be likely to affect access to community facilities. Therefore, severance effects are assessed as negligible.	Slight – not significant
Agricultural land	The Braddup Compound and access route would be located on agricultural land to the north of Cross Lane. During enabling works there would be no areas of land	No Effect



Severance	Community Severance Effect	Significance
	isolated from a larger land holding due to the proposed layout of construction compounds. Therefore, there would be no potential for a severance effect.	

Waddington LCAA

- 78) Severance effects on the community area of Waddington are considered in Table 14.14. There would be no compound in this location and therefore there is no potential for severance effects on agricultural land or PRoW.

**Table 14.14: Summary of Severance Effects – Waddington LCAA**

Severance	Community severance effect	Significance
Highways improvement works	On Slaidburn Road, local road widening is proposed to allow efficient flow of traffic along the construction traffic route. Whilst improvements were being made to the highways, local residents could face minor delays accessing residential and agricultural property. There are no proposed road closures in this location and effects would be for a temporary period whilst highways improvement works were being undertaken. As outlined in the CTMP, the Contractor would engage local community groups and provide regular communication using digital media, social media, letter drops, newsletters etc. Therefore, the overall effect on severance is assessed as minor.	Slight – not significant

Newton-in-Bowland LCAA

- 79) Severance effects on the community area of Newton-in-Bowland are considered in Table 14.15.

**Table 14.15: Summary of Severance Effects – Newton-in-Bowland LCAA**

Severance	Community Severance Effect	Significance
Highways improvement works	On Slaidburn Road, local road widening is proposed to allow efficient flow of traffic along the construction traffic route. Whilst improvements were being made to the highways, local residents could face minor delays accessing residential and agricultural property. There are no proposed road closures in this location and effects would be for a temporary period whilst highways improvement works were being undertaken. As outlined in the CTMP, the Contractor would engage local community groups and provide regular communication using digital media, social media, letter drops, newsletters etc. Therefore, the overall effect on severance is assessed as minor.	Slight – not significant
Public Rights of Way (PRoW)	During construction there could be minor impacts to PRoW which intersect the proposed access to the Bonstone Compound. These footpaths do not represent a key route used by local residents to access community facilities, and full accessibility would be provided throughout the works through controlled crossings. Therefore, severance effects are assessed as negligible.	Slight – not significant
Agricultural land	The Bonstone Compound would be located in agricultural land to the south of Newton-in-Bowland. During construction there would be no areas of land isolated from a larger land holding, and the remaining land not required by the construction compound would be accessible for use throughout construction. Therefore, there would be no potential for a severance effect.	No Effect

**Tourism Accommodation Effects**

- 80) The total supply of serviced and non-serviced establishments in the RCAA is approximately 3,300 bedspaces. It is estimated that when the tunnel boring machine (TBM) would be in operation, the peak construction workforce would be 111. During enabling works, the peak number of workers would be

significantly lower than the peak during construction and is not expected to be of so significant a level as to result in adverse effects on tourism accommodation. In addition, the enabling works would be expected to be of a short duration. Given the plentiful supply of bedspaces available in the RCAA, it is considered that there would be enough capacity to absorb the additional workforce. The magnitude of effect is therefore assessed as negligible resulting in slight and not significant effects on tourism accommodation.

#### **Health Effects**

- 81) The methodology for the health assessment presented in Appendix 14.1 is based partly upon identifying health determinants that are linked to significant residual effects in the Environmental Statement. On this basis, potential adverse health effects were identified due to links between the following combinations of health determinants and EIA topics:
- Severance, disturbance, access to community, recreational and educational facilities – Chapter 6: Landscape and arboriculture and Chapter 13: Public Access and Recreation
  - Communities and health - Chapter 14: Communities and Health.
- 82) Given the relatively low number of receptors exposed to these impacts within the LCAAs as a proportion of the overall community, the combination of multiple health stressors is not expected to result in greater adverse health outcomes to the population near the Newton-in-Bowland Compound and the Braddup and Bonstone Compounds. The overall health outcome for the LCAAs was assessed as adverse but not significant because the health effects would be partly or fully mitigable and likely reversible.
- 83) The potential for negative health outcomes arising from disturbance effects is dependent on the final haulage route solutions through and around the Clitheroe area to access the Newton-in-Bowland Compound, and around the Waddington, Chatburn, West Bradford and Grindleton areas to access the Braddup and Bonstone Compounds. Appendix 14.1 reports that there is potential for disturbance effects in settlements in local communities and settlements during the enabling works phase, especially in connection with the proposed off-site highways works.
- 84) The full health assessment is presented in Appendix 14.1: Health Assessment.

#### **Summary of Enabling Works Effects**

- 85) A summary of enabling works effects is provided in Table 14.16.

**Table 14.16: Summary of Enabling Works Effects**

Community	Value / Sensitivity	Effect	Nature of Effect	Magnitude	Significance of Effect (Pre-Mitigation)
Bashall Eaves LCAA	High	Disturbance effects	Environmental effects resulting in disturbance to community receptors	Minor disturbance effects on nine community receptors	Slight – not significant
		Severance effects (PRoW)	Effects on access to community facilities due to diversions or closures of PRoW	Negligible – unlikely to result in any effects on access to community facilities	Slight – not significant
		Severance effects (agricultural land)	Effects on access to property and agricultural land	No effect – no land would be isolated from a larger land holding	N/A
Waddington LCAA	High	Disturbance effects	Environmental effects resulting in disturbance to community receptors	Minor disturbance effects on 10 community receptors. Moderate disturbance effects on one receptor.	Negligible – not significant
		Severance effects (highways improvements)	Effects on access to community facilities due to highways improvement works	Minor – unlikely to result in any effects on access to community facilities	Slight – not significant
Newton-in-Bowland LCAA	High	Disturbance effects	Environmental effects resulting in disturbance to community receptors	Minor disturbance effects on three receptors	Negligible – not significant
		Severance effects (highways improvements)	Effects on access to community facilities due to highways improvement works	Negligible – unlikely to result in any effects on access to community facilities	Slight – not significant
		Severance effects (PRoW)	Effects on access to community facilities due to diversions or closures of PRoW	Negligible – unlikely to result in any effects on access to community facilities	Slight – not significant
		Severance effects	Effects on access to property and agricultural land	No effect – no land would be isolated from a larger land holding	N/A

Community	Value / Sensitivity	Effect	Nature of Effect	Magnitude	Significance of Effect (Pre-Mitigation)
		(agricultural land)			
Transport routes outside the LCAA	High	Disturbance effects	Disturbance effects on communities due to increased flows of heavy goods vehicles.	Significant disturbance effects to communities located outside of the LCAA boundary located on traffic routes to access the Newton-in-Bowland Compound and the Braddup and Bonstone Compounds. This includes the settlements of Clitheroe, Waddington, Chatburn, West Bradford and Grindleton. In these locations, the volume, duration, and nature of traffic associated with the Proposed Marl Hill Section has the potential to give rise to significant disturbance effects.	Adverse – significant
RCAA	High	Tourism accommodation effects	Potential effects on tourism accommodation due to demands from workers	Negligible – given the plentiful supply of bedspaces available in the RCAA, it is considered that there would be enough capacity to absorb the additional workforce.	Slight – not significant
RCAA	High	Health	The perception of a more stressful and poor-quality environment and disturbance to recreational cycle routes may contribute to adverse health effects.	Adverse effects have been identified as a result of landscape and visual effects on the National Cycle Network. The overall health outcome is assessed as being adverse but not significant because the health effects would be likely to be reversible. Further details on the full health assessment are within Appendix 14.1.	Adverse – not significant

### 14.6.2 Construction Phase

86) The following section presents the potential effects on the communities surrounding the Proposed Marl Hill Section during the construction phase. A summary of effects on communities and health during construction works is provided in Table 14.23.

#### Disturbance Effects

##### Bashall Eaves LCAA

87) During construction works, minor disturbance effects would be expected at seven residential properties as a result of a combination of traffic, noise, and landscape and visual effects. Four residential properties are located approximately 350 m south of the Braddup Compound on Cross Lane, including Colthurst Hall. The rest of the residential properties are located within 1 km to the north of the Braddup Compound. Minor disturbance effects would also be expected to arise on three agricultural receptors (New Page Fold Farm, Braddup Farm, Summit House Farm), all located within 1 km of the Braddup Compound, due to a combination of minor traffic and moderate landscape and visual effects.

88) There are no commercial or social infrastructure receptors within 1 km of the Braddup Compound. Therefore, no disturbance effects would be expected on commercial properties or on social infrastructure.

89) Table 14.17 presents a summary of disturbance effects in the Bashall Eaves community during construction.

**Table 14.17: Disturbance Effects During Construction Works – Bashall Eaves LCAA**

	No Disturbance Effect	Minor Disturbance Effect	Moderate Disturbance Effect	Major Disturbance Effect
Residential properties	24	7	0	0
Social infrastructure	0	0	0	0
Agricultural activities	7	3	0	0
Commercial operations	8	0	0	0
<b>Total community receptors</b>	<b>39</b>	<b>10</b>	<b>0</b>	<b>0</b>

90) Overall, Bashall Eaves would be likely to experience some minor disturbance effects during construction works as a result of a combination of traffic, visual and noise effects.

91) As explained in Chapter 17: Noise and Vibration, mitigation measures would be put in place to avoid, reduce or offset any adverse effects caused by noise. These measures would include the use of generators with noise-dampening casings and exhaust silencers. The CTMP sets out the management and mitigation measures that would be employed at each site in order to avoid, reduce or offset any adverse effects of the Proposed Marl Hill Section on the local highways network.

92) Given that the community area contains over 49 receptors and only 10 would experience minor disturbance effects, which could be largely addressed through mitigation, the likely effect on the community of Bashall Eaves is assessed as slight adverse and not significant.

##### Waddington LCAA

93) During construction works minor disturbance effects would be expected on nine residential properties due to a combination of traffic and landscape and visual effects. Five residential receptors are located on the boundary of Waddington on Cross Lane, south-east of the Braddup Compound. Two residential receptors are located directly opposite the proposed temporary access to the compound on Slaidburn Road. The last residential receptors which would experience minor disturbance effects are located on

Slaidburn Road and Freeholds Lane, north of the compound, with a direct line of sight to both the Braddup Compound and the access route.

- 94) Two agricultural receptors, Gannies Farm located on Cross Lane south-east of the Braddup Compound, and Mitchells Farm located on Browsholme road, would be expected to experience minor disturbance effects due to traffic, landscape and visual effects. Bookers Farm, located directly opposite the entrance to the proposed temporary access road on Slaidburn Road, would be expected to experience moderate disturbance effects due to a combination of minor noise and traffic effects and moderate landscape and visual results.
- 95) Despite there being social infrastructure and commercial properties within 1 km of the Braddup Compound no disturbance effects would be expected on either commercial operations or social infrastructure receptors.
- 96) Table 14.18 presents a summary of disturbance effects in the Waddington community during construction.

**Table 14.18: Disturbance Effects During Construction – Waddington LCAA**

	No Disturbance Effect	Minor Disturbance Effect	Moderate Disturbance Effect	Major Disturbance Effect
Residential properties	473	8	0	0
Social infrastructure	28	0	0	0
Agricultural activities	13	2	1	0
Commercial operations	21	0	0	0
<b>Total community receptors</b>	<b>535</b>	<b>10</b>	<b>1</b>	<b>0</b>

- 97) Overall, Waddington LCAA would be likely to experience some minor disturbance effects during construction works as a result of a combination of traffic, visual and noise effects.
- 98) As explained in Chapter 17: Noise and Vibration, mitigation measures would be put in place to avoid, reduce or offset any adverse effects caused by noise. These measures would include the use of generators with noise dampening-casings and exhaust silencers. The CCoP sets out the management and mitigation measures that would be employed at each site in order to avoid, reduce or offset any adverse effects of the Proposed Marl Hill Section on the local highways network.
- 99) Given that the community area contains over 546 receptors, of which only 10 would experience minor disturbance effects and one a moderate disturbance effect, the likely effect on the community of Waddington is assessed as negligible and not significant.

Newton-in-Bowland LCAA

- 100) During construction works, minor disturbance effects would be expected on three agricultural properties (Gibbs Farm, New Laithe Farm, Storth Farm) as a result of minor noise effects and major landscape visual effects. No disturbance effects would be expected on residential properties, commercial operations or social infrastructure receptors.
- 101) Table 14.19 presents a summary of disturbance effects in the Newton-in-Bowland community during construction works.

**Table 14.19: Disturbance Effects During Construction – Newton-in-Bowland LCAA**

	No Disturbance Effect	Minor Disturbance Effect	Moderate Disturbance Effect	Major Disturbance Effect
Residential properties	87	0	0	0
Social infrastructure	2	0	0	0
Agricultural activities	33	3	0	0
Commercial operations	6	0	0	0
<b>Total community receptors</b>	<b>128</b>	<b>3</b>	<b>0</b>	<b>0</b>

- 102) Overall, Newton-in-Bowland would be likely to experience some minor disturbance effects during construction works as a result of a combination of noise and visual effects.
- 103) As explained in Chapter 17: Noise and Vibration, mitigation measures would be put in place to avoid, reduce or offset any adverse effects caused by noise. These measures would include the use of generators with noise-dampening casings and exhaust silencers.
- 104) Given that the community area contains over 131 receptors and only three would experience minor disturbance effects, which could be largely addressed through mitigation, the likely effect on the community of Newton-in-Bowland is assessed as negligible and not significant.

**Transport Routes Outside the LCAAs**

- 105) United Utilities recognises that during the construction works, some villages and local residential areas would experience disturbance, specifically in relation to haulage routes to access the Newton-in-Bowland Compound and Braddup and Bonstone Compounds. Disturbance would arise mainly from the movement of heavy goods vehicles through settlements and past individual properties fronting onto the highway. A degree of disturbance is an unavoidable consequence of constructing a major infrastructure project. Community disturbance along the transport routes may continue throughout the duration of the construction phase.
- 106) Some stakeholder groups have already provided feedback to United Utilities expressing their concerns about the level and duration of community impacts during the construction phase. In response to this feedback, United Utilities has developed alternative access proposals for some of the main HARP construction compounds – for example, the Proposed Ribble Crossing could alleviate impacts on communities in the Chatburn, Grindleton and West Bradford areas. In contrast, however, some of these solutions may not fully avoid community disturbance impacts, or could give rise to other impacts.
- 107) In addition to ongoing engineering investigations to alleviate potential impacts on transport routes, United Utilities has developed Construction Traffic Management Plans (CTMP), outlining measures to be implemented to further mitigate community disturbance. Through ongoing consultation with local people, local councils and highways authorities, United Utilities will continue to develop and refine mitigation proposals. It should be recognised that in some community areas, however, it may not be possible to fully eliminate adverse disturbance effects due to the scale of construction operations and associated vehicle movements. A precautionary position is therefore adopted in recognition of the nature, scope and duration of these adverse effects as it is anticipated that some communities would experience a disturbance effect that is significant in the context of the EIA Regulations.

**Severance Effects**

- 108) During construction works, two routing options are proposed to access the proposed Braddup and Bonstone Compounds:
  - Option 1: Use of the existing highway network. Access to and from Bonstone Compound and Braddup Compound for light vehicles and heavy goods vehicles under 3.5 m in height would be gained via the A59, Pimlico Link Road, Chatburn Road and through Waddington along the B6478 Well Terrace /

Waddington Road / Clitheroe Road / Slaidburn Road / Hall Gate Hill (hereafter referred to as 'Route 1'). HGVs over 3.5 m in height and abnormal loads would access both compounds through Clitheroe via the A59, Pimlico Link Road, Clitheroe Road, Crow Trees Brow, Ribble Lane, Grindleton Road and along the B6478 Waddington Road, West Bradford Road, Slaidburn Road (hereafter referred to as 'Route 2').

- Option 2: Temporary construction access track over the River Ribble. Construction traffic would access the Bonstone and Braddup Compounds from the A59 and onto Pimlico Link Road before joining a new temporary construction access track starting just to the south of the existing West Bradford Road bridge. The new temporary construction access track would cross the River Ribble before running through farmland and rejoining West Bradford Road to the east of Waddington. Construction traffic would then skirt north of Waddington before travelling onto Slaidburn Road towards the compounds.

109) The severance effects for both route options are considered below.

Bashall Eaves LCAA

110) Severance effects in the community of Bashall Eaves are considered in Table 14.20.

**Table 14.20: Summary of Severance Effects – Bashall Eaves LCAA**

Severance	Community Severance Effect	Significance
Traffic volume, severance, driver delay, pedestrian delay	For both routing options, construction traffic would access the Braddup Compound via a local access road in the north-west of the community area. This would not be expected to result in delays or severance for local residents. Therefore, severance effects are assessed as negligible.	Slight – not significant
Bus services	As a result of the Proposed Programme of Works at the Bonstone and Braddup Compounds, up to 36 bus services for Option 1 and up to 15 bus services for Option 2 could be affected. The services travel between Blackburn and Preston, Skipton and Preston, Clitheroe and Blackburn, and Clitheroe and Nelson. Whilst there could be minor delays to bus services, this would not be expected to result in impacts on access to community facilities. Therefore, severance effects are assessed as negligible.	Slight – not significant
Public Rights of Way (PRoW)	No new construction phase effects have been identified. Effects would be consistent with those identified in the enabling works phase. Therefore, severance effects are assessed as negligible.	Slight – not significant
Agricultural land	No new construction phase effects have been identified. Effects are consistent with those identified in the enabling works phase. There would be no potential for a severance effect.	No effect

Waddington LCAA

111) Severance effects in the community of Waddington are considered in Table 14.21. There would be no compound in this location; therefore, there would be no potential for severance effects on agricultural land or PRoW.

**Table 14.21: Summary of Severance Effects – Waddington LCAA**

Severance	Community Severance Effect	Significance
Traffic volume, severance, driver delay, pedestrian delay	As reported in Chapter 16: Transport Planning, for both route options, during construction works peak traffic volumes on B6478 Waddington Road would be expected to increase by 4.2 % for all traffic and 73.0 % for HGVs compared to baseline conditions. As an average, this would represent an additional vehicle every 8.5 minutes against background traffic flows. This could result in slight to moderate effects on pedestrian delay. The B6478 Waddington	Slight – not significant



Severance	Community Severance Effect	Significance
	Road runs through the centre of Waddington Village and there is a high concentration of residential frontage, footways and commercial operations along the affected route. Furthermore, the B6478 Waddington Road is the only access route to Waddington community centre and the Waddington Methodist Church. Whilst residents, as well as users of the facilities, would be likely to experience minor delays as a result of site traffic, mitigation measures included in the CTMP would help to reduce effects on pedestrian delay to negligible. Therefore, effects on access to community facilities are assessed as minor.	
Bus services	As a result of the Proposed Programme of Works at the Bonstone and Braddup Compounds, up to 36 bus services for Option 1 and up to 15 bus services for Option 2 could be affected. These bus services travel between Blackburn and Preston, Skipton and Preston, Clitheroe and Blackburn, and Clitheroe and Nelson. Whilst there could be minor delays to bus services, this would not be expected to result in impacts on access to community facilities. Therefore, severance effects are assessed as negligible.	Slight – not significant

Newton-in-Bowland LCAA

112) Severance effects in the community of Newton-in-Bowland are considered in Table 14.22.

**Table 14.22: Summary of Severance Effects – Newton-in-Bowland LCAA**

Severance	Community Severance Effect	Significance
Traffic volume, severance, driver delay, pedestrian delay	As reported in Chapter 16: Transport Planning, for both route options, during construction works traffic volumes on B6478 Slaidburn Road (north) would be expected to increase by 12.6 % for all traffic and 101.0 % for HGVs compared to baseline conditions. As an average, this would represent an additional vehicle every 2.8 minutes against background traffic flows. Traffic would access the compound via the B6478 Slaidburn Road (north). There is little or no pedestrian demand on this link and no footway exists. Therefore, severance effects are assessed as negligible.	Slight – not significant
Public Rights of Way (PRoW)	No new construction phase effects have been identified. Effects would be consistent with those identified in the enabling works phase. Therefore, severance effects are assessed as negligible.	Slight – not significant
Agricultural land	No new construction phase effects have been identified. Effects are consistent with those identified in the enabling works phase. There would be no potential for a severance effect.	No effect

**Tourism Accommodation Effects**

113) Construction would require a workforce with varied skills, ranging from foremen and attendants to drivers and banksmen, to electricians and fitters. Some skills would be highly specialist, such as TBM drivers and fitters. There may be some supply of workers from the local workforce, but the majority of construction workers would be sourced from outside the communities considered in this assessment. These workers would need to secure accommodation in the local area, which could create demand for tourism accommodation, placing additional pressure upon supply for visitors.

114) The TBM launch site would be located at the Braddup Compound. The peak construction workforce for each TBM launch site is estimated to be 111. The TBM reception shaft would be located at the Bonstone Compound. As this would be a reception shaft, the number of construction workers would be expected to be significantly lower than at the launch site. However, as a precautionary assessment, the peak number of construction workers has been assumed as equal to the TBM launch site (peak of 111).

- 115) The total supply of bedspaces in serviced and non-serviced establishments in the Ribble Valley Borough Council (RCAA) is approximately 3,290. Assuming a peak occupancy level of 55 %, the demand for accommodation by construction workers would equate to approximately 15 % of total headroom suggesting that there would be enough capacity in the RCAA to absorb the additional workforce. Both the Bonstone and the Braddup Compounds would be located within the Travel to Work Area (TTWA) of 'Blackburn'. Therefore, it is reasonable to assume that workers could commute from Clitheroe, Blackburn, Burnley, Accrington or Preston, which are all large towns within the TTWA.
- 116) In summary, the headroom calculations indicate that there would be sufficient capacity in total in the RCAA to absorb the additional workforce. Both compounds would be located within a reasonable distance of major towns with plentiful bedspaces available. Therefore, the magnitude of effect is assessed as negligible resulting in slight and not significant effects on tourism accommodation.

#### **Health Effects**

- 117) The methodology for the health assessment presented in Appendix 14.1 is based partly upon identifying health determinants that are linked to significant residual effects in the Environmental Statement. On this basis, potential adverse health effects were identified due to links between the following combinations of health determinants and EIA topics:
- Severance, disturbance, access to community, recreational and educational facilities – Chapter 6: Landscape and arboriculture and Chapter 13: Public Access and Recreation
  - Communities and health - Chapter 14: Communities and Health.
- 118) Given the relatively low number of receptors exposed to these impacts within the LCAAs as a proportion of the overall community, the combination of multiple health stressors is not expected to result in greater adverse health outcomes to the population near the Newton-in-Bowland Compound and the Braddup and Bonstone Compounds. The overall health outcome for the LCAAs was assessed as adverse but not significant because the health effects would be partly or fully mitigable and likely reversible.
- 119) The potential for negative health outcomes arising from disturbance effects is dependent on the final haulage route solutions through and around the Clitheroe area to access the Newton-in-Bowland Compound, and around the Waddington, Chatburn, West Bradford and Grindleton areas to access the Braddup and Bonstone Compounds. Appendix 14.1 reports that there is potential for disturbance effects in settlements in local communities and settlements during the construction works phase, especially in connection with the proposed off-site highways works.
- 120) The full health assessment is presented in Appendix 14.1: Health Assessment

#### **Summary of Effects of Construction Works**

- 121) A summary of construction effects is provided in Table 14.23.

**Table 14.23: Summary of Construction Phase Effects**

Community	Value / Sensitivity	Effect	Nature of Effect	Magnitude	Significance of Effect (Pre-Mitigation)
Bashall Eaves LCAA	High	Disturbance effects	Environmental effects resulting in disturbance to community receptors	Minor disturbance to ten community receptors.	Slight – not significant
		Severance effects (increased traffic volumes)	Effects on access to community facilities due to increased traffic volumes, driver delay, pedestrian delay and pedestrian severance	Negligible – increased traffic flow is not expected to affect access to community facilities.	Slight – not significant
		Severance effects (bus services)	Delays to local bus services impacting on access to community facilities	Negligible – potential for minor delays to up to 15 bus services but unlikely to impact on access to community facilities.	Slight – not significant
		Severance effects (PRoW)	Effects on access to community facilities due to diversions or closures of PRoW	Negligible – effects are consistent with those identified in the enabling works phase.	Slight – not significant
		Severance effects (agricultural land)	Effects on access to property and agricultural land	No effects – effects are consistent with those identified in the enabling works phase.	N/A
Waddington LCAA	High	Disturbance effects	Environmental effects resulting in disturbance to community receptors	Minor disturbance effects to ten community receptors. One moderate disturbance effect.	Negligible – not significant
		Severance effects (increased traffic volumes)	Effects on access to community facilities due to increased traffic volumes, driver delay, pedestrian delay and pedestrian severance	Minor – potential for minor delays for users of the B6478 local residents accessing community facilities in Waddington.	Slight – not significant
		Severance effects (bus services)	Delays to local bus services impacting on access to community facilities	Negligible – potential for minor delays to up to 15 bus services but unlikely to impact on access to community facilities.	Slight – not significant
	High	Disturbance effects	Environmental effects resulting in disturbance to community receptors	Minor disturbance effects to three community receptors	Negligible – not significant

Community	Value / Sensitivity	Effect	Nature of Effect	Magnitude	Significance of Effect (Pre-Mitigation)
Newton-in-Bowland LCAA		Severance effects (increased traffic volumes)	Effects on access to community facilities due to increased traffic volumes, driver delay, pedestrian delay and pedestrian severance	Negligible – little pedestrian demand exists in this location.	Slight – not significant
		Severance effects (PRoW)	Effects on access to community facilities due to diversions or closures of PRoW	Negligible – effects would be consistent with those identified in the enabling works phase.	Slight – not significant
		Severance effects (agricultural land)	Effects on access to property and agricultural land	No effects – effects would be consistent with those identified in the enabling works phase.	N/A
Transport routes outside the LCAA	High	Disturbance effects	Disturbance effects on communities due to increased traffic flow	Significant disturbance effects to communities located outside of the LCAA boundary located on traffic routes to access the Newton-in-Bowland Compound and the Braddup and Bonstone Compounds. This includes the settlements of Clitheroe, Waddington, Chatburn, West Bradford and Grindleton. In these locations, the volume, duration, and nature of traffic associated with the Proposed Marl Hill Section has the potential to give rise to significant disturbance effects.	Adverse – significant
RCAA	High	Tourist accommodation	Potential impacts on tourism accommodation due to demands from workers	Negligible – there would be sufficient capacity in total in the RCAA to absorb the additional workforce.	Slight – not significant
RCAA	High	Health	The perception of a more stressful and poor-quality environment and disturbance to recreational cycle routes may contribute to adverse health effects.	Adverse effects have been identified as a result of landscape and visual effects and effects on the National Cycle Network. The overall health outcome is assessed as being adverse but not significant because the health effects are likely to be reversible. The full health assessment is presented in Appendix 14.1.	Adverse – not significant

### 14.6.3 Commissioning Phase

- 122) The following section presents the potential effects on the communities surrounding the Proposed Marl Hill Section during the commissioning phase.
- 123) Commissioning works (including connection to the wider water network) would be undertaken following completion of the main construction works, although the precise timing of these works would depend on the commissioning approach adopted by the Contractor. These works would include the connection of the new tunnel to the existing Haweswater Aqueduct, and the strip-out of tunnelling infrastructure including all rails, communication lines, debris and surface contamination on retreat from the tunnel, a deep clean of the pipe and final disinfection and sampling.

#### Disturbance Effects

- 124) Commissioning works would be likely to occur for a short duration (approximately three months) and would generate limited additional traffic. Air quality effects have been assessed as imperceptible. Potential disturbance effects would be possible as a result of minor landscape and visual effects; however, these would be experienced across only a small proportion of the landscape. Noise effects are assessed as slight and not significant. Therefore, negligible disturbance effects would be expected on all communities.

#### Severance Effects

- 125) During commissioning, the potential additional traffic generated would be minor. There would be no permanent changes in traffic management measures such as road closures that would result in impacts for the local community accessing community facilities. Therefore, severance effects are assessed as not significant for all communities.

#### Tourism Accommodation Effects

- 126) The potential for construction workers to put pressure on demand for tourism accommodation has been assessed based on the estimated peak workforce. During the commissioning phase, the increase in workers would represent only a very minor change from baseline conditions. The commissioning phase would last approximately three months and would not be expected to result in effects on tourism accommodation within the context of the wider RCAA. The magnitude of effect is assessed as negligible resulting in slight and not significant effects on tourism accommodation.

#### Health Effects

- 127) Appendix 14.1: Health Assessment reports that there would be no significant residual health effects associated with the commissioning phase.

### 14.6.4 Operational Phase

- 128) The following section presents the potential effects on the communities surrounding the Proposed Marl Hill Section during the operational phase.
- 129) For most of the length of the replacement aqueduct there would be no permanent above-ground structures with many of the new sections of aqueduct being located deep below ground level. Valve house buildings and minor structures such as kiosks would be required on the Proposed Marl Hill Section at the Braddup and Bonstone Compounds. These buildings would require access for operation via small stone access roads. Operation activities would generally be restricted to light vehicle access to service valves and take water quality samples.

#### Disturbance Effects

- 130) During operation, whilst there could be landscape and visual effects, the small scale of any maintenance works would not be expected to result in any noise, air quality or traffic effects. Therefore, negligible disturbance effects have been assessed for all communities.

### **Severance Effects**

- 131) During the operational phase, the potential additional traffic generated by the Proposed Marl Hill Section would be minor. There would be no permanent changes in traffic management measures such as road closures which would result in impacts for the local community accessing community facilities. All agricultural land would be reinstated. Therefore, severance effects are assessed as not significant for all community.

### **Tourism Accommodation effects**

- 132) During the operational phase, workers would be required only on a one-off basis for maintenance and monitoring purposes. This would not be expected to result in effects on tourism accommodation within the context of the wider RCAA. The magnitude of effect is assessed as negligible resulting in slight and not significant effects on tourism accommodation.

### **Health Effects**

- 133) All topics were scoped out for the operational phase because there is no clear source from where a potential health effect could originate. Therefore, no adverse health effects have been identified. Health effects are set out in full in Appendix 14.1: Health Assessment.

## **14.7 Essential Mitigation and Residual Effects**

- 134) As explained in Section 14.4.6, assessments presented in this ES take account of embedded mitigation and good practice measures for the Proposed Marl Hill Section.
- 135) The communities and health assessment has been informed by the residual effects reported for landscape and arboriculture (Chapter 6), transport planning (Chapter 16), noise and vibration (Chapter 17), and air quality and climate change (Chapter 18). The reported residual effects take into account embedded mitigation and good practice measures, as well as any additional topic-specific essential mitigation identified within the respective chapters.
- 136) United Utilities recognises that during the enabling works, which will include the construction of off-site highways works serving the traffic routes for the main compounds, and during the main construction programme at the Newton-in-Bowland / Bonstone / Braddup Compounds, some local communities would experience disturbance. Disturbance would arise mainly from the movement of heavy goods vehicles through settlements and past individual properties fronting onto the highway. A degree of disturbance is an unavoidable consequence of constructing a major infrastructure project. Some of the community disturbance would be short-term and reversible, while other disturbance may continue throughout the duration of the construction programme.
- 137) Some stakeholder groups have already provided feedback to United Utilities expressing their concerns about the level and duration of community impacts. In response to this feedback, United Utilities has developed alternative access proposals for some of the main HARP construction compounds – for example, the Proposed Ribble Crossing could alleviate impacts on communities in the Chatburn, Grindleton and West Bradford areas; the proposed Park and Ride facility at the Ribblesdale Cement Works would alleviate the volume of private vehicles travelling beyond the Clitheroe area. In contrast, however, some of these solutions may not fully avoid community disturbance impacts, or could give rise to other impacts.
- 138) In addition to ongoing engineering investigations to alleviate potential impacts on transport routes, United Utilities has developed Construction Traffic Management Plans (CTMP), outlining measures to be implemented to further mitigate community disturbance. Through ongoing consultation with local people, local councils and highways authorities, United Utilities will continue to develop and refine mitigation proposals. A community liaison officer would be appointed to act as a point of contact for community engagement prior to the commencement of the enabling works and during the construction phase.

## **14.8 Cumulative Effects**

- 139) The following section provides an overview of the potential cumulative effects from different proposed developments and land allocations, in combination with the Proposed Marl Hill Section (i.e. inter-project cumulative assessment). Data on proposed third-party developments and land allocations contained in development plan documents were obtained from various sources, including local planning authority websites, online searches, and consultations with planning officers. Proposed development data were then reviewed with a view to identifying schemes or land allocations whose nature, scale and scope could potentially give rise to significant environmental effects when considered in combination with the likely effects arising from the Proposed Marl Hill Section.
- 140) It is important to note that future growth on the local road network was taken into account in the traffic modelling described in Chapter 16: Transport Planning. For this reason, the potential cumulative effects of future traffic growth between the Proposed Bowland Section and other proposed developments are embedded into predicted road traffic-related impacts on highways capacity, air quality and noise.
- 141) The overarching cumulative effects of the Proposed Programme of Works i.e. the five proposed replacement tunnel sections in combination, are considered in Chapter 19: Cumulative Effects. In addition, Chapter 19 examines the cumulative effects associated with the outcomes from Volume 2 (delivery and operation of the main construction compounds, tunnel, and construction traffic routes), Volume 5 (proposed off-site highways works and satellite compounds), and Volume 6 (Proposed Ribble Crossing).
- 142) Based on professional judgement, it was concluded that there are no proposed third-party developments or land allocations in local development plan documents which could potentially give rise to likely significant cumulative effects. However, it is noted that delivery of the Proposed Marl Section, subject to planning, could coincide with the enabling works and part of the construction period for the Newton-in-Bowland compound. It is anticipated, however, that in the event that both the Proposed Marl Hill Section and the Proposed Bowland Section were to go ahead, there would be no additional significant disturbance effects over those described in this chapter.

## **14.9 Conclusion**

- 143) This chapter of the ES considered the potential community and health effects associated with construction and operation of the Proposed Marl Hill Section. Disturbance and severance effects were assessed across three community areas: Waddington, Bashall Eaves and Newton-in-Bowland. Health and tourism accommodation effects were assessed for the RCAA.
- 144) During enabling and construction works, all community areas would be expected to experience some disturbance effects because of a combination of landscape and visual, noise, and traffic effects. However, based on the mitigation proposed within the CCoP and CTMP, the overall disturbance effect for receptors within the LCAAs was assessed as not significant. For communities outside of the LCAA located on construction traffic routes where off-site highway works may also additionally be required, the nature, duration and volume of traffic has the potential to give rise to significant disturbance effects. Disturbance effects during commissioning and operation were assessed as not significant for all communities.
- 145) The assessment also considered the ability of communities to access agricultural land, property, infrastructure, businesses, and community facilities, as a result of new infrastructure, road closures, or delays imposed by traffic management measures. For all communities, severance effects were assessed as either negligible or slight adverse and not significant.
- 146) Similarly, based on the estimated peak workforce and the bedspace capacity within the RCAA, effects on tourism accommodation were considered not significant.
- 147) The health assessment, presented in Appendix 14.1: Health Assessment, considered health outcomes within the context of the RCAA. During the enabling works, construction and commissioning phases, the potential for adverse health outcomes was identified in connection with adverse landscape and visual

effects and site and community disturbance. No significant health effects were triggered by these health determinants.

#### **14.10 Glossary and Key Terms**

148) Key phrases and terms used within this technical chapter relating to Communities and Health are defined within Appendix 14.1.