

Appendix B8(i): Transport Technical Note (Newton-in-Bowland Compound)

Document reference: RVBC-BO-TA-016-B8i



Haweswater Aqueduct Resilience Programme - Proposed Bowland Section

Supplementary Environmental Information

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February 2022



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Project No: B27070CT
Document Title: Proposed Bowland Section Supplementary Environmental Information Appendix B8(i):
Transport Technical Note (Newton-in-Bowland Compound)
Document No.: RVBC-BO-TA-016-B8i
Revision: 0
Date: February 2022
Client Name: United Utilities Water Ltd

Jacobs U.K. Limited

5 First Street
Manchester M15 4GU
United Kingdom
T +44 (0)161 235 6000
F +44 (0)161 235 6001
www.jacobs.com

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1. Introduction

1.1 Preamble

- 1) Two Construction Traffic Management Plans (CTMPs) were submitted in support of the June 2021 Planning Application for the Proposed Bowland Section (the June 2021 Planning Application). These CTMPs covered two transport route options (Transport Routes) for construction vehicles serving the Newton-in-Bowland construction compound on the Proposed Bowland Section. The first CTMP related to Transport Route 1 (the use of existing highways) and the second to Transport Route 2 (the Ribble Crossing). It has since been confirmed in the SEI Report that Transport Route 2, the Ribble Crossing, has been adopted in favour over Transport Route 1, albeit with a need to use local roads for approximately nine months to enable construction of the Ribble Crossing and Hodder Crossing.¹
- 2) It is noted that Transport Route 2 would be required for access to the proposed Braddup and Bonstone Compounds associated with the Proposed Marl Hill Section (planning application 3/2021/0661). Although the Proposed Marl Hill Section does not form part of the scope of this report, it is referred to since construction traffic associated with both the Proposed Marl Hill Section and the proposed Newton-in-Bowland Compound would use the same local roads concurrently.
- 3) The SEI Report confirms that to enable simultaneous and timely construction of the Ribble Crossing and Hodder Crossing, Transport Route 1 would need to be temporarily used for access to the Ribble Crossing and Hodder Crossing construction areas for an initial nine month period. All construction traffic would be routed along the Ribble Crossing as soon as it is constructed.
- 4) Given the confirmation of the preferred transport route for the Proposed Bowland (and Marl Hill) Section, and updates to the management and flow of construction traffic during the initial nine month period, United Utilities has prepared two updated CTMPs:
 - The 'January 2022 CTMP' which formed part of the revised January 2022 Planning Application for the Proposed Marl Hill Section
 - The 'February 2022 Bowland CTMP' which forms part of the revised February 2022 Planning Application for the Proposed Bowland Section.
- 5) The two above-mentioned CTMPs supersede the two CTMPs submitted in support of the June 2021 Planning Application.
- 6) Based on the above, Jacobs has undertaken a high-level assessment of the expected traffic generated during construction of the Ribble Crossing and Hodder Crossing over the initial nine month period. This is because it is a revised transport proposal which relates to traffic movements associated only with construction of the Ribble Crossing and Hodder Crossing, before enabling works and construction works begin at the Newton-in-Bowland compound. The June 2021 Environmental Statement described Route Option 1 or Route Option 2 being used by a different combination and number of construction vehicles, serving not only construction of the Ribble Crossing and the Hodder Crossing but also enabling works etc. at the main Newton-in-Bowland (and Marl Hill) compound.
- 7) The assessment is therefore required to examine the difference between the proposed construction traffic movements assessed in Volumes 2 and 3 of the June 2021 Environmental Statement, against the revised traffic movements arising from the amended construction approach described in Section 3.2.2 of the SEI Report.
- 8) This technical note explains the number of vehicles required to construct both the Ribble Crossing and the Hodder Crossing concurrently in the first nine months of the construction programme. Since this particular element of construction is new to the Proposed Bowland Section and therefore was not

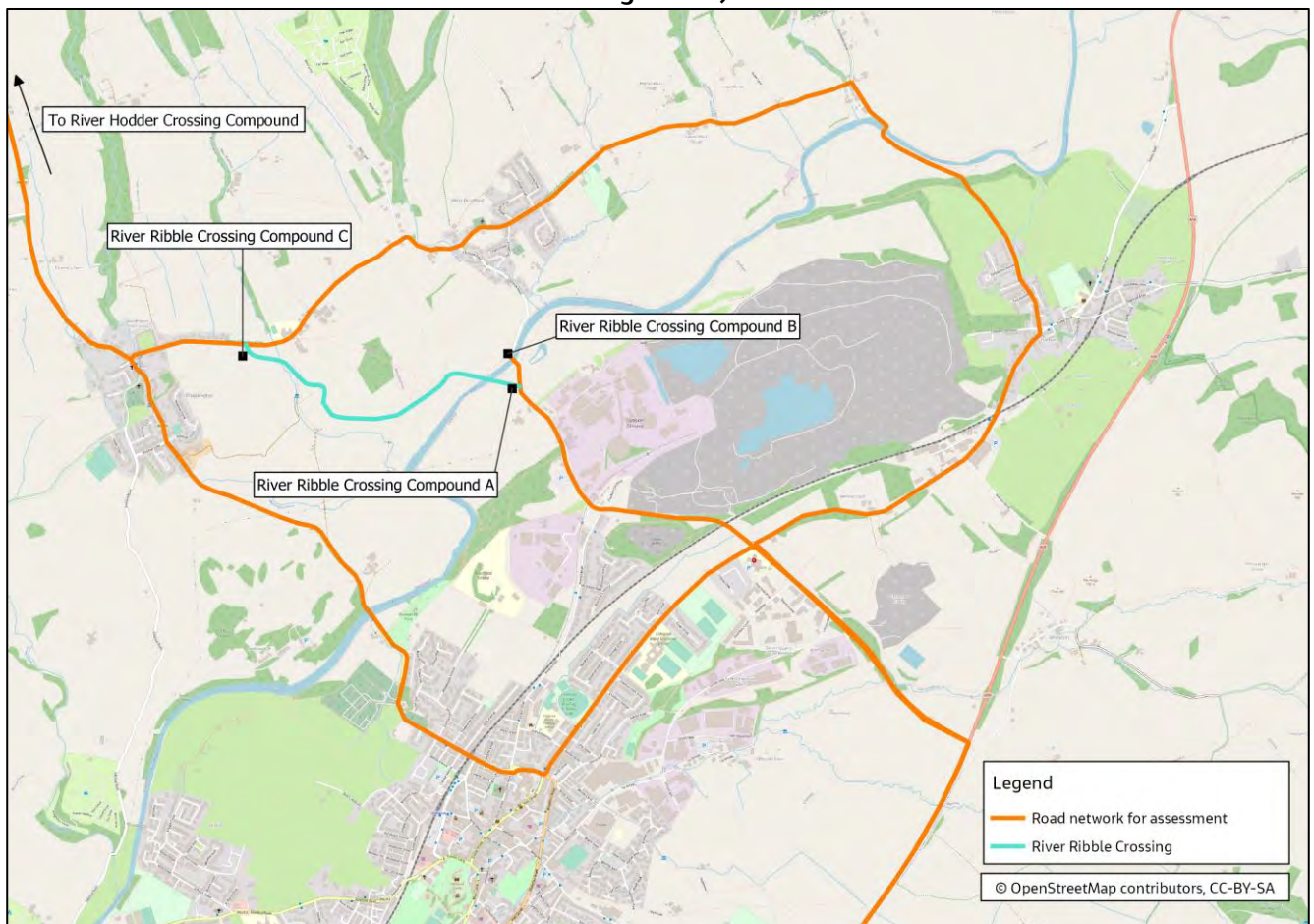
¹ The Proposed Marl Hill Section falls under a separate HARP planning application. However, construction traffic serving the two Proposed Marl Hill Section compounds would share the same local roads in the Clitheroe and Waddington areas as construction vehicles accessing the Newton-in-Bowland Compound via the Hodder Crossing (part of the Proposed Bowland Section). The Proposed Ribble Crossing, once open, would be used concurrently by construction vehicles accessing both the Marl Hill construction compounds and also the Newton-in-Bowland compound.

described in the June 2021 Planning Application, this technical note also examines how previously-reported traffic numbers might change during the new, initial stage of the programme.

1.2 Ribble Crossing and Hodder Crossing Assessment Area (Months 1-9 of the Construction Programme)

- 9) The assessment area of the Ribble Crossing and Hodder Crossing is defined by the three routes discussed in Section 2.1. Illustration 1 highlights the immediate environs and affected local roads of the assessment area, which is defined by Newton-in-Bowland and Waddington to the north-west, Clitheroe to the south-west, West Bradford to the north and Chatburn to the east.

Illustration 1: Ribble Crossing and Hodder Crossing Assessment Area (Months 1-9 of the Construction Programme)



2. Ribble and Hodder Crossing Construction Traffic

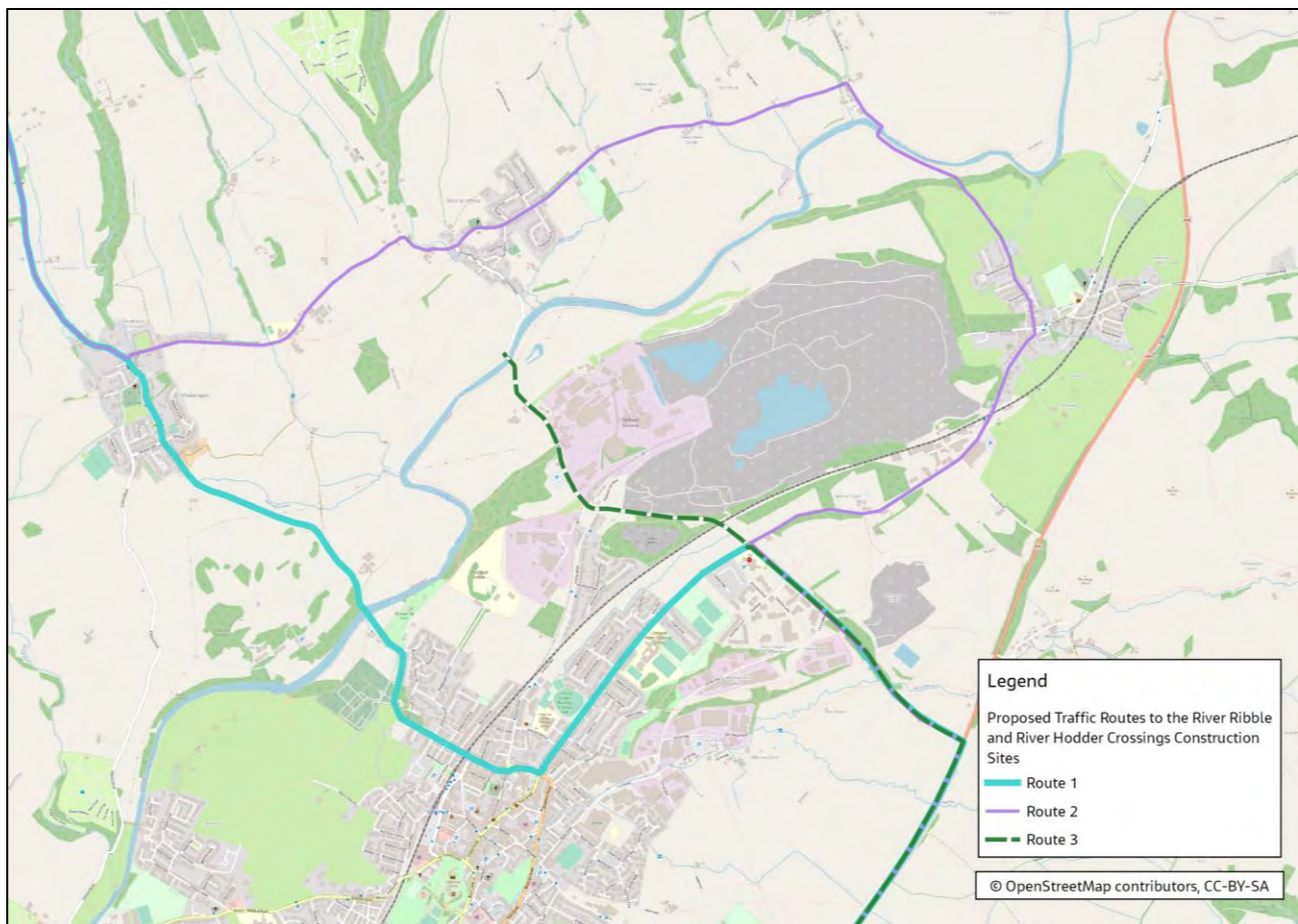
2.1 Proposed Traffic Routes Months 1-9 of the Construction Programme

- 10) The selection of locations, drive strategy and route assumptions for heavy goods vehicles (HGVs) has been developed to reduce the impact of the Ribble Crossing and Hodder Crossing on the local road network after consultation with Lancashire County Council. Further detail of the routeing strategy is provided in the February 2022 Bowland CTMP which accompanies the February 2022 revised Planning Application.
- 11) The local and strategic highway network comprises a mixture of rural and urban roads. There are three proposed traffic routes from the M6 motorway network which would support concurrent construction of the Ribble and Hodder Crossings, depending on the type of construction vehicles:
 - **Route 1** – General construction traffic (HGVs under 3.5 m in height and light vehicles) to the Hodder Crossing and Ribble Compound 'C' via the M6 Junction 31, along the A59, then Pimlico Link Road, Chatburn Road and through Clitheroe along the B6478 Well Terrace / Waddington Road / Clitheroe Road and West Bradford Road. For the Hodder Crossing, vehicles would continue along the B6478 Slaidburn Road from the junction with West Bradford Road. This route is approximately 38 km in length to the Hodder Crossing from the M6 junction and consists of A-roads and B-roads
 - **Route 2** – Abnormal loads and HGVs over 3.5 m in height to the Hodder Crossing and Ribble Compound 'C' via the M6 Junction 31, along the A59, then Pimlico Link Road, Clitheroe Road, Crow Trees Brow, Ribble Lane, Grindleton Road and West Bradford Road. For the Hodder Crossing, vehicles would continue along the B6478 Slaidburn Road from the junction with West Bradford Road. This route is approximately 41 km in length to the Hodder Crossing from the M6 junction and consists of A-roads and B-roads
 - **Route 3** – Carrying all construction vehicles travelling to and from the Ribble Compounds A and B via the M6, Junction 31, along the A59, then Pimlico Link Road and West Bradford Road. This route is approximately 28 km in length to the Ribble Crossing from the M6 junction and consists of A-roads and B-roads.
- 12) The proposed traffic routes for the Ribble and Hodder Crossings are further detailed in Table 1 and illustrated for the assessment area in Illustration 2.

Table 1: Existing Highway Network and Proposed Traffic Routes for the Ribble Crossing and Hodder Crossing Construction

Proposed Compounds	Delivery Routes
<p>Hodder Crossing Compound and Ribble Compound C</p> <p>Route 1 for general construction traffic (HGVs under 3.5 m in height and light vehicles)</p>	<p>Inbound – Hodder Crossing Compound M6 from north (40 %) and south (80 %) via Junction 31, A59, Pimlico Link Road, Chatburn Road, then the B6478</p> <p>Outbound – Hodder Crossing Compound B6478, Chatburn Road, Pimlico Link Road, A59 then M6 to north (40 %) and south (80 %) via Junction 31</p> <p>Inbound – Ribble Compound C M6 from north (40 %) and south (80 %) via Junction 31, A59, Pimlico Link Road, Chatburn Road, B6478 then West Bradford Road</p> <p>Outbound – Ribble Compound C West Bradford Road, B6478, Chatburn Road, Pimlico Link Road, A59 then M6 to north (40 %) and south (80 %) via Junction 31</p>
<p>Hodder Crossing Compound and Ribble Compound C</p> <p>Route 2 for abnormal loads and HGVs over 3.5 m in height</p>	<p>Inbound – Hodder Crossing Compound M6 from north (40 %) and south (80 %) via Junction 31, A59, Pimlico Link Road, Clitheroe Road, Crow Trees Brow, Ribble Lane, Grindleton Road, then West Bradford Road and the B6478</p> <p>Outbound – Hodder Crossing Compound B6748, West Bradford Road, Grindleton Road, Ribble Lane, Crow Trees Brow, Clitheroe Road, Pimlico Link Road, A59 then M6 to north (40 %) and south (80 %) via Junction 31</p> <p>Inbound – Ribble Compound C M6 from north (40 %) and south (80 %) via Junction 31, A59, Pimlico Link Road, Clitheroe Road, Crow Trees Brow, Ribble Lane, Grindleton Road, then West Bradford Road</p> <p>Outbound – Ribble Compound C West Bradford Road, Grindleton Road, Ribble Lane, Crow Trees Brow, Clitheroe Road, Pimlico Link Road, A59 then M6 to north (40 %) and south (80 %) via Junction 31</p>
<p>Ribble Crossing Compounds A and B</p> <p>Route 3 for all vehicles</p>	<p>Inbound M6 from north (40 %) and south (80 %) via Junction 31, A59, Pimlico Link Road, then West Bradford Road</p> <p>Outbound West Bradford Road, Pimlico Link Road, A59 then M6 to north (40 %) and south (80 %) via Junction 31</p>

Illustration 2: Ribble Crossing and Hodder Crossing Proposed Traffic Routes (Months 1-9 of the Construction Programme)



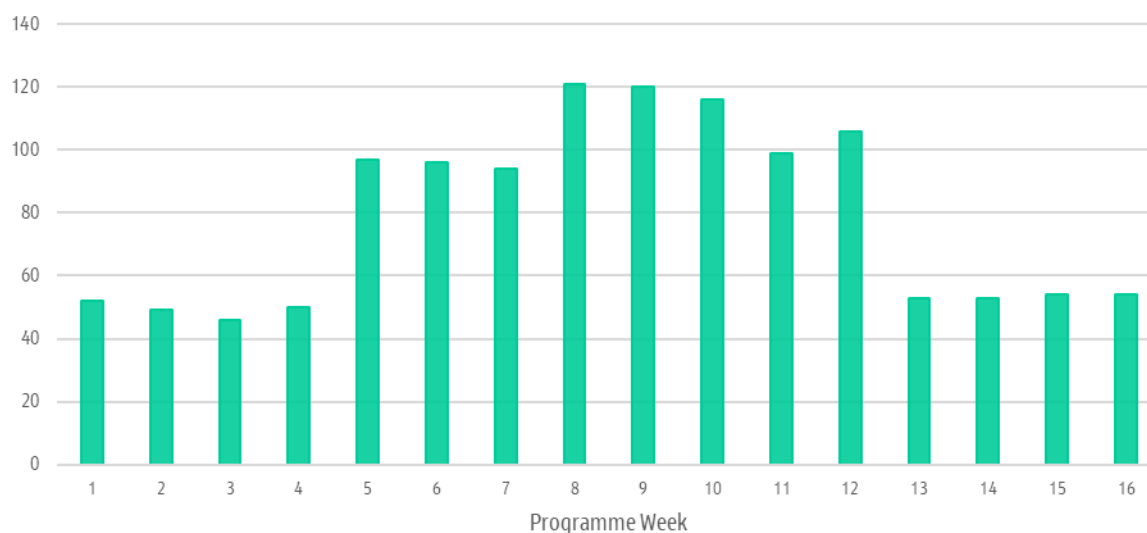
2.2 Traffic Generation Months 1-9

- 13) Traffic generation figures for the short (nine months) period of programme under consideration are derived from estimates developed by United Utilities, and are based on a detailed understanding of traffic data presented in the June 2021 Environmental Statement.
- 14) For the purpose of quantifying the effects of construction traffic and the number of HGVs per day during the construction period, a theoretical vehicle movements spreadsheet produced by United Utilities was used. These movements have been calculated based on construction rates applied to materials and spoil figures.
- 15) The application of construction rates against the high-level programme enabled an assessment of daily volumes (as HGV loads) associated with spoil excavated and removed, and material deliveries. The construction rates have also been used to identify where activity would be taking place on a typical day.
- 16) For the purposes of this report, the assessment is focused on daily traffic movements expected across Route 1, Route 2 and Route 3 as shown in Illustration 2 above.
- 17) Anticipated vehicle movements along the proposed construction access routes vary significantly depending upon construction phase and location on the road network. The period of assessment covers the full construction period for the Ribble Crossing and Hodder Crossing which has been identified as nine months. To allow for a conservative assessment of likely peak movements during the nine month period, the theoretical vehicle movements used to inform the assessment assumed a 16-week construction period.

2.2.1 Route 1

- 18) Illustration 3 shows the range of anticipated daily two-way movements (i.e. total flows in both directions) generated for construction activities taking place at the Ribble Crossing and Hodder Crossing Compounds along Proposed Route 1.

Illustration 3: Range of anticipated daily two-way movements along Route 1

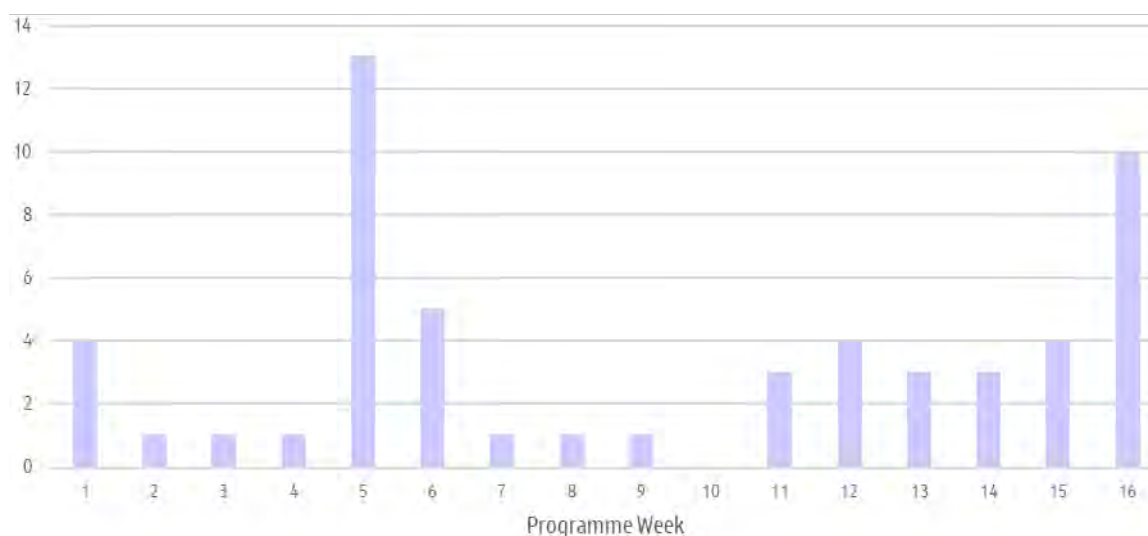


- 19) From Illustration 3 above, it can be seen that during week eight of the construction programme, it is anticipated that construction activity would achieve its peak period regarding workforce, plant and vehicle requirements with the highest vehicular two way flow of 122 vehicles per day.

2.2.2 Route 2

- 20) Illustration 4 below shows the range of the anticipated daily two-way movements generated for construction activities taking place at the Ribble Crossing and Hodder Crossing Compounds along Route 2. It can be seen that during week five of the construction programme, it is anticipated that construction activity would achieve its peak period regarding workforce, plant and vehicle requirements with the highest vehicular two-way flow of 13 vehicles per day.

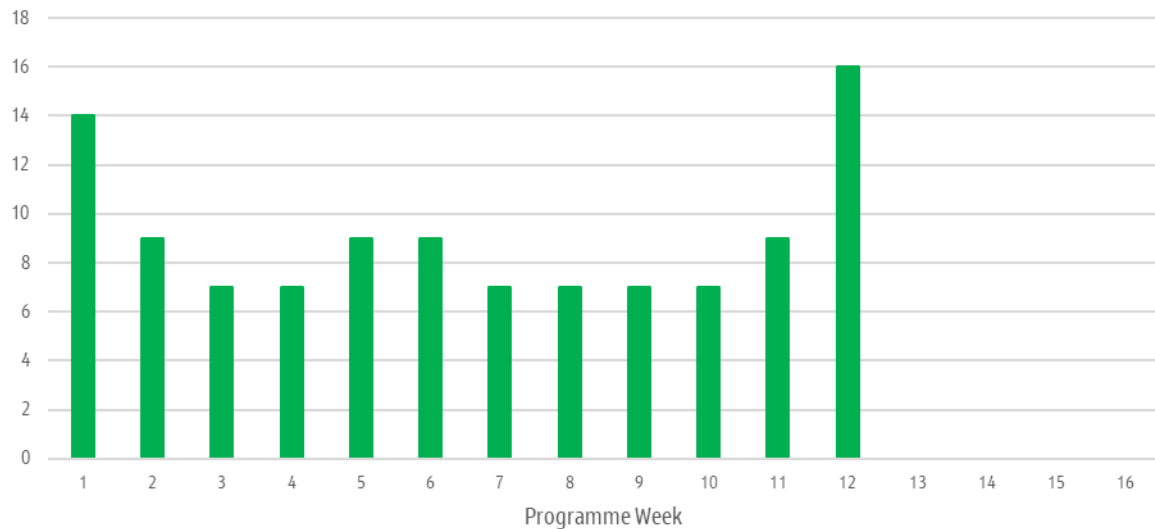
Illustration 4: Range of anticipated daily two-way movements along Route 2



2.2.3 Route 3

- 21) Illustration 5 below shows the range of anticipated daily two-way movements generated for construction activities taking place at the Ribble Crossing and Hodder Crossing Compounds along Route 3. It can be seen that during week 12 of the construction programme, it is anticipated that construction activity would achieve its peak period regarding workforce, plant and vehicle requirements with the highest vehicular two-way flow of 16 vehicles per day. Illustration 5 also demonstrates that the construction activities using this route would occur only during weeks 1 – 12 of the 16-week programme.

Illustration 5: Range of anticipated daily two-way movements along Route 3



3. HARP Main Construction Works Traffic

- 22) As described in Section 1.1 above, the June 2021 Environmental Statement introduced two Transport Route options, applicable over the full duration of the construction programme, to provide access to the Newton-in-Bowland compound. This section of the report summarises the scope of construction traffic access routes and vehicle numbers as presented in the June 2021 Environmental Statement. This enables a comparison of the estimated traffic levels in months 1-9 of the construction programme, as described in Section 2, against the main works traffic levels that are anticipated from month 10 of the programme going forward.

3.1 Transport Route 1 Public Highways

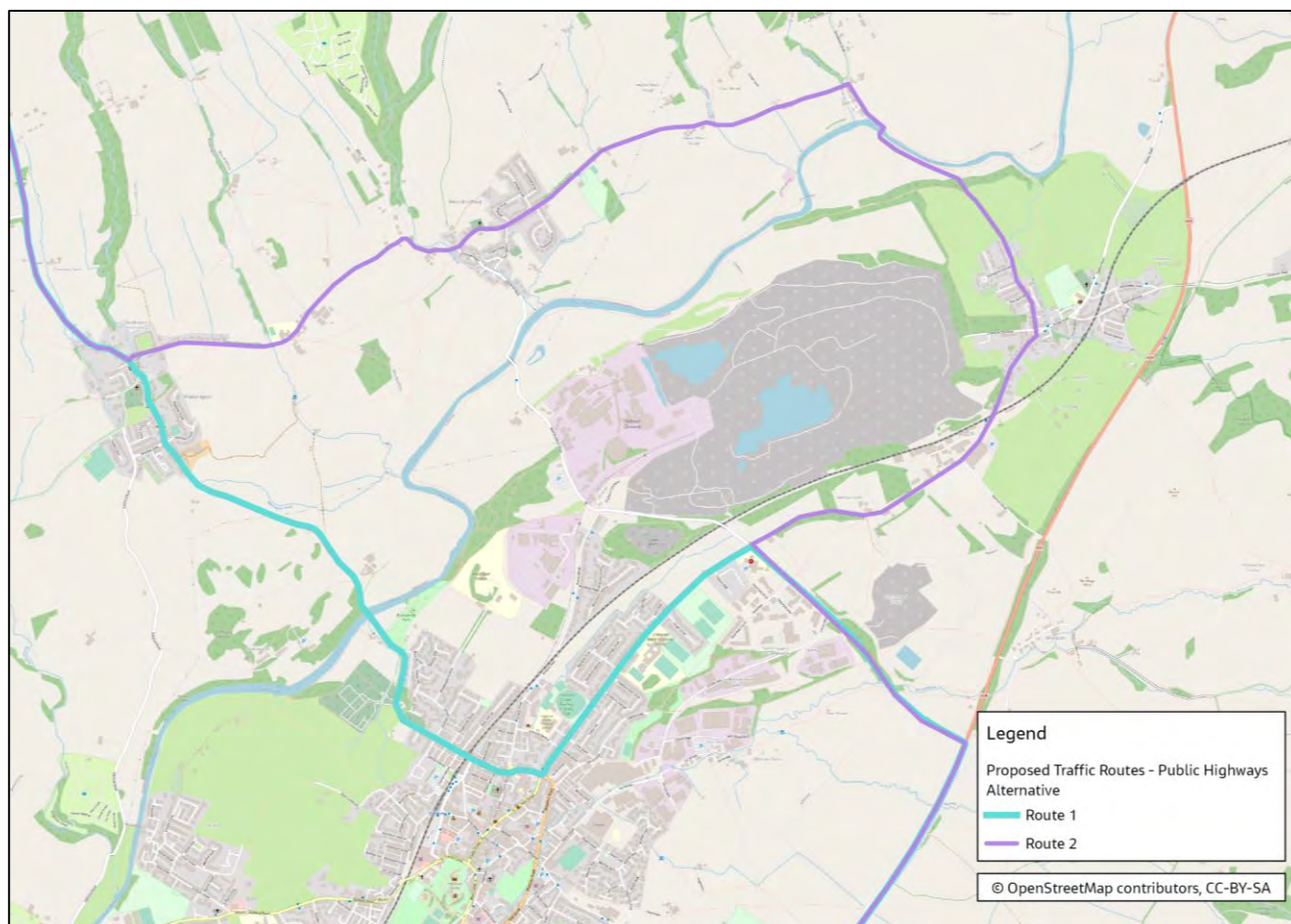
- 23) The selection of locations, drive strategy and route assumptions for HGVs was developed in consultation with Lancashire County Council to reduce the impact of the proposed developments on the local road network. Additionally, the potential for road closures and local diversions necessitated by such activity in the short-term were discussed and further details of the routeing strategy, road closures and diversions are provided in the February 2022 Bowland CTMP.
- 24) For the Newton-in-Bowland Compound three routes were proposed:
- Route 1 – General construction traffic (HGVs under 3.5 m in height and light vehicles) via the M6 Junction 31, along the A59, then Pimlico Link Road, Chatburn Road and through Clitheroe along the B6478 Well Terrace / Waddington Road / Clitheroe Road / Slaidburn Road / Hall Gate Hill to continue via the Hodder Crossing to the south of Newton-in-Bowland. This route is approximately 39 km in length from the M6 junction and consists of A-roads and B-roads
 - Route 2 – Abnormal loads and HGVs over 3.5 m in height via the M6 Junction 31, along the A59, then Pimlico Link Road, Clitheroe Road, Crow Trees Brow, Ribble Lane, Grindleton Road, West Bradford Road and along the B6478 Slaidburn Road / Hall Gate Hill to continue via the Hodder Crossing to the south of Newton-in-Bowland. This route is approximately 42 km in length from the M6 junction and consists of A-roads and B-roads
 - Surplus material transfer to Waddington Fell Quarry – via the Hodder Crossing to the south of Newton-in-Bowland, then along the B6478 Hallgate Hill / Slaidburn Road (approximately 4 km from the compound to the quarry).
- 25) The three routes proposed for the Newton-in-Bowland Compound are summarised in the February 2022 Bowland CTMP.
- 26) The proposed traffic routes for the Newton-in-Bowland Compound using existing public highways are presented in Table 2 and shown in Illustration 6.

Table 2: Traffic Routes for the Main Works Traffic via Existing Public Highways

Route Description for Newton-in-Bowland Compound	Delivery Routes
Route 1 for general construction traffic (HGVs under 3.5 m in height and light vehicles)	<p>Inbound</p> <p>M6 from north (40 %) and south (80 %) via Junction 31, A59, Pimlico Link Road, Chatburn Road, B6478, then the Hodder Crossing to the south of Newton-in-Bowland</p> <p>Outbound</p> <p>Hodder Crossing to the south of Newton-in-Bowland, B6478, Chatburn Road, Pimlico Link Road, A59 then M6 to north (40 %) and south (80 %) via Junction 31</p>

Route Description for Newton-in-Bowland Compound	Delivery Routes
<p>Route 2 for abnormal loads and HGVs over 3.5 m in height</p>	<p>Inbound M6 from north (40 %) and south (80 %) via Junction 31, A59, Pimlico Link Road, Clitheroe Road, Crow Trees Brow, Ribble Lane, Grindleton Road, West Bradford Road, B6478, then the Hodder Crossing to the south of Newton-in-Bowland</p> <p>Outbound Hodder Crossing to the south of Newton-in-Bowland, B6478, West Bradford Road, Grindleton Road, Ribble Lane, Crow Trees Brow, Clitheroe Road, Pimlico Link Road, A59 then M6 to north (40 %) and south (80 %) via Junction 31</p>
<p>Surplus material transfer to Waddington Fell Quarry</p>	<p>Inbound Hodder Crossing to the south of Newton-in-Bowland, then B6478 Hallgate Hill / Slaidburn Road</p> <p>Outbound B6478 Slaidburn Road / Hallgate Hill then the Hodder Crossing to the south of Newton-in-Bowland</p>

Illustration 6: Transport Route 1 – Public Highways²



3.2 Transport Route Option 2 Ribble Crossing

- 27) The selection of locations, drive strategy and route assumptions for HGVs were developed to reduce the impact of the Proposed Bowland Section on the local road network following consultation with Lancashire County Council. Additionally, the potential for road closures and diversions was provided in the June 2021 CTMP in (LCC-BO-APP-007, RVBC-BO-APP-007_01 and RVBC-BO-APP-007_02 within the Planning Documents). Traffic Management Proposals have been updated in the February 2022 Bowland CTMP. The February Bowland 2022 CTMP therefore supersedes the CTMPs submitted in support of the June 2021 Planning Application.
- 28) The local and strategic network is a mixture of rural and urban and is characterised by three access routes from the M6 motorway network, with three additional surplus material transfer access route for each compound to the Waddington Fell quarry.
- 29) For the Newton-in-Bowland Compound two routes have been proposed:
 - Route for all construction traffic (except surplus material transfer to Waddington Fell Quarry) via the M6 Junction 31, along the A59, then Pimlico Link Road and West Bradford Road to continue via dedicated haulage route / Ribble Crossing. To then continue along West Bradford Road and along the B6478 Slaidburn Road / Hallgate Hill then via the Hodder Crossing to the south of Newton-in-Bowland. This route is approximately 39 km and consists of A-roads and B-roads

² Transport Route 1 comprises two public highway routes, Route 1 and Route 2.

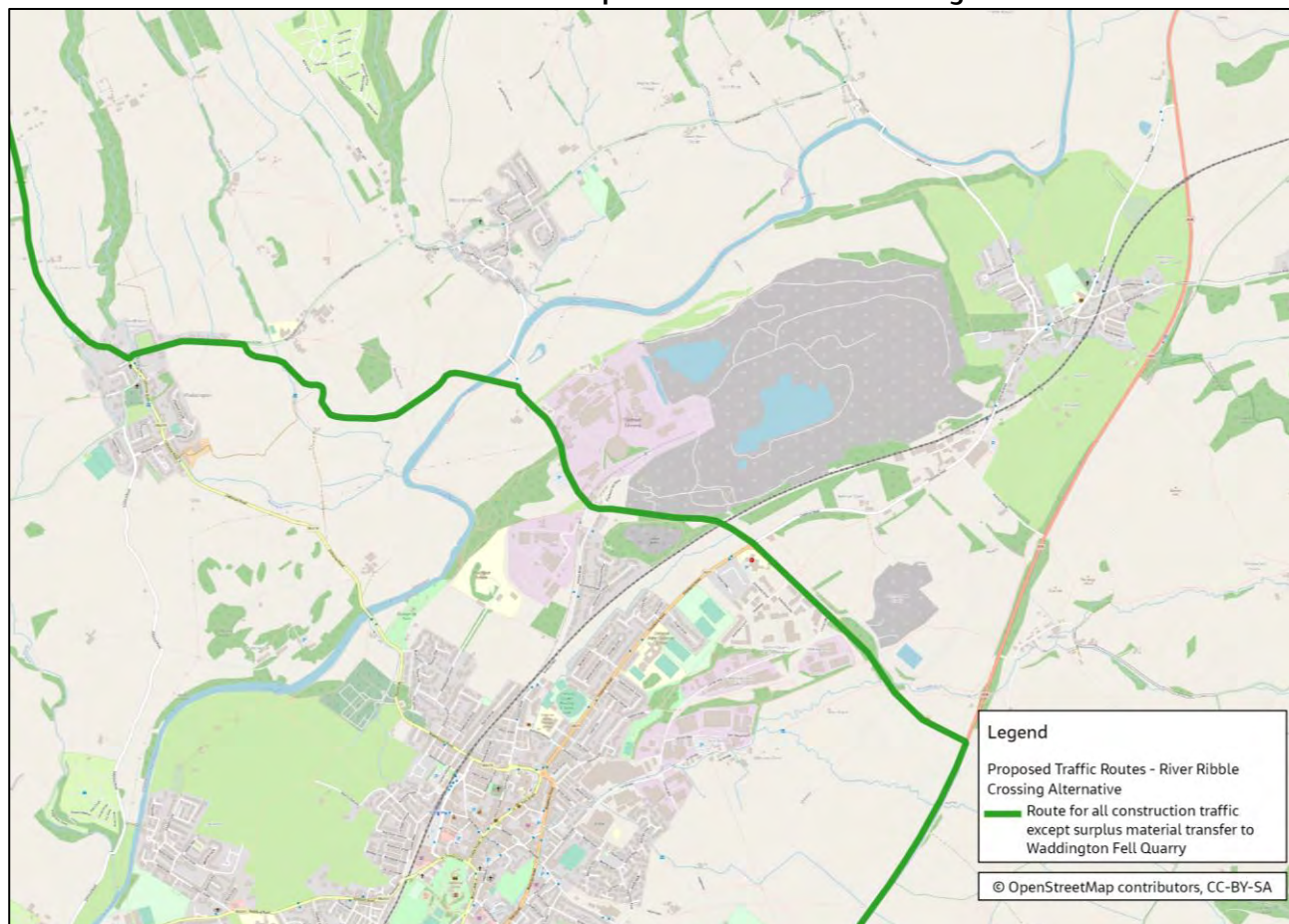
- Surplus material transfer to Waddington Fell Quarry – via the Hodder Crossing to the south of Newton-in-Bowland, then along the B6478 Hallgate Hill / Slaidburn Road (approximately 4 km from the compound to the quarry).
- 30) For the Bonstone Compound two routes have been proposed:
- Route for all construction traffic (except surplus material transfer to Waddington Fell Quarry) via the M6 Junction 31, along the A59, then Pimlico Link Road and West Bradford Road to continue via dedicated haulage route / Ribble Crossing. To then continue along West Bradford Road and along the B6478 Slaidburn Road. This route is approximately 36 km and consists of A-roads and B-roads
 - Surplus material transfer to Waddington Fell Quarry - B6478 Slaidburn Road (approximately 3 km from the compound to the quarry).
- 31) For the Braddup Compound two routes have been proposed:
- Route for all construction traffic (except surplus material transfer to Waddington Fell Quarry) via the M6 Junction 31, along the A59, then Pimlico Link Road and West Bradford Road to continue via dedicated haulage route / Ribble Crossing. To then continue along West Bradford Road and along the B6478 Slaidburn Road. This route is approximately 31 km and consists of A-roads and B-roads
 - Surplus material transfer to Waddington Fell Quarry - B6478 Slaidburn Road (approximately 3 km from the compound to the quarry).
- 32) The proposed traffic routes for Newton-in-Bowland, Bonstone and Braddup Compounds are further detailed in Table 3 and shown in Illustration 7.

Table 3: Proposed Traffic Routes for the Main Works Traffic via the Ribble Crossing

Proposed Compounds	Delivery Routes
Newton-in-Bowland Compound Route for all construction traffic except surplus material transfer to Waddington Fell Quarry	Inbound M6 from north (40 %) and south (80 %) via Junction 31, A59, Pimlico Link Road, West Bradford Road, Ribble Crossing, West Bradford Road, B6478, then the Hodder Crossing to the south of Newton-in-Bowland Outbound Hodder Crossing to the south of Newton-in-Bowland, B6478, West Bradford Road, Ribble Crossing, West Bradford Road, Pimlico Link Road, A59 then M6 to north (40 %) and south (80 %) via Junction 31
Newton- in- Bowland Compound Surplus material transfer to Waddington Fell Quarry	Inbound Hodder Crossing to the south of Newton-in-Bowland, then B6478 Hallgate Hill / Slaidburn Road Outbound B6478 Slaidburn Road / Hallgate Hill then the Hodder Crossing to the south of Newton-in-Bowland

Proposed Compounds	Delivery Routes
Bonstone Compound Route for all construction traffic except surplus material transfer to Waddington Fell Quarry	Inbound M6 from north (40 %) and south (80 %) via Junction 31, A59, Pimlico Link Road, West Bradford Road, Ribble Crossing, West Bradford Road, then the B6478 Outbound B6478, West Bradford Road, Ribble Crossing, West Bradford Road, Pimlico Link Road, A59 then M6 to north (40 %) and south (80 %) via Junction 31
Bonstone Compound Surplus material transfer to Waddington Fell Quarry	Inbound B6478 Slaidburn Road Outbound B6478 Slaidburn Road
Braddup Compound Route for all construction traffic except surplus material transfer to Waddington Fell Quarry	Inbound M6 from north (40 %) and south (80 %) via Junction 31, A59, Pimlico Link Road, West Bradford Road, Ribble Crossing, West Bradford Road, then the B6478 Outbound B6478, West Bradford Road, Ribble Crossing, West Bradford Road, Pimlico Link Road, A59 then M6 to north (40 %) and south (80 %) via Junction 31
Braddup Compound Surplus material transfer to Waddington Fell Quarry	Inbound B6478 Slaidburn Road Outbound B6478 Slaidburn Road

Illustration 7: Transport Route 2 – Ribble Crossing



3.3 Traffic Generation

3.3.1 Introduction

- 33) This section summarises the number of daily HGV movements that were anticipated throughout the works construction period, as described in the June 2021 Transport Assessment. These traffic forecasts were derived from construction rates applied to materials and surplus material movement figures. The purpose of outlining the traffic numbers associated with the entire main works construction programme has been to enable a comparison between the traffic peaks associated with the mains works contract, and those associated with the revised traffic management proposals during months 1-9 of the construction programme.
- 34) The application of construction rates against the high level programme enabled an assessment of daily volumes (as HGV loads) associated with surplus materials excavated and removed, and material deliveries. The construction rates were also used to identify where activity would be taking place on a typical day, applying the assumptions described in the June 2021 Transport Assessment.
- 35) For the purpose of this technical note, the assessment is focused on daily traffic movement expected across the proposed routes in the assessment area, therefore only Transport Route 1 and Transport Route 2 have been considered, and the surplus material transfer to Waddington Fell Quarry has been descope.
- 36) Anticipated vehicle movements along the proposed construction access routes vary significantly depending upon construction phase and location on the road network.

3.3.2 Transport Route 1: Route 1 and Route 2

- 37) Illustration 8 and Illustration 9 below show the range of the anticipated daily two-way movements generated for construction activities taking place at Newton-in-Bowland, Bonstone and Braddup Compounds along Route 1 and Route 2.
- 38) The period of assessment covers the full construction period for the Proposed Bowland Section and Proposed Marl Hill Section (April 2023 to September 2030). It can be seen from Illustration 8 and Illustration 9 that during the summer months of 2024, it is anticipated that construction activity would achieve its peak period taking account of workforce, plant and vehicle requirements.
- 39) It is expected that Route 1 achieves its peak in August 2024 with the highest vehicular two-way flow of 128 vehicles per day. For Route 2, it is also expected to achieve its peak in August 2024 with the highest vehicular two way flow of 71 vehicles per day.

Illustration 8: Transport Route 1 Daily Two-Way Movements Route 1

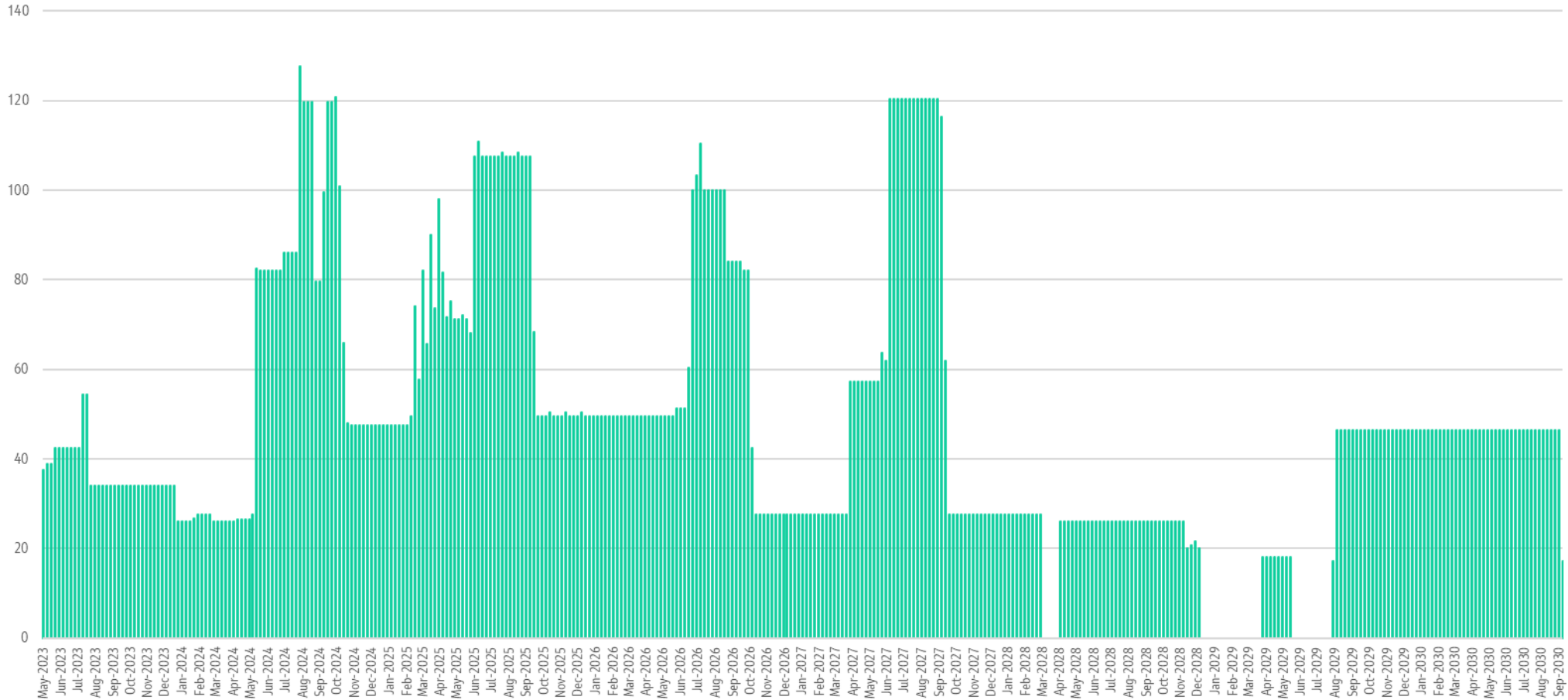
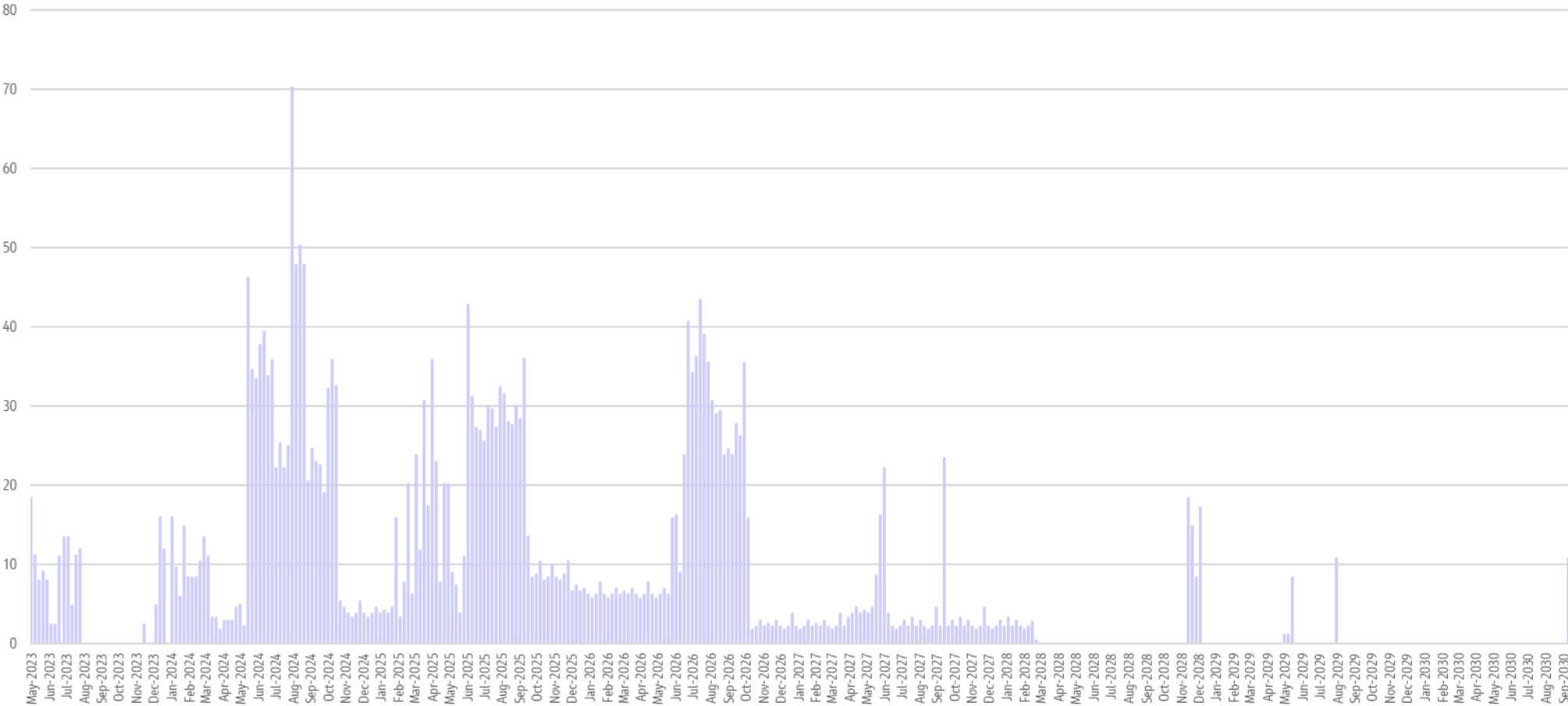


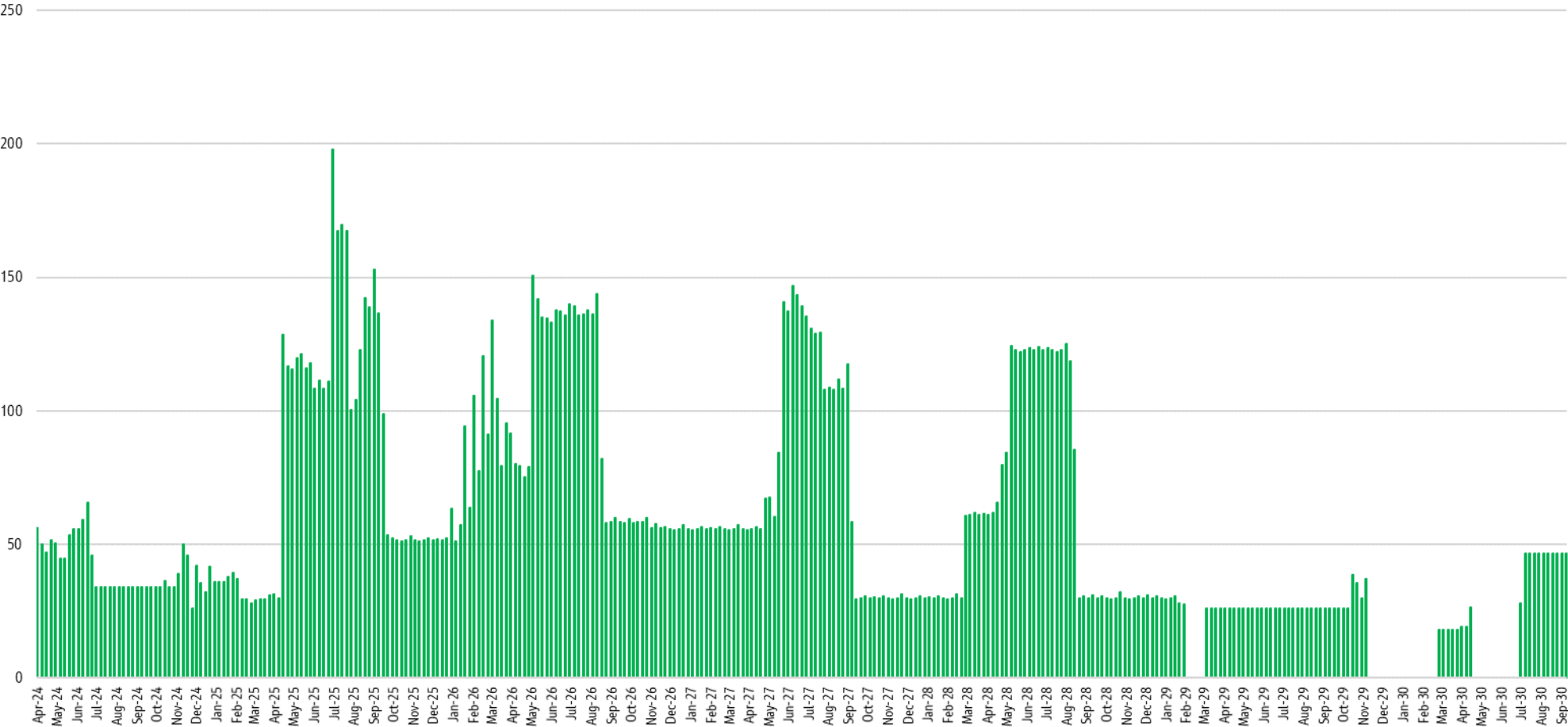
Illustration 9: Transport Route 1 Daily Two-Way Movements Route 2



3.3.3 Transport Route 2 - Ribble Crossing

- 40) For the purpose of this technical note, the assessment is focused on daily traffic movement expected across the proposed routes in the assessment area, therefore only the Ribble Crossing Route for all construction traffic has been considered, and the surplus material transfer to Waddington Fell Quarry was descope from this commentary.
- 41) Anticipated vehicle movements along the proposed construction access route vary significantly depending upon construction phase and location on the road network. Illustration 10 below shows the range of the anticipated daily two-way movements generated for construction activities taking place at Newton-in-Bowland, Bonstone and Braddup Compounds along the Ribble Crossing Route for all construction.
- 42) Again, the period of assessment covers the full construction period for the Proposed Bowland Section and Proposed Marl Hill Section (April 2023 to September 2030). It can be seen from Illustration 10 that during the summer months of 2024, it is anticipated that construction activity would achieve its peak period regarding workforce, plant and vehicle requirements.
- 43) It is expected that the Ribble Crossing Route for all construction traffic achieves its peak in July 2025 with the highest vehicular two-way flow of 199 vehicles per day.

Illustration 10: Ribble Crossing Transport Route 1 Daily Two-Way Movements

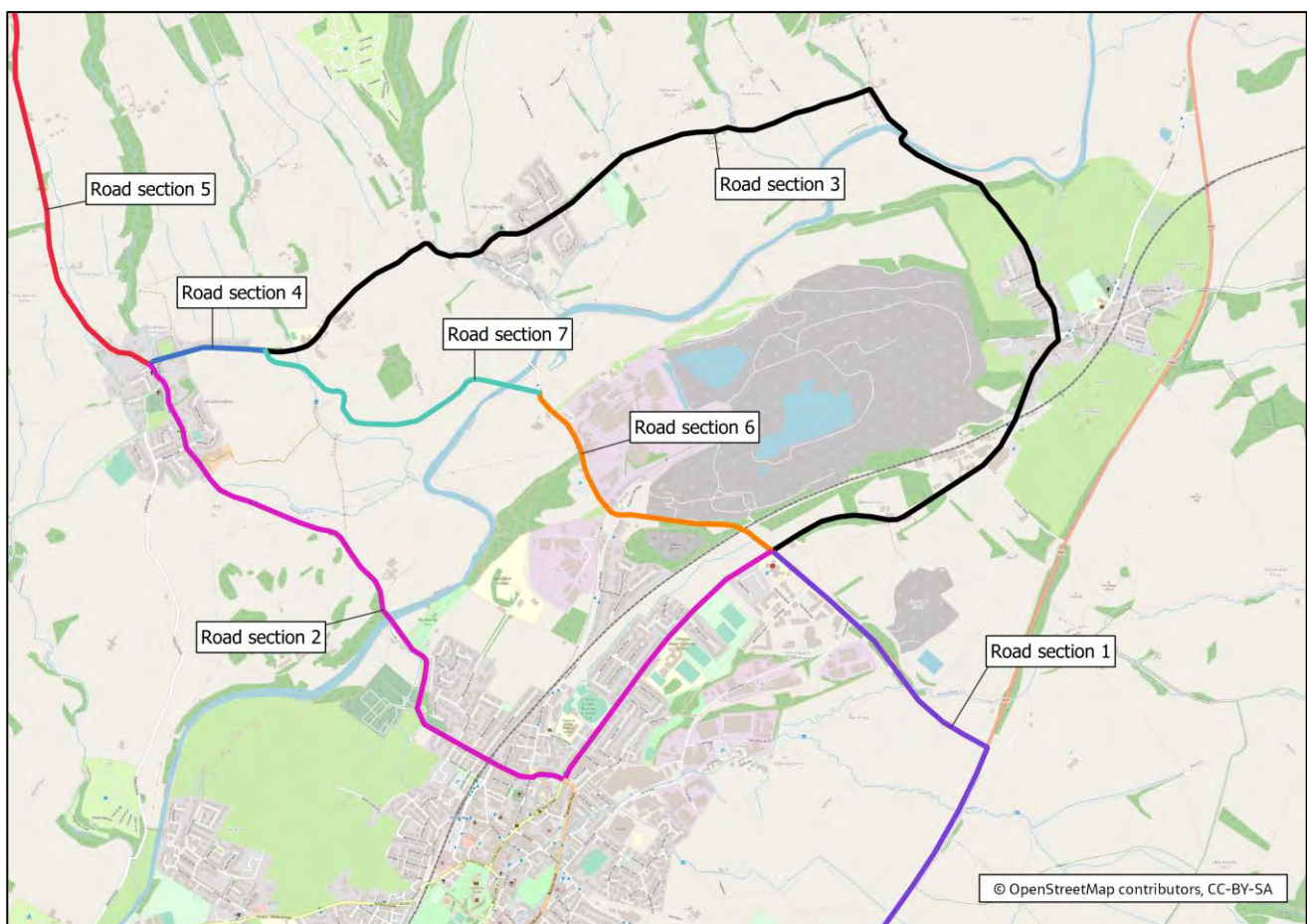


4. Traffic Peak Comparison

45) In order to establish a comparison between the access strategies described above using their anticipated maximum vehicular peaks, the road network in the assessment area was divided into the following road sections (Illustration 11 below).

- Road section 1- A59 / Pimlico Link Road
- Road section 2 - A671 Chatburn Road / Well Terrace / B6478 Waddington Road / B6478 Clitheroe Road
- Road section 3 - Chatburn Road / Clitheroe Road / Crow Trees Brow / Ribble Lane / Grindleton Road / Waddington Road / West Bradford Road
- Road section 4 - West Bradford Road
- Road section 5 - B6478 Slaidburn Road
- Road section 6 - Pimlico Link Road / West Bradford Road
- Road section 7 - Ribble Crossing.

Illustration 11: Road sections used for traffic peak comparison



1	A59 / Pimlico Link Road	129	199 (August 2024)	199 (August 2024)
2	A671 Chatburn Road / Well Terrace / B6478 Waddington Road / B6478 Clitheroe Road	121	128 (August 2024)	-
3	Chatburn Road / Clitheroe Road / Crow Trees Brow / Ribble Lane / Grindleton Road / Waddington Road / West Bradford Road	13	70 (August 2024)	-
4	West Bradford Road	56	70 (August 2024)	199 (August 2024)
5	B6478 Slaidburn Road	122	199 (August 2024)	199 (August 2024)
6	Pimlico Link Road / West Bradford Road	66	-	199 (August 2024)
7	Ribble Crossing	-	-	199 (August 2024)

- 46) Table 4 below shows the maximum predicted two-way daily construction traffic flows for each road section shown in Illustration 11 and their associated route strategy:
- Proposed Ribble Crossing and Proposed Hodder Crossing months 1-9 (the subject of this technical note)
 - Existing public highways (February 2022 Bowland CTMP)
 - The Ribble Crossing (February 2022 Bowland CTMP).
- 47) Most of these flows have already been described in sections above for each specific access strategy. However, where more than one route coexists, the maximum peak has been estimated based on the programme of works from relevant theoretical vehicle movement data.
- 48) According to the flows shown in this table, the highest anticipated traffic flows (shaded cells in Table 4) are expected to occur under either Transport Option 1 (public highways) or Transport Option 2 (Ribble Crossing). In other words, the access strategies described in the February 2022 Bowland CTMP represent the worst case scenarios in relation to traffic flows, when compared against the newly-proposed initial access strategy that would occur during months 1-9 of the construction programme.
- 49) It should be noted that the maximum expected two-way daily construction traffic figures per road section during the nine month period are conservative i.e. they are higher than the proposed cap on movements set out in the February 2022 Bowland CTMP. For example, a maximum two-way flow of 13 vehicles per day has been assumed for Road Section 3. However, the February 2022 Bowland CTMP confirms that the route via Chatburn and Grindleton would be used by exception only, and that vehicle movements would be capped at a two-way flow of four vehicles per day.

Table 4: Maximum two-way daily construction traffic per road section

Road Section	Description	Transport Route		
		Proposed Ribble Crossing and Proposed Hodder Crossing Construction (initial 9 month period before Mains Works Traffic)	Transport Route 1 Public Highways (Mains Works Traffic)	Transport Route 2 Ribble Crossing (Mains Works Traffic)
1	A59 / Pimlico Link Road	129	199 (August 2024)	199 (August 2024)
2	A671 Chatburn Road / Well Terrace / B6478 Waddington Road / B6478 Clitheroe Road	121	128 (August 2024)	-
3	Chatburn Road / Clitheroe Road / Crow Trees Brow / Ribble Lane / Grindleton Road / Waddington Road / West Bradford Road	13	70 (August 2024)	-
4	West Bradford Road	56	70 (August 2024)	199 (August 2024)
5	B6478 Slaidburn Road	122	199 (August 2024)	199 (August 2024)
6	Pimlico Link Road / West Bradford Road	66	-	199 (August 2024)
7	Ribble Crossing	-	-	199 (August 2024)

5. Conclusion

- 50) It has been confirmed in the February 2022 Bowland CTMP that Transport Route 2, the Ribble Crossing, has been selected as the preferred construction vehicle access route to gain access to the Newton-in-Bowland Compound (and the two compounds associated with the separate Proposed Marl Hill Section revised planning application). This would first require the construction of the Ribble Crossing, which would require some nine months to build. It is proposed that the Hodder Crossing, associated with the Proposed Bowland Section, would be constructed at the same time as the Ribble Crossing.
- 51) This revised construction approach would require construction vehicles to use the local public highway to enable construction of both crossings. Following the opening of the Ribble Crossing to construction vehicles, there would be no further requirement to direct construction traffic through the centre of Clitheroe or through the villages of Chatburn, Grindleton and West Bradford.
- 52) This Technical Note compares the predicted traffic levels associated with this initial nine month phase of construction activity against the vehicle volumes associated with both Transport Route 1 and Transport Route 2 which were presented in the June 2021 Environmental Statement.
- 53) It is concluded that the construction traffic flows presented in the June 2021 Environmental Statement (and included in the February 2022 Bowland CTMP) represent the worst case scenario for the road sections considered in this report. The proposed revision to the early stages of the programme (months 1-9) would give rise to lower traffic flows on the local road network when compared with the flows associated with Transport Route 1 and 2.

Appendix B8(ii): Lower Houses Technical Note

Document reference: LCC-BO-TA-016-B8ii



Haweswater Aqueduct Resilience Programme - Proposed Bowland Section

Supplementary Environmental Information

Appendix B8(ii): Transport Technical Note (Newton-in-Bowland Compound)

February 2022



Haweswater Aqueduct Resilience Programme - Proposed Bowland Section

Project No: B27070CT
Document Title: Proposed Bowland Section Supplementary Environmental Information Appendix B8(ii):
Transport Technical Note (Lower Houses Compound)
Document Ref.: LCC-BO-TA-016-B8ii
Revision: 0
Date: February 2022
Client Name: United Utilities Water Ltd

Jacobs U.K. Limited

5 First Street
Manchester M15 4GU
United Kingdom
T +44 (0)161 235 6000
F +44 (0)161 235 6001
www.jacobs.com

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1. Introduction

1.1 Preamble

- 1) A Construction Traffic Management Plan (CTMP) was submitted in support of the June 2021 Planning Application (the June 2021 Planning Application). The June 2021 CTMP described a one-way route serving the Lower Houses Compound linked to the Proposed Bowland Section. Further to feedback received from statutory and non-statutory stakeholders during the planning application consultation period, a change is proposed to the way in which the majority of construction vehicles would operate on the local road network. Instead of a one-way transport route centred on Helks Brow and Long Lane, as described in the June 2021 CTMP, an alternative two-way system along Eskew Lane and Furnessford Road has been presented as part of the revised planning application. The alternative two-way transport route is described in Section 3 of the Proposed Bowland Section Supplementary Environmental Information (SEI) Report.
- 2) The newly-proposed two-way system requires additional off-site highways works in the form of road widening and a vehicle holding area, and additional construction traffic management techniques.
- 3) Given the confirmation of the new two-way vehicle flow arrangement, United Utilities has prepared an updated CTMP for construction vehicles accessing the proposed Lower Houses Compound in the Lancaster City Council area (the February 2022 Lower Houses CTMP). The February 2022 Lower Houses CTMP forms part of the Proposed Bowland Section SEI and supersedes the June 2021 CTMP.¹
- 4) Based on the above, Jacobs has reviewed the newly-revised access strategy to the Lower Houses Compound and evaluated the expected construction traffic flows against those described in the June 2021 Transport Assessment. The outcomes of this evaluation are described in this Technical Note.

¹ A second CTMP for the Proposed Bowland Section, the February 2022 Bowland CTMP, has been prepared in support of the revised planning application for the Newton-in-Bowland Compound in the Ribbles Valley Borough Council area. The February 2022 Bowland CTMP comprises part of the revised planning application documents for the Proposed Bowland Section, and is accompanied by a Transport Technical Note (SEI Report Appendix B8(i)).

2. June 2021 and February 2022 Transport Routes

2.1 Introduction

- 5) The following section summarises the 'one-way' transport route² as proposed in the June 2021 Planning Application, and the newly-proposed 'two-way' transport route which now forms part of the proposals for the revised planning application.

2.2 June 2021 'One-way' Transport Route

- 6) The selection of locations, drive strategy and route assumptions for HGVs was developed to reduce the impact of the Proposed Bowland Section on the local road network, following consultation with Lancashire County Council. Additionally, the potential for road closures and local diversions necessitated by such activity in the short term were discussed and further detail of the routeing strategy, road closures and diversions were provided in the June 2021 CTMP. Traffic Management Proposals have been updated in the February 2022 Lower Houses CTMP; this document supersedes the Lancaster City Council June 2021 CTMP submitted in support of the June 2021 planning application.
- 7) The local and strategic network comprises a mixture of rural and urban roads. For the Lower Houses Compound two transport routes were proposed depending on the type of construction vehicles:
- Transport Route 1 – Abnormal loads and HGVs over 9.5 m long via the M6 Junction 34, along the A683 and B6480, then through the village of Wray via Main Street to continue via Helks Brow for approximately 3 km. This route was approximately 17 km in length from the M6 junction and consists of A-roads, B-roads and single track
 - Transport Route 2 – General construction traffic (HGVs less than 9.5 m long and light vehicles) via the M6 Junction 34, along the A683 and B6480 through Wennington and towards Low Bentham. Vehicles would then follow Eskew Lane and Long Lane before turning onto Fairheath Road, Spen Brow, Furnessford Road reaching Park House Lane. Access from the Lower Houses Compound would then follow a one-way system with vehicles travelling along Helks Brow towards Wray before re-joining Long Lane towards Low Bentham, and turning onto the B6480 towards Wennington and Wray. This route was approximately 30 km in length from the M6 junction and consists of A-roads, B-roads and single track.
- 8) The February 2022 Lower Houses CTMP traffic routes for the Lower Houses Compound are further detailed in Table 1 and shown in Illustration 1.

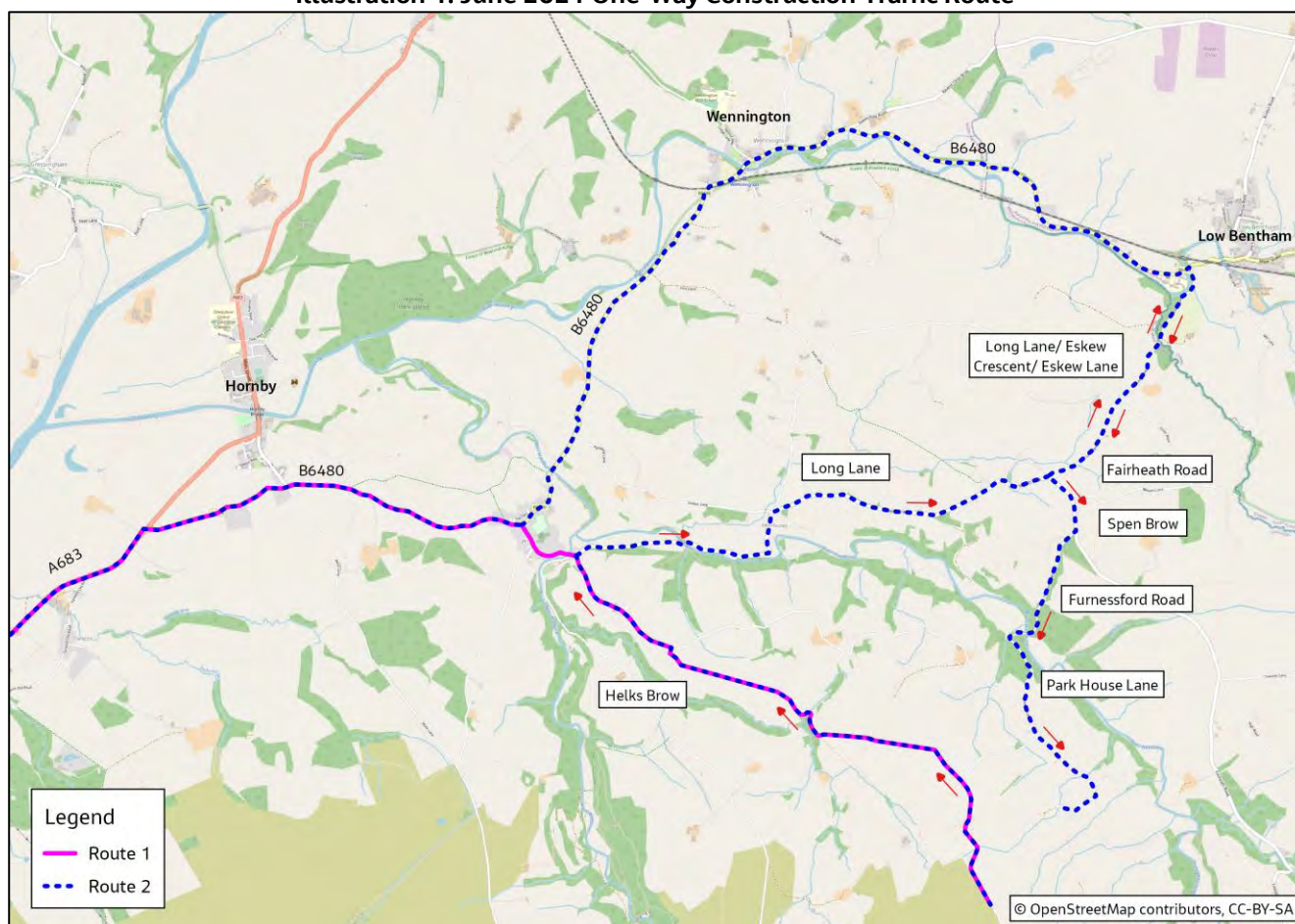
Table 1: June 2021 One-Way Construction Traffic Route

Proposed Compound	Delivery Route
Lower Houses Compound Transport Route 1 for abnormal loads and HGVs over 9.5 m long	Inbound M6 from north (40 %) and south (80 %) via Junction 34, A683, B6480, then through Main Street (Wray) and Helks Brow Outbound Helks Brow, Main Street (Wray), B6480, A683 then M6 to north (40 %) and south (80 %) via Junction 34

² The term 'one-way' refers to a proposed one-way system for construction vehicles in the Furnessford Road, Helks Brow and Long Lane area. Other sections of the access route, for example between the Wray Satellite Compound, Wennington and Low Bentham, would involve two-way construction traffic flows.

Proposed Compound	Delivery Route
Lower Houses Compound Transport Route 2 for general construction traffic (HGVs less than 9.5 m long and light vehicles)	Inbound M6 from north (40 %) and south (80 %) via Junction 34, A683, B6480, then Eskew Lane, Long Lane, Fairheath Road, Spen Brow, Furnessford Road and Park House Lane Outbound Helks Brow, Long Lane, B6480, A683 then M6 to north (40 %) and south (80 %) via Junction 34

Illustration 1: June 2021 One-Way Construction Traffic Route



2.3 February 2022 Two-way Transport Route

- 9) The selection of locations, drive strategy and route assumptions for HGVs has been developed to reduce the impact of the Proposed Bowland Section on the local road network, after consultation with Lancashire County Council. Further detail of the routeing strategy is provided in the February 2022 Lower Houses CTMP.
- 10) The local and strategic network comprises a mixture of rural and urban roads. There are two proposed traffic routes from the M6 motorway network which would support the construction of the Lower Houses Compound, depending on the type of construction vehicles:
 - Transport Route 1 – Abnormal loads and HGVs over 9.5 m long via the M6 Junction 34, along the A683 and B6480, then through the village of Wray via Main Street to continue via Helks Brow for approximately 3 km. This route is approximately 17 km in length from the M6 junction and consists of A-roads, B-roads and single track

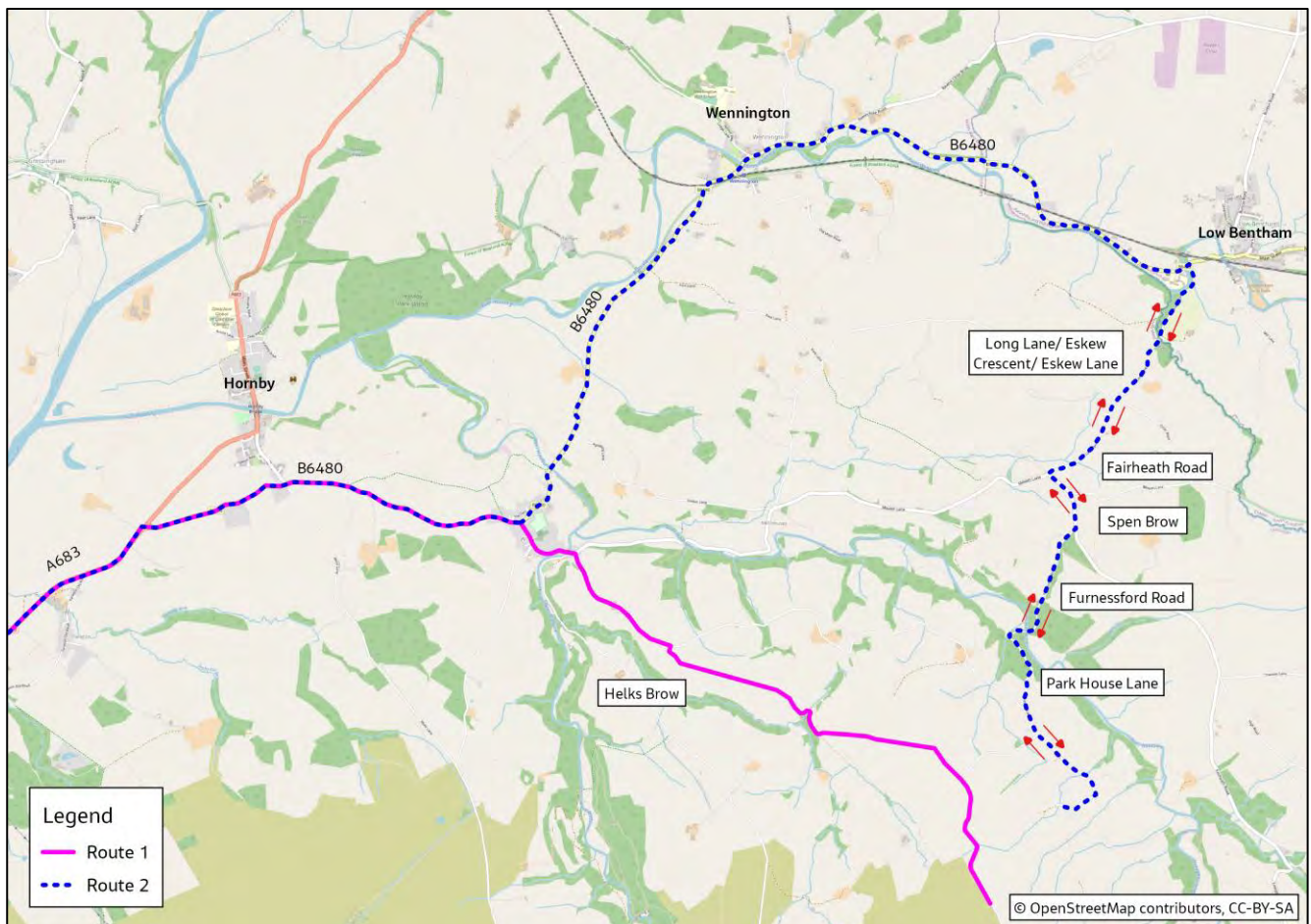
- Transport Route 2 - General construction traffic (HGVs less than 9.5 m long and light vehicles) via the M6 Junction 34, along the A683 and B6480 through Wennington and towards Low Bentham. Vehicles would then follow Eskew Lane and Long Lane before turning onto Fairheath Road, Spen Brow, Furnessford Road reaching Park House Lane. This route is approximately 25 km in length from the M6 junction and consists of A-roads, B-roads and single track.

11) The proposed traffic route for the Lower Houses Compound is further detailed in Table 2 and shown in Illustration 2.

Table 2: February 2022 Two-Way Construction Traffic Route

Proposed Compound	Delivery Route
Lower Houses Compound Transport Route 1 for abnormal loads and HGVs over 9.5 m long	Inbound M6 from north (40 %) and south (80 %) via Junction 34, A683, B6480, then through Main Street (Wray) and Helks Brow Outbound Helks Brow, Main Street (Wray), B6480, A683 then M6 to north (40 %) and south (80 %) via Junction 34
Lower Houses Compound Transport Route 2 for general construction traffic (HGVs less than 9.5 m long and light vehicles)	Inbound M6 from north (40 %) and south (80 %) via Junction 34, A683, B6480, then Eskew Lane, Long Lane, Fairheath Road, Spen Brow, Furnessford Road and Park House Lane Outbound Park House Lane, Furnessford Road, Spen Brow, Fairheath Road, Long Lane, Eskew Lane, B6480, A683 then M6 to north (40 %) and south (80 %) via Junction 34

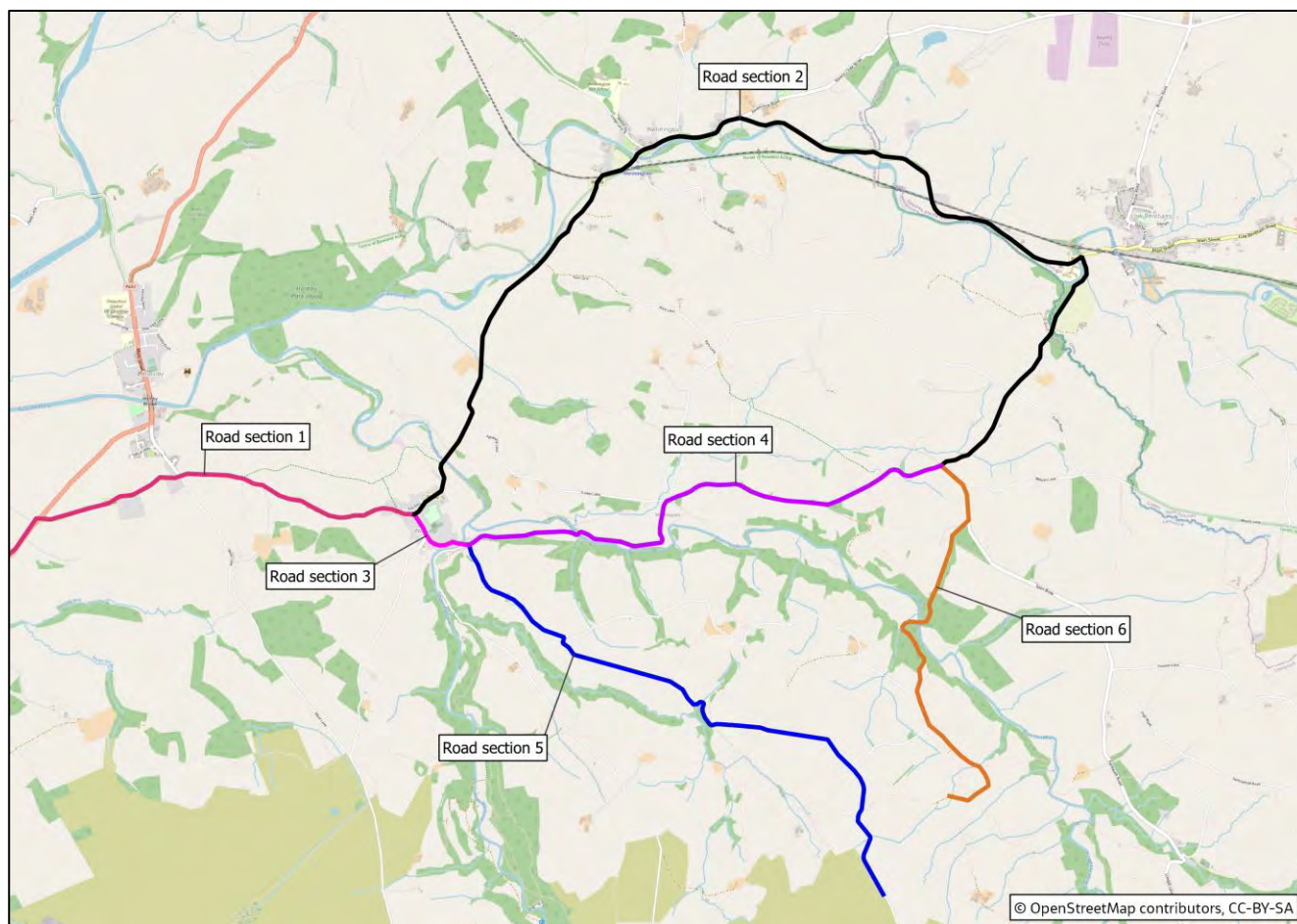
Illustration 2: February 2022 Two-Way Vehicle Construction Traffic Route



2.4 Traffic Peak Updates

- 12) The proposed construction traffic change for Lower Houses Compound results in vehicles originally intended to use the one-way system along Helks Brow and Long Lane now being transferred onto Park House Lane/Furnessford Road towards Low Bentham. Construction traffic flow estimates for the affected road network are described in detail in the February 2022 Lower Houses CTMP.
- 13) In order to establish a comparison between the access strategies described above using their anticipated maximum vehicular peaks, the road network in the assessment area was divided into the following road sections (Illustration 3 below).
 - Road section 1- A683 / B6480
 - Road section 2 - B6480 / Eskew Lane / Eskew Crescent / Fairheath Road / Long Lane
 - Road section 3 - Main Street
 - Road section 4 - Long Lane
 - Road section 5 - Helks Brow
 - Road section 6 - Spen Brow / Furnessford Road / Park House Lane.

Illustration 3: Road sections used for traffic peak comparison



- 14) Table 3 below shows the maximum predicted two-way daily construction traffic flows for each road section shown in Illustration 3 and their associated route strategy. Where more than one route coexists, the maximum peak has been estimated based on the programme of works from relevant theoretical vehicle movement data.

Table 3: Maximum two-way daily construction traffic per road section

Road Section	Description	Transport Route Strategy	
		June 2021 'One-way' Transport Route	February 2022 CTMP Two-way Transport Route
1	A683 / B6480	119	119
2	B6480 / Eskew Lane / Eskew Crescent / Fairheath Road / Long Lane	114	114
3	Main Street	8	8
4	Long Lane	43	0
5	Helks Brow	58	15
6	Spen Brow / Furnessford Road / Park House Lane	52	95

- 15) According to the flows shown in this table, the highest anticipated impact is expected to occur at Road Section 6, which sees an increase in the northbound direction. The total vehicles on the link would increase from 538 to 633 per 12 hours. HGVs per 12 hours would increase from 45 to 107. The link is

not a key section on the network, so there would be little impact on vehicles approaching from side roads, and no additional roadside parking is likely. However, this section is narrow and there would be a slight impact when two vehicles passed each other.

- 16) As there is no footway at this remote location, it is unlikely that any impacts related to pedestrian delay and pedestrian amenity would occur. A 140.3 % increase in HGVs represents an additional 63 against a background flow of 45 over a 12 hour period. Aggregated out this represents an additional vehicle approximately every ten minutes. Low background flow limits the potential for driver delay.
- 17) All the reported accidents occurred during times when additional vehicles would be on the road. No accidents were reported along this link; therefore, the current accident rate is zero.
- 18) For the other Road Sections, peak two-way daily construction traffic remains the same or decreases, therefore the estimated effects described in the June 2021 Environmental Statement remain the same, however, for Route Sections 4 and 5 they decrease.
- 19) It should be noted that the maximum expected two-way daily construction traffic figures per road section are conservative i.e., they are higher than the proposed cap on movements set out in the February 2022 Lower Houses CTMP.

3. Conclusion

- 20) The February 2022 Lower Houses CTMP confirms that a two-way vehicle flow system is the preferred approach for construction vehicles to gain access to the Lower Houses Compound. This revised transport route would require construction vehicles to use Park House Lane and Furnessford Road in a two-way direction, rather than Helks Brow and Long Lane in a one-way direction, before connecting onto Long Lane/Eskew Crescent/Eskew Lane and then the B6480, A683 and onto the M6.
- 21) Baseline traffic flows on Parkhouse Lane, Furnessford Road, Spen Brow and Eskew Lane are presently very low. The newly-proposed transport route would give rise to minimal effects on the capacity of the roads in question. It is acknowledged, however, that in order to enable the safe movement of both construction vehicles and local road users on this part of the local road network, where carriageways are narrow, additional interventions are required. These interventions comprise physical off-site highways works such as road widening and passing places, the marshalling of vehicles in a holding area at a dedicated passing place at the junction of Spen Brow and Furnessford Road, and active traffic management of local vehicles and construction traffic up and down Furnessford Road. The February 2022 Lower Houses CTMP contains details of these traffic management and off-site highways interventions.

Appendix B9: Environmental Masterplan

Document reference: LCC_RVBC-FIG-020-001

