

A66 Northern Trans-Pennine Project

TR010062

7.15 Issue Specific Hearing 1 (ISH1) Post Hearing Submissions - Response to Examining Authority's Request Under Agenda Item 2.1: The Sills Complementary Environmental Consideration

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Infrastructure Planning (Examination Procedure) Rules 2010

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7.15 Issue Specific Hearing 1 (ISH1) Post Hearing Submissions - Response To Examining Authority Request Under Agenda Item 2.1: The Sills –Complementary Environmental Consideration

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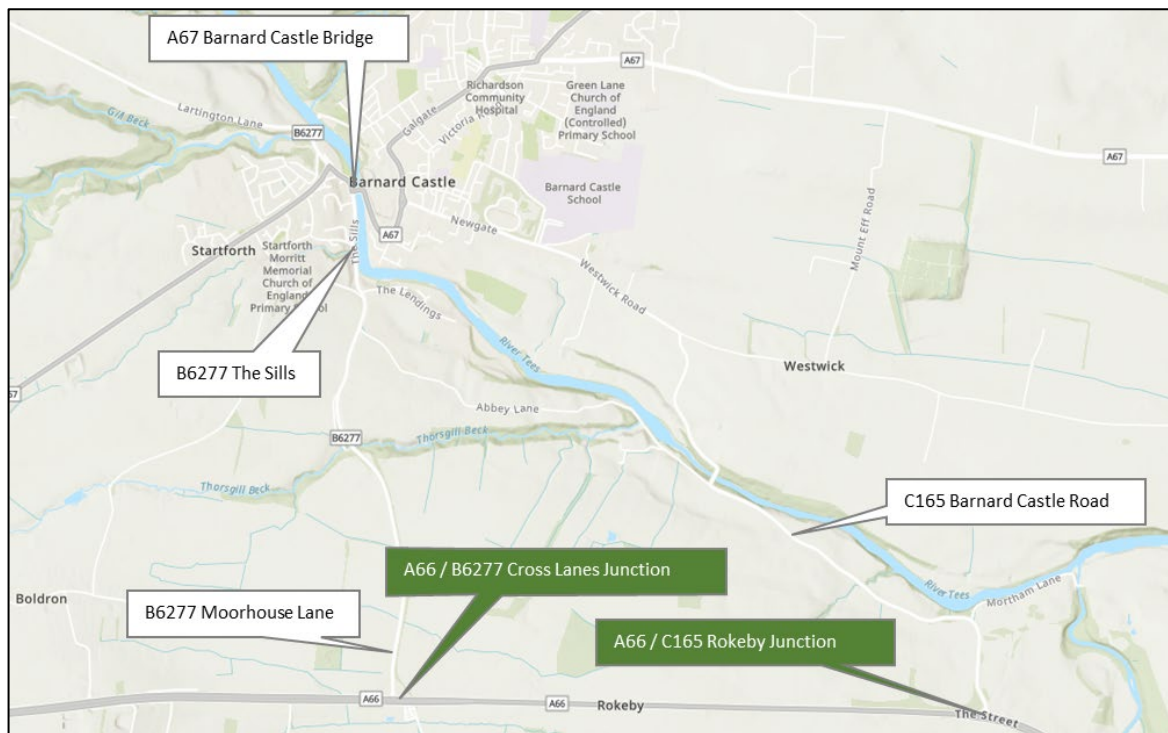
CONTENTS

1.	Introduction	4
2.	Traffic Context.....	8
3.	environmental assessment undertaken to date	13
4.	complementary environmental assessment	20
5.	Summary and Conclusion	31
	APPENDIX A – Detailed noise results for sensitive receptors along The Sills.....	33
	APPENDIX B – Assessment of noise impacts upon pedestrians along The Sills	41

1. INTRODUCTION

- 1.1.1 This document provides a response by National Highways (the “Applicant”) to questions raised at Issue Specific Hearing 1 (“ISH1”) dealing with issues relating to alternative route options, held on 30 November 2022 in relation to the Applicant’s application for development consent for the A66 Northern Trans-Pennine Project (the “Project”).
- 1.1.2 ISH1 was attended by the Examining Authority (the “ExA”) and the Applicant, together with a number of Interested Parties and Affected Persons.
- 1.1.3 This document specifically responds to the request made by the ExA at ISH1 for a complementary ‘finer grained’ consideration of the environmental and community impacts of increased traffic modelled for the Project on the road known as ‘The Sills’, Barnard Castle. The Applicant’s Issue Specific Hearing 1 (ISH1) Post Hearing Submissions (including written submissions of oral case) (Document Reference 7.2 REP1-006) outlined the scope for this environmental consideration in Appendix 2.
- 1.1.4 For the purpose of this consideration ‘The Sills’ will be defined as the B6277 within Startforth between the junction between it and the Lendings and the junction between it and the A67 at the County Bridge– this area is understood to be the area of focus of the ExA’s queries raised at ISH1. Please see Figure 1-1 for local context.

Figure 1-1 Location of ‘The Sills’



- 1.1.5 Recordings of ISH1 (EV-13 to EV-15) as well as the Applicant’s Issue Specific Hearing 1 (ISH1) Post Hearing Submissions (including written submissions of oral

case) (REP1-006) have been published and are available on the Planning Inspectorate’s website.

1.1.6 This report supports and complements the full and comprehensive environmental impact assessment submitted with the application for development consent (Document Reference 3.2 APP-044 to APP-233) The environmental statement reached a reasoned conclusion on the significant effects of the development on the environment however this report considers such effects focussing on The Sills as requested by the ExA. The community effects and impacts are set out in relation to:

- Local Amenity (including air quality noise and visual); and
- Community Health and Wellbeing

1.1.7 As directed by the ExA, we have considered impacts with reference to the relevant industry standard guidelines, and the scope is informed by the Institute of Environmental Assessment’s Guidelines for the Environmental Assessment of Road Traffic (1993), referenced at ISH1. These guidelines provide advice on assessing off-site traffic effects from major development projects. The guidelines list (on page 7) the impacts considered to be potentially important in relation to road traffic and provide advice on assessing these impacts. Although the guidelines are now largely superseded by more recent guidance, the impacts listed are relevant to the concerns raised by the community at The Sills. Table 1-1 below identifies where these impacts are covered within this study.

Table 1-1 Response to impacts covered in Guidelines for the Environmental Assessment of Road Traffic (1993)

Impact listed in IEA Guidelines	Response
(i) Night time noise	Section 3.1 describes the assessment of day time and night time noise carried out for the proposed Project. Section 4.1 sets out the assessment based on further traffic flow observations.
(ii) Vibration	As stated in paragraph 12.5.6 of the ES Chapter 12 Noise and Vibration (Document Reference 3.2, APP-055) and in DMRB LA 111, operational vibration is scoped out. It is assumed that the relevant Local Authority would keep the road free from irregularities as part of its general maintenance. Therefore it is very unlikely receptors along the Sills would experience an adverse vibration effect. Moreover, due to the way in which vibration disturbance is quantified and assessed, the predicted change in traffic flows is unlikely to cause to a significant change in impact.
(iii) Driver severance and delay	Section 3.1 describes the human health assessment undertaken for the proposed Project, which includes consideration of social isolation and reduced access to community facilities resulting from impacts on pedestrian connectivity, particularly for vulnerable
(iv) Pedestrian severance and delay	

Impact listed in IEA Guidelines	Response
	groups (older people, children and people with impaired mobility) and increased journey times for drivers.
(v) Pedestrian amenity	<p>Section 3.1 considers noise impacts upon pedestrians along The Sills, based on the noise model used for the ES. For the purpose of this focussed, granular assessment, the noise model has been revisited to obtain prediction results at a height of 1.5m above local ground level, to represent the noise levels experienced by pedestrians.</p> <p>Section 4.4 presents a visual assessment of the increased traffic flow on The Sills, including an assessment of pedestrian experience.</p> <p>Section 4.5 considers the combined noise and visual effects of increased traffic flows on environmental amenity and associated effects on life satisfaction and mental wellbeing.</p>
(vi) Accidents and safety	Section 4.5 provides an assessment of the effect of increased traffic flow on The Sills on road traffic accidents.
(vii) Hazardous and dangerous loads	<p>This issue has been scoped out as there is not anticipated to be a perceptible change in the risk of an incident involving hazardous and dangerous loads, beyond that considered within the accident analysis contained within Section 4.5 as:</p> <ul style="list-style-type: none"> • The Project will not result in the additional transportation of hazardous loads within the operational phase. • The Sills is not proposed as possible diversion route during construction (See ES Figure 12.9 [APP-120]) • The signed route for HGVs from the A66 at Rokeby to Barnard Castle will remain via the C165 Barnard Castle Road and not via the B6277 and 'The Sills'.
(viii) Dust and dirt	Section 5.8 within Chapter 5 'Air Quality' of the ES (Document Reference 3.2, APP-048) sets out the potential impacts of the Project during construction and operation. Dust effects have been scoped out of the ES operational assessment since there are no significant dust sources at The Sills resulting from the operation of the proposed Project. Therefore dust is not considered in this study.

1.1.8 The remainder of this report is set out as follows:

- Section 2: Sets out the traffic flows on The Sills
- Section 3: This sets out what has been considered to date for each topic within the ES submitted with respect to the traffic increases on The Sills
- Section 4: This contains a more granular complementary environmental consideration of traffic increases on The Sills owing to the Project which identifies any community impacts that may arise.
- Section 5: Summarises and concludes

1.1.9 The impacts assessed in this report are associated with the Operational Phase of the Project only, and not the Construction Phase – this is understood to be the area for which the ExA raised its request at ISH1.

1.1.10 This document specifically responds to the request made by the ExA at ISH1 for a more granular assessment of the environmental impacts of increased traffic owing to the Project on the road known as ‘The Sills’, Barnard Castle. This granular assessment does not identify any additional impacts on air, noise, visual or community health & wellbeing that would change the conclusions found in the application documents.

2. TRAFFIC CONTEXT

2.1.1 A traffic count on the B6277 is shown in document ‘3.8 Combined Modelling and Appraisal Report Appendix B - Transport Data Collection Package (Document Reference 3.8, APP-238) in the following appendices:

- Appendix A - A.1 A66 ATC Counts – Site 30 Count ID 20033 / 20034 (PDF Page 58 of 632).
- Appendix E - E.1 Outlier data processing graphs 2_33 / 2_34 (PDF Page 120 and 121 of 632).

2.1.2 The count was undertaken on the B6277 to the north of the Sills on Moorhouse Lane (see Figure 1-1 above which shows its location), adjacent to the A66 junction. A photograph showing the ATC location is shown at Figure 2-1 below. The average peak hour flow is 92 vehicles in the AM peak hour, between 08:00 and 09:00, but averages at 72 vehicles per hour on weekdays between 07:00 and 19:00. This count was undertaken for a two-week period between Thursday 23rd of November and Wednesday the 6th of December 2017. Paragraphs 5.2.6 to 5.2.11 of Document Reference 3.8, APP-238 describe how the traffic flows were rebased to represent average conditions for use within the traffic model.

Figure 2-1: 2017 ATC Location on B6277 Moorhouse Lane

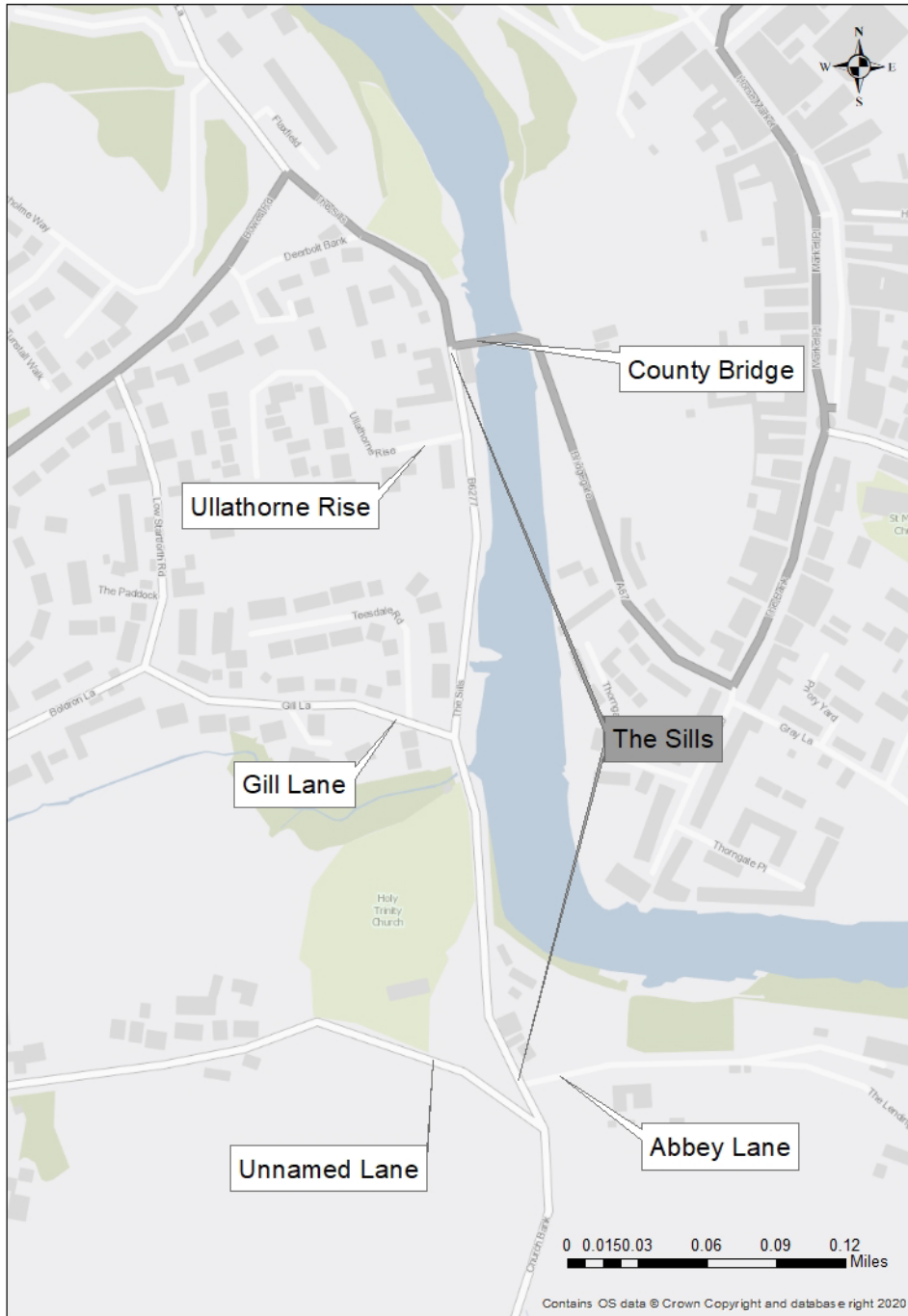


2.1.3 Given that this location is around 2km to the South of The Sills, further observations have been made to understand if traffic flows on The Sills are greater than those recorded in the traffic counts, given the potential for its use for trips wholly within Startforth and Barnard Castle.

2.1.4 Therefore, a count was undertaken on Tuesday the 29th of November 2022 during the morning peak hour (07:30 and 08:30). This count considered pedestrian and

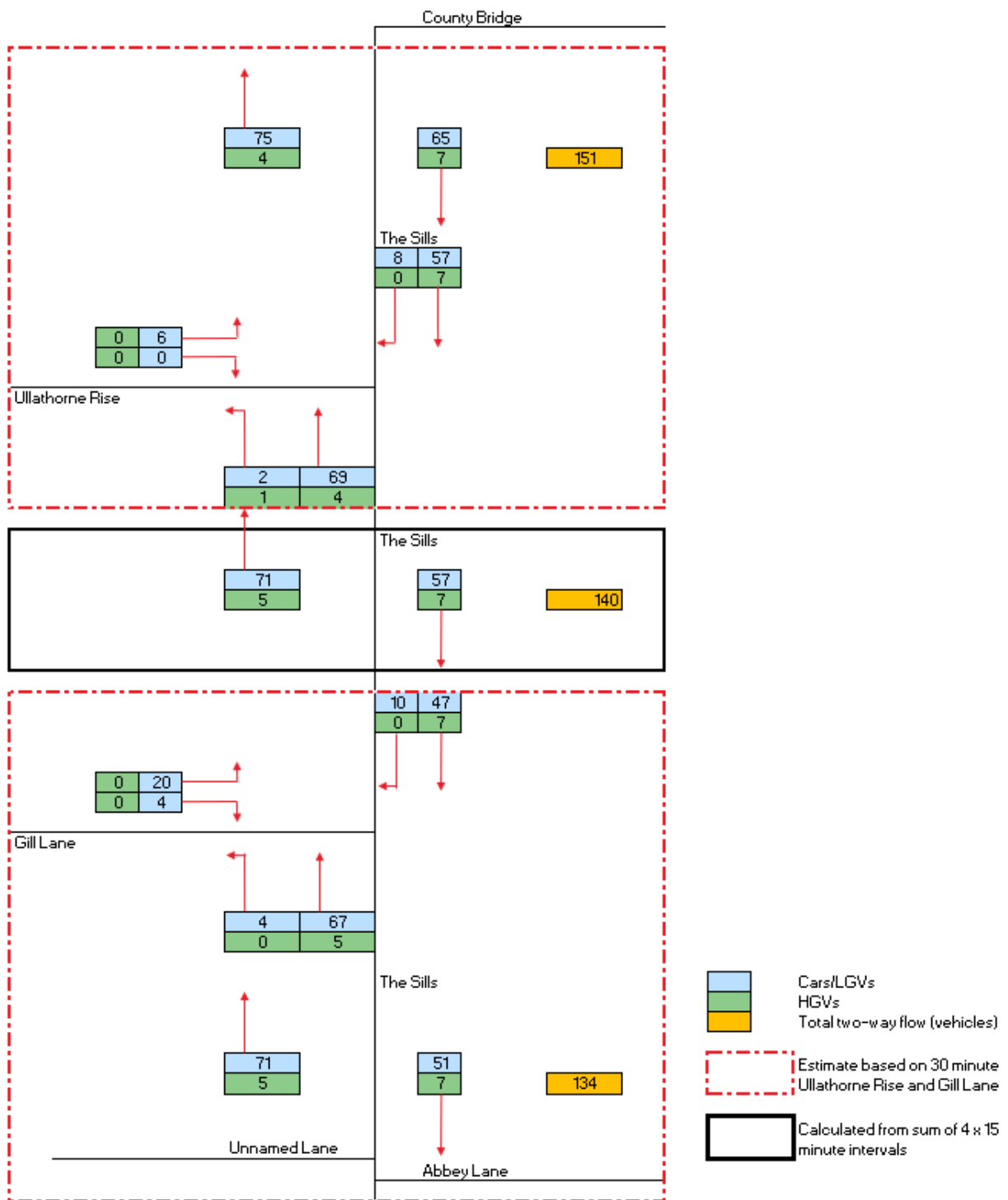
vehicular movements on The Sills turning in and out of Ullathorne Rise and Gill Lane for two half hour periods. The locations are shown in Figure 2-2

Figure 2-2: The Sills – Location Plan



2.1.5 These counts are shown in Figure 2-3.

Figure 2-3: 2022 Traffic Flows - The Sills - AM Peak



2.1.6 Figure 2-3 shows that the count on The Sills during the two-way flow peak hour is 151 vehicles. This compares to a peak hour flow of 92 vehicles on the B6277 on Moorhouse Lane. The flow on The Sills is therefore 64% higher than on the B6277 on Moorhouse Lane. It is noted that the maximum Heavy Goods Vehicle (HGV) proportion noted within the count on the Sills is 12 HGVs out of a total of 134 vehicles

recorded on The Sills to the South of Gill Lane, which corresponds to an HGV percentage of 9.0%.

- 2.1.7 The increase in flow between the two locations is potentially due to the local traffic within Startforth using The Sills to access the A67 and Barnard Castle, as evidenced by the turning traffic from Ullathorne Rise and Gill Lane increasing the traffic levels on The Sills as it gets closer to Barnard Castle.
- 2.1.8 Paragraphs 8.1.27 to 8.1.29 of the Transport Assessment (Document Reference 3.7, APP-236) summarised the impact of the Project on The Sills in Barnard Castle as a 524 vehicle increase on the Do Minimum Flow (24 hour AADT), as summarised in Table 2-1 below.

Table 2-1: Cross Lanes to Rokeby Traffic Flows (24-Hour AADT) from Transport Assessment (Document Reference 3.7 APP_236)

Road	DM flow (Two-way)	DS	Flow change (two-way)	Percentage change (Two-way)
Moorhouse Lane at Cross Lanes	993	1,517	524	53%
The Sills in Barnard Castle	993	1,517	524	53%
C165	2,079	1,831	-248	-12%

- 2.1.9 The modelled increase at The Sills is considered in terms of All Vehicles and Heavy Goods vehicles in Table 2-2 below. Within the Do Minimum, the percentage of HGVs (169 of the 993 DM flow (Two-way)) is 17%.

Table 2-2: Modelled Traffic Flows on B6277 The Sills - (24 hour AADT)

Road	DM flow (Two-way)	DS	Flow change (two-way)	Percentage change (Two-way)
All Vehicles	993	1,517	524	53%
HGVs	169	202	33	19%

- 2.1.10 To account for the difference between the flows on The Sills and Moorhouse Lane, the following adjustments have been made:

- Apply the 64% uplift discussed in paragraph 2.1.5 to the Do Minimum Flow to account for local movements within Startforth and Barnard Castle (993 164% = 1629)
- Apply the 524 vehicle uplift due to the Project. This results in an updated Do Something flow of 2,152 vehicles. (1629 + 524 = 2152)
- The observed HGV percentage of 9.0% referred to in paragraph 2.1.5 above, is lower than the modelled HGV percentage of 17%, therefore no adjustments have been made to the forecast HGV volumes. This is due to the additional traffic observed on the Sills (over and above that noted on Moorhouse Lane) being car traffic associated with the residential areas of Startforth.

2.1.11 The resultant adjusted traffic flows on The Sills (as defined in paragraph 1.1.4) are shown in Table 2-3.

Table 2-3: Traffic Flows on B6277 The Sills – (24 hour AADT) - Adjusted to Account for Local trips

Road	DM flow (Two-way)	DS	Flow change (two-way)	Percentage change (Two-way)
All Vehicles	1,628	2,152	524	32%
HGVs	169	202	33	19%
Proportion HGVs	10.3%	9.4%	N/A	N/A

2.1.12 The Do Something flow on The Sills with the Project in place is 2,152 vehicles, corresponding to a 524-vehicle increase compared to the Do Minimum, a 32% increase on the Do Minimum volume. This compares with the 53% increase due to the project reported in Table 2-1 on the B6277 Moorhouse Lane at Cross Lanes. While the actual change in vehicles is the same (i.e. +524) the percentage increase is smaller at the Sills due to the higher observed / do minimum flow at this location.

2.1.13 In terms of HGVs, an additional 33 HGVs are forecast, corresponding to a 19% increase on the Do Minimum volume.

2.1.14 These figures are used to inform the environmental consideration in Section 4.

3. ENVIRONMENTAL ASSESSMENT UNDERTAKEN TO DATE

3.1.1 This Section sets out what has been considered for each topic within the ES submitted (Document Reference 3.2 APP-044 to APP-233) with respect to the traffic increases on This Sills.

3.2 Noise

3.2.1 The noise assessment methodology is detailed in section 12.4 of Chapter 12 Noise and Vibration in the ES (Document Reference 3.2, APP-055). The assessment is undertaken in line with the National Policy Statement for National Networks (NPSNN) (Department for Transport, 2014) as outlined in section 12.3 and Table 12-2 of the ES where all relevant NPSNN policies are identified and addressed. The assessment has been derived using the Design Manual for Roads and Bridges (DMRB) LA 111 Noise and Vibration (DMRB LA 111) and the Calculation of Road Traffic Noise (CRTN) 1988 (Department for Transport, 1988).

3.2.2 Regarding absolute operational noise levels, the LOAEL and SOAEL are defined in Government noise policy NPSE (Noise Policy Statement for England) as thresholds for the onset of the following levels of effect:

- Lowest Observed Adverse Effect Levels (LOAEL) to identify the onset of adverse impacts on health and quality of life.
- Significant Observed Adverse Effect Levels (SOAEL) to identify the onset of significant impacts on health and quality of life.

3.2.3 The effect level categories adopted in DMRB LA 111 for the daytime and night-time LOAEL and SOAEL are set out for all noise sensitive receptors in Chapter 12 Noise and Vibration of the ES (Document Reference 3.2, APP-055).

3.2.4 The assumptions and limitations presented in section 12.5 of Chapter 12 Noise and Vibration of the ES (Document Reference 3.2, APP-055) are applicable for the outcomes presented in this report.

Detailed noise results for sensitive receptors along The Sills

3.2.5 The detailed operational noise levels at noise sensitive receptors close to The Sills are taken from the noise model used for the ES (Document Reference 3.2, APP-055). These detailed results were not included in the ES because no adverse likely significant effects were identified upon these receptors. The technical Appendix of the ES Noise and Vibration chapter Appendix 12.5 Non-significant effects (Document Reference 3.4, APP-215), presents these conclusions in Table 2 (Summary of non-significant effects (operation)) under “Routewide” section, for residential and non-residential receptors within Barnard Castle (which includes The Sills).

3.2.6 The results for each individual receptor within the operational noise study area along The Sills are presented in Appendix A of this report. The operational noise study area is defined in line with DMRB LA 111 (see section 12.6 Study area of the ES

Chapter 12 Noise and vibration (Document Reference 3.2, APP-055)) and covers the entirety of The Sills and receptors located within 50m of the road centreline.

- 3.2.7 As shown in Appendix A of this report, no likely significant adverse effects have been identified at properties along The Sills.
- 3.2.8 The largest predicted change in the short-term noise levels is 2.1dB and the lowest is 0.2dB. The average predicted change in daytime noise levels in the short-term is 1.3dB compared to 1.2dB in the night-time. Since the noise increase is negligible/minor and the majority of sensitive receptors are between the LOAEL and SOAEL, the noise impacts are assessed as not significant. Details of the methodology to assess operational likely significant effects is presented in section 12.4 of the ES (Document Reference 3.2, APP-055).
- 3.2.9 The largest predicted change in the long-term noise levels is 2.6dB, and the lowest is 0.5dB. The average predicted change in daytime noise levels in the long-term is 1.7dB compared to 1.5dB in the night-time. Since the noise increase is negligible/minor and the majority of sensitive receptors are between the LOAEL and SOAEL, the noise impacts are assessed as not significant.
- 3.2.10 There are only two properties to the north of The Sills predicted to experience noise levels above a SOAEL, which is predicted on one façade of each property in both the Do-Minimum and the Do-Something scenarios. These properties are 5 Bridge End, Barnard Castle DL12 9BE and 3 Riverside, Bridge End, Barnard Castle DL12 9BN. However, there is no predicted change in noise levels which approximately zero dB and hence noise impacts as a result of the Project are assessed as not significant effects.

Assessment of noise impacts upon pedestrians along The Sills

- 3.2.11 The detailed results of operational noise upon pedestrians along The Sills are taken from the noise model used for the ES (Document Reference 3.2, APP-055). Grid noise maps were presented in Volume 3.3 of the ES (Document Reference 3.3, APP-112 to APP-118) along the entirety of the proposed route. The grid maps were based on traffic noise levels at a height of 4.0m above local ground level to provide a worst-case assessment to typical first floor window level. This is considered a worst-case scenario in terms of exposure to noise from the Project.
- 3.2.12 The pavement along The Sills is used by pedestrians and therefore noise calculations are more representative at 1.5m above local ground level. Therefore, for the purpose of this focussed fine grained assessment, the noise model has been revisited to obtain prediction results at a height of 1.5m above local ground level and with a higher resolution than presented in Volume 3.3 of the ES (Document Reference 3.3, APP-112 to APP-118). The resultant grid noise contour maps are included in Appendix B of this report.
- 3.2.13 Chapter 13: Population and Human Health (Document Reference 3.2, APP-056) assesses the effects of the Project on the health and wellbeing of the local population due to increased traffic noise in the public realm, including areas of public and private open space and public footpaths. The ES assessment concluded that

there are no likely health effects as the predicted noise changes were only minor and there are no nearby sensitive community resources.

- 3.2.14 Figure B-1 in Appendix B show that noise levels along The Sills in the Do-Minimum scenarios are predominantly within the 52 – 57 dBL_{pAeq,16h} contour band. A short section to the south of The Sills experiences noise levels within the 57 – 62dBL_{pAeq,16h} band. With the proposed Project, noise levels immediately adjacent to the road along The Sills are predicted to increase to be within the 57 – 62dBL_{pAeq,16h} contour band. Further away from the road, predicted noise levels remain within the 52 and 57dBL_{pAeq,16h} band.
- 3.2.15 Predicted noise levels along The Sills, without and with the proposed Project, are below the SOAEL. The pedestrian walkways which run parallel and close to The Sills are likely to be exposed to noise levels between LOAEL and SOAEL. For these noise levels, by reference to Planning Practice Guidance – Noise (22 July 2019), noise can be heard and causes small changes in behaviour, attitude or other physiological response. These noise levels affect the acoustic character of the area such that there is a small actual or perceived change in the quality of life. Consideration of the increase in noise as a result of the Project is presented in the following section.
- 3.2.16 Figure B-2 in Appendix B shows that the predicted change in noise levels due to the increased road traffic along The Sills is less than 3dB in the short and the long-term.
- 3.2.17 By reference to the Guidelines for Environmental Noise Impact Assessment (IEMA, version 1.2 November 2014), a 3dB(A) increase is equivalent to a doubling of the sound energy and is only just perceptible under most normal conditions. An increase of less than 3dB(A) is also equivalent to a minor impact in the short-term and negligible impact in the long-term by reference to the guidance presented in DMRB LA 111. Furthermore, since the predicted noise levels are below the SOAEL as indicated in the previous section, a minor impact is unlikely to result in an adverse likely significant effect.

3.3 Air Quality

A66 Air Quality Methodology

- 3.3.1 Chapter 5 'Air Quality' of the ES (Document Reference 3.2, APP-048) sets out that a detailed assessment of the route wide impacts on air quality from the Project was undertaken in accordance with Design Manual for Roads and Bridges (DMRB) LA 105 Air Quality¹. The assessment is undertaken in line with the NPSNN as outlined in section 5.3 and Table 5-2 of the ES where all relevant NPSNN policies are identified and addressed. The Project was assessed on a route wide basis because

¹ National Highways (2019) Design Manual for Roads and Bridges LA 105 Air Quality

the data gathered from traffic modelling undertaken as part of the Transport Assessment considered the Project as a whole.

- 3.3.2 Concentrations were predicted using ADMS-Roads to determine the potential effects on annual mean NO₂, PM₁₀ and PM_{2.5} concentrations at selected sensitive receptors (locations of relevant human exposure and ecological sites).
- 3.3.3 The assessment for local air quality was undertaken for the following scenarios:
- 2019 Baseline scenario;
 - 2029 Do-Minimum (DM) scenario: the traffic scenario at the year of opening without the Project; and
 - 2029 Do-Something (DS) scenario: the traffic scenario at the year of opening with the Project.
- 3.3.4 The traffic and design data between the DM and DS scenario were screened against the following criteria in DMRB LA 105, to identify what is termed the affected road network (ARN) and defines the study area of the Air Quality assessment: -
- Road alignment changes by 5m or more;
 - Daily traffic flows change by 1,000 Annual Average Daily Traffic (AADT) flow or more;
 - Heavy Duty Vehicles (HDV) flow changes by 200 AADT or more; and
 - A change in speed band.
- 3.3.5 As stated in DMRB LA 105 Section 2 ‘The 1,000 vehicles and 200 HDVs represent the lowest threshold above which the traffic model can represent change in traffic conditions to a reasonable level of confidence.’
- 3.3.6 Once the ARN had been identified, worst case receptors were selected within 200m and the potential impacts on air quality considered and assessed.
- 3.3.7 In the Barnard Castle area, the ARN did include the B6277 to the south of Barnard Castle, however the ARN ended at the junction of the B6277 and Abbey Lane. As traffic flows were below the screening thresholds in DMRB LA 105 and therefore no likely significant effects were anticipated no specific assessment of air quality was reported in relation to Barnard Castle / The Sills.

Baseline Air Quality at The Sills / Barnard Castle

- 3.3.8 Existing air quality conditions are considered to be good, with no air quality management areas (AQMA) declared or concerns noted in any of the publicly available reporting by Durham County Council (DCC) as part of their statutory Local Air Quality Management obligations.
- 3.3.9 No ambient air quality monitoring is undertaken in the Barnard Castle area by DCC. The Defra (Department for Environment Food and Rural Affairs) air quality website²

² Defra (2023) UK Air: Air Information Resource, Background Mapping data for local authorities <https://uk-air.defra.gov.uk/data/laqm-background-home>

does however provide background modelled NO_x, NO₂, PM₁₀ and PM_{2.5} for each 1km by 1km square covering the UK.

3.3.10 For receptors in the Sills area, existing background concentrations from Defra for the 2019 baseline scenario year were as follows: -

- NO₂ – 4.9 to 5.6µg/m³
- PM₁₀ – 8.1 to 8.6µ g/m³
- PM_{2.5} – 5.5µ g/m³

3.3.11 For context, the AQOs for annual mean NO₂ and PM₁₀ are 40µg/m³. The recently confirmed annual mean concentration target for PM_{2.5} as part of the Environment Act 2021 is due to be 10µg/m³ by 2040 (confirmed 16th December 2022).

3.3.12 All background concentrations are well below the respective objectives and targets.

3.3.13 Site specific monitoring was also undertaken between November 2021 and February 2022 as part of the environmental impact assessment (EIA) process to supplement the baseline air quality data. Annual mean NO₂ concentrations were sampled using passive diffusion tubes for a period of four months to the north of the Sills (250m), at Deepdale Wood Ancient Woodland (to understand both NO₂ and ammonia (NH₃) concentrations). The data are documented in Appendix 5.3 Air Quality Baseline Monitoring³, with Site ID AQM8, OS grid reference coordinates (404321, 516646). The unadjusted average concentrations at this location for the four month period was 4.1µg/m³.

3.3.14 Given the difference in years of baseline compared to the baseline year, the data were firstly annualised to 2019 using a factor of 0.670 derived from ratified measurements from four Automatic Urban and Rural Network (AURN) air quality monitoring stations within 50 miles of the study area (Hartlepool St.Abbs Walk, High Muffles, Sunderland Silksworth and York Bootham).

3.3.15 Secondly, the diffusion tubes were bias adjusted using a factor of 0.93 derived from Defra's national diffusion tube bias adjustment factors spreadsheet. This is because this type of passive monitoring is not a reference method and therefore generally has lower accuracy compared to real-time continuous monitoring.

3.3.16 Following the annualisation and bias adjustment, the annual mean NO₂ concentrations for AQM8 were calculated to be 2.6µg/m³; well below the relevant AQO. Although the adjustment resulted in lower results, the total NO₂ concentrations would remain well below the AQO regardless of the approach taken to model verification.

3.4 Visual

Introduction

3.4.1 This was scoped out of the submitted ES (Document Reference 3.2 APP-044 to APP-233) as it was very unlikely that any significant impacts would occur. The Guidelines for Landscape and Visual Impact Assessment 3rd Edition (GLVIA3)

³ National Highways (2022) Environmental Statement Appendix 5.3

require only significant impacts to be assessed. However, as part of the more granular analysis requested by the ExA a complementary townscape impact assessment has been undertaken and is contained in Section 4.4.

3.5 Community Health and Wellbeing

Human health assessment scope and methodology

3.5.1 The ES human health assessment methodology is detailed in section 13.4 of Chapter 13 Population and Human Health in the ES (Document Reference 3.2, APP-056). The methodology has been derived using the Design Manual for Roads and Bridges (DMRB) LA 112 Population and Human Health (DMRB LA 112). The assessment is undertaken in line with the NPSNN as outlined in section 13.3 and Table 13-2 of the ES where all relevant NPSNN policies are identified and addressed. In accordance with DMRB LA112, the assessment considers health effects arising from impacts on environmental conditions, severance and accessibility. Increased traffic flows have the potential to give rise to the following health effects, which are considered in the ES human health assessment:

- Direct health effects resulting from increased exposure to noise and air emissions;
- Effects on quality of life due to perceptions of reduced environmental amenity associated with as air emissions, noise and visual effects;
- Increased risk of road traffic accidents;
- Changes in behaviour, such as reduced levels of walking and cycling, due to concerns about road safety;
- Increased social isolation and reduced access to community facilities resulting from reduced pedestrian connectivity, particularly for vulnerable groups (older people, children and people with impaired mobility) and increased journey times for drivers.

3.5.2 The sensitivity of the receptor population is assessed, based on demographic, socio-economic and health data. Health effects are identified through qualitative judgements of the likely effects on health outcomes for a defined receptor population. The assessment is informed by other EIA topics including the noise, air quality, landscape and visual, and traffic and transport assessments.

3.5.3 Health effects are assessed at population level, rather than individual level. Assessing effects on individuals is not practicable since sensitivity to change varies widely between individuals; furthermore, evidence linking impacts on health determinants, such as noise and air quality, with health outcomes is derived from large population studies.

3.5.4 In line with DMRB LA112, significance is not applied to the health assessment in ES Chapter 13. Health effects are described in the ES as positive, negative, neutral or uncertain. In general, only 'significant' effects are reported in the ES. (Note that a

Statement of Significance is being prepared and will be submitted as an Erratum to the ES).

Human health assessment findings

- 3.5.5 Consideration of potential health outcomes associated with the traffic increase on The Sills was based on the overall traffic flows with the proposed Project and the findings of other relevant EIA topics.
- 3.5.6 The effects of the proposed Project on traffic-related air quality and noise are assessed in ES Chapter 5 Air Quality (Document Reference 3.2, APP-048) and Chapter 12 Noise and Vibration (Document Reference 3.2, APP-055). Neither assessment reports any significant effects at The Sills. Similarly, ES Chapter 10 Landscape and Visual (Document Reference 3.2, APP-053) does not identify any significant effects on the local townscape or visual amenity at The Sills. The Transport Assessment (Document Reference 3.7, APP-236) reports a 53% increase in all-vehicle flows and 19% increase in HGV flows on The Sills but does not report any adverse effects on road safety, severance or delays.
- 3.5.7 While the human health assessment does not assess significance, professional judgements have been made on what is important, desirable or acceptable with regard to health effects, which corresponds to the definition of significance in EIA guidance⁴. The assessment does not identify any significant changes to environmental conditions, severance or accessibility that could lead to likely effects on health and wellbeing at The Sills and therefore no effects are reported in ES Chapter 13 Population and Human Health (Document Reference 3.2, APP-056).

⁴ European Commission. Environmental Impact Assessment of Projects: Guidance on Scoping (Directive 2011/92/EU as amended by 2014/52/EU). Luxembourg: European Union. 2017.

4. COMPLETEMNTARY ENVIRONMENTAL ASSESSMENT

4.1.1 This section contains a more granular complementary environmental consideration of traffic increases on The Sills owing to the Project which identifies any community impacts that may arise.

4.2 Noise

4.2.1 As noted in Section 2, specific traffic flow observations have been made to understand if the traffic flows on The Sills are greater than those reported in the ES. Based on the specific observations, the observed (existing) traffic flows are greater than noted within the Transport Assessment (Document Reference 3.7, APP-236) by 64% and therefore the Do-Minimum and Do-Something traffic flows are adjusted as appropriate. See Section 2 for more details.

4.2.2 Table 4-1 and Table 4-2 below present the difference in the updated traffic flows to those presented in the ES and compare the resulting changes in daytime basic noise levels (BNLs) to illustrate the increases in noise. The BNLs have been calculated following the methodology described in CRTN. The BNL is the $L_{A10,18h}$ noise level expected at a position 10m from the edge of the road.

Table 4-1: A comparison of Do-Minimum traffic flows presented in the ES and the updated flows following observations made along The Sills. Basic noise levels (BNLs) are shown to illustrate the differences in the calculated traffic noise

Road link ID	Do-Minimum Opening Year – ES				Do-Minimum Opening Year – updated				Change in BNL
	AAWT 18hr	%HGV	Speed, km/h	BNL, dB	AAWT 18hr	%HGV	Speed, km/h	BNL, dB	
95380_90214	787	17.1	36.1	59.0	1290	10.4	36.1	59.8	0.8
95380_95179	787	17.1	46.3	59.4	1290	10.4	46.3	60.3	0.9

Table 4-2: A comparison of Do-Something traffic flows presented in the ES and the updated flows following observations made along The Sills. Basic noise levels (BNLs) are shown to illustrate the differences in the calculated traffic noise

Road link ID	Do-Something Future Year – ES				Do-Something Future Year – updated				Change in BNL
	AAWT 18hr	%HGV	Speed, km/h	BNL, dB	AAWT 18hr	%HGV	Speed, km/h	BNL, dB	
95380_90214	1317	12.6	34.4	60.3	1873	8.9	34.4	60.9	0.6
96850_95380	1317	12.6	63.4	62.0	1873	8.9	63.4	62.9	0.7

4.2.3 The change in calculated noise from The Sills would be approximately 0.9dB(A) for the Do-Minimum and 0.7dB(A) in the Do-Something. This increase in noise does not result in a new adverse likely significant effect and therefore does not change the conclusions presented in the ES for sensitive receptors or for pedestrians along The Sills.

4.2.4 As noted in paragraph 12.4.50 of the ES Chapter 12 Noise and Vibration (Document Reference 3.2, APP-055), DMRB LA 111 requires night-time noise to be assessed using the L_{night} descriptor to represent the noise level between the hours of 23:00 and 07:00. Method 3 from the Transport Research Laboratory (TRL) *Converting the*

UK traffic noise level $L_{A10,18hr}$ to EU noise indices for noise mapping (Transport Research Laboratory, 2002) is used to predict the L_{night} . Method 3 uses the predicted daytime noise levels ($L_{A10,18hr}$) as a basis for predicting the night-time noise levels. The largest daytime noise increase is 0.9dB(A) and the night-time noise levels would increase by the same amount. This increase in noise does not result in a new adverse likely significant effect and therefore does not change the conclusions presented in the ES for sensitive receptors or for pedestrians along The Sills.

4.3 Air Quality

Review of non-statutory alternative assessment methodology

- 4.3.1 All air quality assessments for National Highways projects are undertaken in accordance with DMRB LA 105, using the screening criteria quoted above to identify the ARN and determine the study area.
- 4.3.2 Alternative non-statutory guidance is however available from EPUK/IAQM, Land-Use Planning & Development Control: January 2017 version 1.2, which is generally considered to provide best practice industry standard assessment methodology for all non-National Highways projects. This guidance does include indicative criteria for requiring an air quality assessment (Table 6.2). Of particular relevance to this Project, the following criteria are set out:

Table 6.2: Indicative criteria for requiring an air quality assessment

The development will:	Indicative Criteria to Proceed to an Air Quality Assessment *
1. Cause a significant change in Light Duty Vehicle (LDV) traffic flows on local roads with relevant receptors. (LDV = cars and small vans <3.5t gross vehicle weight).	A change of LDV flows of: - more than 100 AADT within or adjacent to an AQMA - more than 500 AADT elsewhere.
2. Cause a significant change in Heavy Duty Vehicle (HDV) flows on local roads with relevant receptors. (HDV = goods vehicles + buses >3.5t gross vehicle weight).	A change of HDV flows of: - more than 25 AADT within or adjacent to an AQMA - more than 100 AADT elsewhere.
3. Realign roads, i.e. changing the proximity of receptors to traffic lanes.	Where the change is 5m or more and the road is within an AQMA.
4. Introduce a new junction or remove an existing junction near to relevant receptors.	Applies to junctions that cause traffic to significantly change vehicle accelerate/decelerate, e.g. traffic lights, or roundabouts.

- 4.3.3 The forecast changes in AADT at the Sills between the Do Minimum and Do Something scenarios in the year of opening (2029) was 524 AADT. This is below the level of confidence in the traffic model and was below the screening thresholds outlined within DMRB LA 105.
- 4.3.4 The EPUK/IAQM guidance does however qualify this table further in the report, by stating:

“6.16 Where an air quality assessment is identified as being required, then this may take the form of either a Simple Assessment or a Detailed Assessment (see paragraph 6.9 for more details). In other words, exceeding a screening criterion in Table 6.2 does not automatically lead to the requirement for a Detailed Assessment. The principle underlying this guidance is that any assessment should provide enough evidence that will lead to a sound conclusion on the presence, or otherwise, of a significant effect on local air quality. A Simple Assessment will be appropriate, if it can provide this evidence.”

- 4.3.5 Whilst this guidance does provide alternative assessment criteria, it states that detailed modelling is not automatically required, rather the potential impacts should simply be considered in the context of the existing baseline and other factors. A review of baseline information in this area indicated that there were no DCC LAQM concerns for the area of breaching AQOs, together with low Defra background concentrations and low site specific NO₂ data from 250m away.
- 4.3.6 A review of the Project in the context of the low existing concentrations in the area has concluded that the potential impacts to air quality in the Sills/Barnard Castle area as a result of the Project are considered to be negligible. The small predicted change in traffic flows would not result in a significant impact, allowing for any uncertainty in the traffic model. Therefore, the conclusions of the ES would not change.

4.4 Visual

- 4.4.1 As discussed in paragraph 3.4.1 an assessment of the traffic impact on 'The Sills' was scoped out of the submitted ES (Document Reference 3.2 APP-044 to APP-233) as it was very unlikely that any significant impacts would occur. The Guidelines for Landscape and Visual Impact Assessment 3rd Edition (GLVIA3) require only significant impacts to be assessed. However, as part of the more granular analysis requested by the ExA a complementary townscape impact assessment has been undertaken by an experienced landscape architect with knowledge of the process of assessment in accordance with GLVIA3. The assessment is undertaken in line with the NPSNN as outlined in section 10.3 of the ES. Table 1 in Appendix 10.1: Landscape and Visual Policy and Consultation Tables (Application Document 3.4) identifies the NPSNN policies relevant to the landscape and visual assessment.
- 4.4.2 While there are no physical changes to The Sills caused by the works associated with the Project, there is likely to be an increase in traffic along this route as reported in Section 2. This has the potential to change the character of the area.
- 4.4.3 The assessment follows the guidance in GLVIA3 and the Landscape Institute's Townscape Character Assessment Technical Information Note 05/2017 Revised April 2018. The assessment guidance generally relates to the introduction of new buildings or other physical change to the environment. In this case the impacts are associated with an increase in vehicle movements. Therefore, the conclusion will only consider whether there is a significant impact due to the increase in traffic.
- 4.4.4 To undertake the assessment, we have looked at the current baseline situation and analysed the current vehicle movements on a typical day. This involved a site survey on a weekday, outside of school holidays, on 10/1/2023, representing a normal traffic situation. We then applied the expected vehicle movements based on the traffic forecasts outlined in Section 2. Professional judgement was then applied

to ascertain if the expected change in vehicle numbers would alter the townscape character of The Sills.

Baseline – Townscape Context

- 4.4.5 'The Sills' is defined as the B6277 within Startforth between the junction between it and the Lendings and the junction between it and the A67 at the County Bridge as set out in 1.1.13.
- 4.4.6 The Sills descends on a gentle gradient as it passes Holy Trinity Church that sits above the road on the west side. At this point the road is defined by an embankment and mature trees to the west. The east side has a narrow footpath and a low stone wall with intermittent views through trees to the River Tees that sits lower than the road. As the road flattens out the eastern bank opens out into a grass field as tree cover diminishes.
- 4.4.7 The Sills then crosses Gill Beck which creates an incised valley to the west, separating the open grass field from the start of housing on Gill Lane. At this point the eastern side retains the narrow footpath and low stone wall. There are fewer views to the river due to more dense tree cover at this point. Gill Lane runs steeply uphill from The Sills. There are properties on both sides of Gill Lane, most of which have views across the River Tees valley towards Barnard Castle with the long view curtailed by the mature riparian woodland associated with the River Tees.
- 4.4.8 As The Sills passes Gill Lane the western side becomes a tall stone retaining wall and narrow grass verge. The east side opens out as the road and river run closer together allowing open views across to the east bank of the river.
- 4.4.9 The tall stone retaining wall continues on the eastern side, above which new housing on Stanley Fields can be seen. The Sills then passes the junction at Ullathorne Rise, another housing area that sits above the road. The housing at this junction sits at the same level as the Sills but is staggered to open up the junction. Tree planting along the riverbank increases at this point, obscuring views.
- 4.4.10 Passing Ullathorne Rise, The Sills changes character. A view to the County Bridge, an arched stone structure, with Barnard Castle in the background is briefly possible. Traditional buildings flank the road on both sides separated from the carriageway by narrow footpaths.
- 4.4.11 The junction between The Sills and The County Bridge is traffic light controlled. This occasionally leads to queues of traffic. The bridge is single carriageway and forms part of the entrance experience to the town, sitting at the foot of the castle itself.
- 4.4.12 Past the bridge, The Sills swings away from the river to the west. On the east side there is a footpath separated from an open level green space by a timber triprail (a low height fence which could be stepped over if needed). The mature riparian

woodland creates a green understorey to the castle that dominates the skyline. There is a small road access to the Mill Car Park within the green space.

- 4.4.13 On the west side of the road there is a narrow footpath, low stone wall and grass embankment with housing behind. There is a regular flow of traffic along this stretch which occasionally tails back at the bridge lights.
- 4.4.14 Past the car park access, on the west side of The Sills, Deerbolt Bank is a minor road with traditional stone buildings set back from the carriageway. Past this group of buildings on the western side is the junction with the A67 where the Sills terminates to become the B6277 again. On the river side there is a stone wall with a distinctive triangular cope containing an open space before a group of modern terraced properties at Flaxfield.

Traffic

- 4.4.15 Section 2 outlines the revised traffic numbers. Traffic flow is uneven due to the traffic lights at the bridge. Video taken on 10/1/2023 during a site visit undertaken by an engineer confirms the release of vehicles at the bridge when lights change and that the numbers reported in Section 2 are consistent with on-site observations. Overall, the road is moderately quiet, with vehicles not detracting from the townscape character.
- 4.4.16 The narrow pavements mean that the existing pedestrian experience is poor along most of the Sills.
- 4.4.17 Section 4 reports the townscape impacts of the do something traffic flow on The Sills.
- 4.4.18 The change in vehicle numbers owing to the Project would not appreciably alter the pedestrian experience which is already characterised and affected by the narrow pavements.
- 4.4.19 Having reviewed the current and expected traffic movements of The Sills it is the professional opinion of the experienced landscape architect that the modest increase in traffic numbers would not have a significant impact on the prevailing townscape characteristics either on the Sills, the County Bridge or surrounding streets.

4.5 Community Health and Wellbeing

- 4.5.1 Based on the findings of other relevant assessment, including traffic and transport, noise, air quality, landscape and visual, the ES did not report any human health effects at The Sills. Fine grained consideration has been given to the potential health

effects arising from increased traffic flows on The Sills, informed by the granular assessments presented in this report.

Human Health Baseline

- 4.5.2 The Sills is located in Lower Super Output Area (LSOA) County Durham 066C in Barnard Castle West ward, in County Durham.
- 4.5.3 LSOA County Durham 066C has a below national average proportion of under 16s (10.78% compared to a national average of 18.91%) and an above national average proportion of over 65s (22.58% compared to 15.35%). It has an above average percentage of people living with disabilities or long-term health problems that limit day to day activities (21.60% compared to 17.60%).
- 4.5.4 LSOA County Durham 066C ranks within the 30% least deprived areas in England when measured as an average across all indices of the Indices of Multiple Deprivation (2019)⁵. It is in the 50% least deprived areas for employment and the 40% least deprived areas for health and disability.
- 4.5.5 LSOA County Durham 066C ranks in the 10% least deprived areas for living environment. This indicator includes the indoor living environment (quality of housing) and outdoor living environment (air quality and road traffic accidents).
- 4.5.6 LSOA County Durham 066C falls within Decile 7 on the Small Area Mental Health Index, meaning that it is in the 30% worst off areas in England in terms of mental health. This is based on data from multiple indicators including mental health related hospital attendances, antidepressant prescriptions, depression prevalence, incapacity benefits and employment support allowance for mental health.
- 4.5.7 The under 75s mortality rate from cardiovascular disease in the local authority area of County Durham (78.9 per 100,000) compares poorly against the national average (70.4 per 100,000). The under 75s mortality rate from respiratory disease in County Durham (42.4 per 100,000) compares poorly against the national average (33.6 per 100,000). The average life expectancy in County Durham is 77.7 years for males (below the national average of 79.4) and 81.2 years for females, which is below the national average of 83.1.
- 4.5.8 The sensitivity of the local population to health effects associated with increased traffic is considered to be moderate, with specific vulnerabilities in relation to the high proportion of older people, who are more likely to have impaired mobility.

Direct health effects of noise emissions

- 4.5.9 Exposure to environmental noise is linked to adverse health outcomes such as annoyance, sleep disturbance, cardiovascular and metabolic disease and cognitive impairment⁶. Noise levels at noise sensitive receptors close to The Sills were modelled and no adverse likely significant noise effects were identified upon these receptors (see Noise section above and Appendix A of this report). The increase in

⁵ https://dclgapps.communities.gov.uk/imd/iod_index.html

⁶ World Health Organization (2018) Environmental Noise Guidelines for the European Region

noise exposure at sensitive receptors, including residential properties, along The Sills as a result of the Project is predicted to be very small and would not give rise to a measurable change in population health outcomes associated with noise.

Direct health effects of air emissions

- 4.5.10 Exposure to air pollution from traffic can have a range of health effects, including effects on lung function, asthma, increases in respiratory and cardiovascular hospital admissions and mortality⁷. The increase in exposure of the population on and around The Sills to traffic-related air pollution as a result of the Project is very small and would not give rise to a measurable change in population health outcomes associated with air pollution.

Environmental amenity

- 4.5.11 Traffic affects environmental amenity through noise and visual effects, which may be experienced alongside concerns about issues such as air quality and road safety. As such, traffic can influence people's perceptions about the quality of their living environment and have negative effects on life satisfaction and mental wellbeing.
- 4.5.12 An assessment of noise impacts on pedestrians along The Sills has been undertaken, as described in the noise section above and shown in Appendix B of this report. This shows that there will be a perceptible change in noise levels along The Sills between the Do-Minimum scenario (predominantly within the 52 – 57 dBL_{pAeq,16h} contour band) and the proposed Project (57 – 62dBL_{pAeq,16h} contour band). As noted in section 3.1 above, this increase is unlikely to result in an adverse likely significant effect of noise, or any corresponding health effect. Noise levels on the pedestrian walkways which run parallel and close to The Sills are predicted to be between LOAEL and SOAEL, both with and without the proposed Project. As described in the Noise section, this level of noise can be heard and may cause small actual or perceived changes in quality of life and small changes in behaviour, attitude or physiological response.
- 4.5.13 As described in the visual assessment, the increased traffic movements arising from the Project would not have a significant impact on the prevailing townscape characteristics, either on the Sills, the County Bridge or surrounding streets. However, it is considered that the increase in traffic movements will be perceptible to the local community and may give rise to some change in perceptions of visual amenity.
- 4.5.14 The combined noise and visual effects of increased traffic flows are likely to lead to some negative perceptions about environmental amenity, which will diminish over time as the community becomes accustomed to the change. While this is likely to generate some negative feelings, the scale of change is not considered to give rise

⁷ Health Matters: air pollution. Public Health England, 2018

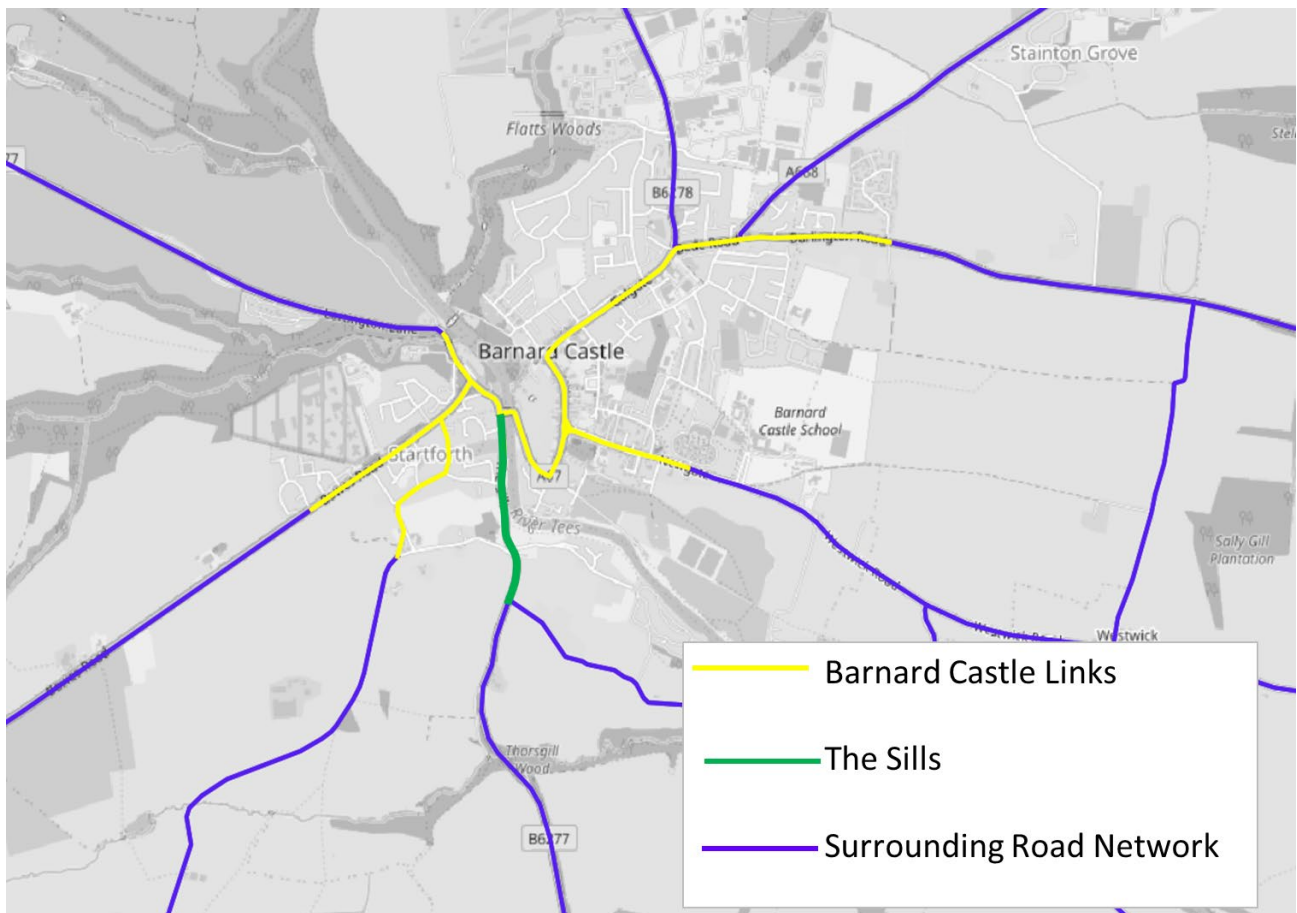
to a negative effect on the life satisfaction and mental wellbeing of the local population.

Road traffic accidents

- 4.5.15 As described in Section 2 of this report, the ES reported a 53% increase in all-vehicle flows and a 19% change in HGV flows on The Sills as a result of the proposed Project. Baseline traffic flows have been updated following traffic counts undertaken on The Sills, resulting in the amendment of baseline traffic flows and the revision of all-vehicle and HGV traffic increases to 32% and 19% respectively.
- 4.5.16 A DfT COBALT⁸ safety appraisal was carried out as part of the A66 Transport Assessment (Document Reference TR010062), which assesses costs and benefits to accidents based on link and junction characteristics, accident rates and forecast traffic volumes by link and junction. The COBALT study area, which includes Barnard Castle, covers the A66 and the surrounding road network affected by a predicted change of at least +/-5% in AADT flows and a flow difference of at least +/-50 vehicles per day AADT in the DS scenario compared with the DM scenario.
- 4.5.17 The Transport Assessment does not report the results of the COBALT assessment at all individual locations within the Study Area, but predicts reductions in fatal and serious accidents on the A66 between Cross Lanes and Rokeby (see table 9-6 Transport Assessment (Document Reference 3.7, APP-236). The improved A66 removes traffic from the surrounding road network within the vicinity of Barnard Castle, apart from The Sills and Moorhouse Lane (see figure 8-21 of the Transport Assessment (Document Reference 3.7, APP-236).
- 4.5.18 For the purpose of this complementary consideration the impact of the traffic flow changes on the Sills and within all links within Barnard Castle have been considered for the highlighted roads shown in Figure 4-1 below.

⁸ Cost and Benefit to Accidents – Light Touch. <https://www.tagsoftware.co.uk/COBALT>

Figure 4-1: The Sills and other Links within Barnard Castle extracted from COBALT Assessment



4.5.19 Table 4-3 shows the results of the assessment.

Table 4-3: Accidents and Casualties within Barnard Castle from COBALT Assessment (60 year Appraisal)

	Total	Slight	Serious	Fatal
The Sills (i.e. the green link in Figure 4-1)				
Accidents (Personal Injury Accidents)	6.5	6.1	0.4	0.0
Casualties	8.6	7.7	0.8	0.0
Barnard Castle (i.e. The yellow links and green link in Figure 4.1)				
Accidents (Personal Injury Accidents)	-12.1	-11.4	-0.6	0.0
Casualties	-15.4	-13.8	-1.6	-0.1

4.5.20 The overall accident numbers on the Sills will increase in line with the flow increases. There are forecast to be an additional 6.5 accidents on the link over the 60 year appraisal period, which corresponds to one additional accident every 9.2 years. However due to the reduction in flows elsewhere in Barnard Castle there is forecast to be an overall reduction in accidents (even allowing for the small increase on the Sills) of 12 accidents overall. Given the anticipated reduction in vehicle KMs within the rest of Barnard Castle, and the overall reduction in accidents within the Project

as a whole, the all-vehicle and HGV flows on The Sills for the DS scenario will remain within the level considered acceptable in terms of road safety.

- 4.5.21 The Manual for Streets⁹ considers appropriate traffic flow levels for streets that provide direct access to buildings and public services. In paragraph 7.9.3 of the document, it states that *'in the past, a relatively low limit on traffic flow (300 vehicles per peak hour or some 3,000 vehicles per day) has generally been used when deciding whether direct access was appropriate. This is equivalent to the traffic generated by around 400 houses. Above this level, many local-authority residential road guidelines required the provision of a 'local distributor road'.* However, as part of the development of 'The Manual for Streets', a study was commissioned into the relationship between traffic flow and road safety for streets with direct frontage access. The study found that very few accidents occurred involving vehicles turning into and out of driveways, even on heavily trafficked roads. Therefore paragraph 7.9.5 of the Manual for Streets states that *'It is recommended that the limit for providing direct access on roads with a 30mph speed restriction is raised to at least 10,000 vehicles per day'.* Given that the traffic flow on the Sills will not exceed 3,000 vehicles per day (it is forecast to rise to 2,152 vehicles per day with the Project in Place – Table 2-3) the forecast traffic levels are comfortably within the lower limit of what is generally considered to be acceptable.

Walking and cycling

- 4.5.22 There is a narrow footpath along the east side of The Sills from The Lendings to the A67 junction, which is used by the local community to access the town centre via the County Bridge. The narrowness of the footpath means pedestrians are in close proximity to passing traffic, which is detrimental to actual and perceived safety. While not part of a promoted cycling route, The Sills is also used by cyclists for both recreation and active travel. The local community has raised concerns about a reduction in pedestrian and cyclist safety due to traffic increases along The Sills and at the A67 junction (see, for example, paragraph 5.1.14-5.1.16 of Barnard Castle Local Impact Report [REP1-010]).
- 4.5.23 The risk of accidents involving pedestrians and cyclists is proportionate to traffic flow and the number of HGV's, and as such there will be a small increase in risk as a result of a modest increase in traffic. It should be noted that the COBALT accident analysis above includes accidents involving pedestrians and cyclists. As noted above, the all-vehicle and HGV flows will remain at a level considered acceptable in terms of road safety. However, it is likely that the perception of safety will be adversely affected, particularly for older people and those with young children.
- 4.5.24 For recreational walkers and cyclists, the increased traffic flow and associated reduction in perceived safety may reduce enjoyment and potentially cause some people to choose an alternative route. However, the scale of change is not

⁹ Manual for streets Department for Transport, 2007

considered likely to lead to an overall adverse effect on levels of active travel in the population.

- 4.5.25 For those walking or cycling on The Sills to access services and facilities in Barnard Castle, including residents in Startforth, there may be no alternative route available. There is a potential that some individuals may choose to travel by car rather than walk or cycle. However, in most cases, the increased traffic flow is unlikely to deter active travel but may reduce enjoyment and the perception of safety. This, combined with the noise, visual and air quality issues described above, may lead to an overall perceived reduction in the quality of the local environment. Given the modest increase in traffic in vehicle numbers, and the relatively low level of overall traffic flows with the DS scenario, this effect is likely to be small and is not considered to lead to a reduction in the mental and physical wellbeing of the population.

Social isolation

- 4.5.26 Social isolation can result from changes in traffic flow where these cause reduced access to services, community facilities and social networks. This can result from significant road traffic delays that deter travel by car, or heavy traffic flows combined with inadequate crossing facilities, which may deter pedestrians. Older people, who are more likely to depend on local services and to have impaired mobility and/or be without a private car, are particularly vulnerable to severance.
- 4.5.27 The forecast increase in traffic flow on The Sills owing to the Project has raised concerns in the local community about pedestrian safety. For some vulnerable individuals, this may result in an increased reluctance to use The Sills as a walking route. However, it is considered that the modest scale of change will not give rise to any substantial overall reduction in journeys or increase in levels of isolation.

5. SUMMARY AND CONCLUSION

5.1.1 This report supports and complements the full and comprehensive ES submitted with the application for development consent (Document Reference 3.2 APP-044 to APP-233) and has considered through a more granular approach the effects and impacts of additional traffic on The Sills as requested by the ExA on noise, air quality, visual and community health & wellbeing, with regard to the Institute of Environmental Assessment's Guidelines for the Environmental Assessment of Road Traffic (1993), and in accordance with DMRB and NPSNN. The outcome of this more granular assessment is concluded below:

5.2 Noise

5.2.1 The noise levels at sensitive receptors near to and along The Sills are predicted to increase by less than 3dB as a result of the operation of the Project. These noise levels are predicted to remain below the SOAEL (except at two properties that are currently above SOAEL but only very small changes are calculated) and therefore an adverse likely significant effect is unlikely to occur at any of the properties along The Sills or the pedestrian walkways, consistent with the aims of the NPSNN.

5.2.2 The increase in traffic flows provided in December 2022 is calculated to change the modelled noise levels by less than 1dB and therefore it does not change the conclusions made in the DCO application.

5.3 Air Quality

5.3.1 A review of the Project has concluded that the potential impacts to air quality in the Sills/Barnard Castle area as a result of the Project were considered to be negligible, and the small predicted change in traffic flows presented in this report would not result in a significant impact, allowing for any uncertainty in the traffic model.

5.3.2 The ES assessment was undertaken in-line with the standards outlined in DMRB LA 105. The predicted changes in traffic in the Sills/Barnard Castle area were screened against the criteria outlined within DMRB LA 105. Traffic volumes were below these thresholds, indicating that the traffic was below a level which could be predicted with a reasonable level of confidence and therefore the Sills/Barnard Castle area was scoped out of the ARN.

5.4 Visual

5.4.1 The modest increase in traffic, owing to the Project, on The Sills will not have a significant impact on the prevailing townscape characteristics. This does not alter any of the assessments and conclusions made in the DCO application.

Community Health and Wellbeing

5.4.2 The modest increase in traffic owing to the Project on The Sills is likely to lead to a perceived reduction in safety and environmental amenity, resulting in a perceived reduction in quality of life for some local residents. However, this is not considered to give rise to a negative adverse effect on the mental or physical health of the local

population. This does not alter any of the assessments and conclusions made in the DCO application.

5.5 Overall Conclusion

- 5.5.1 This document specifically responds to the request made by the ExA at ISH1 for a more granular assessment of the environmental impacts of increased traffic owing to the Project on the road known as 'The Sills', Barnard Castle. This granular assessment does not identify any additional impacts that would change the conclusions found in the application documents.

APPENDIX A – Detailed noise results for sensitive receptors along The Sills

Table A-1 and Table A-2 show the results of the noise modelling for the Do-Minimum Opening Year, Do-Minimum Future Year, Do-Something Opening Year and Do-Something Future Year. The results are shown for each individual receptor within the operational noise study area along The Sills. Table A-1 shows the results for residential receptors and Table A-2 shows the results for non-residential receptors. The tables also present the resulting noise change in the short-term (by comparing Do-Minimum Opening Year against Do-Something Opening Year) and in the long-term (by comparing Do-Minimum Opening Year against Do-Something Future Year).

Table A-1 and Table A-2 present the predicted noise levels identified at the façade with the greatest magnitude of change (GMC) i.e. the façade with the largest increase or the largest noise reduction. A second result is presented if, at the same receptor, there is another façade where the noise levels exceed the SOAEL but with a change smaller than that of the GMC. The purpose of this is to ensure that the largest noise change is reported as well as identifying any facades of the receptors exceeding the SOAEL.

Table A-1: Summary of residential receptors situated along The Sills

Receptor address	Noise level dB L _{Aeq} free-field (day: L _{Aeq,16hr} , night: L _{Aeq,8hr})													Any OTHER façade with highest noise level >SOAEL				
	Façade with greatest magnitude of noise change (GMC)								Change, short term (With scheme 2029 - Without scheme 2029)		Change, long term (With scheme 2044 - Without scheme 2029)		Façade	Different façade from GMC result				Façade
	Without Scheme 2029		Scheme and local roads 2029		Without scheme 2044		Scheme and local roads 2044		Day	Night	Day	Night		Scheme and local roads 2029		Scheme and local roads 2044		
	Day	Night	Day	Night	Day	Night	Day	Night						Day	Night	Day	Night	
5 Bridge End, Barnard Castle DL12 9BE	55.6	48.1	56.7	49.1	55.9	48.3	57.2	49.5	1.1	1	1.6	1.4	S	62.3	54.1	62.7	54.5	N
3 Riverside, Bridge End, Barnard Castle DL12 9BN	59.7	51.8	60.7	52.7	60	52	61.2	53.1	1	0.9	1.5	1.3	W	65.8	57.3	66.2	57.6	W
9 Bridge End, Barnard Castle DL12 9BE	57.1	49.4	58.4	50.6	57.3	49.6	58.9	51	1.3	1.2	1.8	1.6	S	-	-	-	-	-
7 Bridge End, Barnard	39	33.1	39.2	33.3	39.4	33.5	39.5	33.6	0.2	0.2	0.5	0.5	N	-	-	-	-	-

Castle DL12 9BE																		
11 Bridge End, Barnard Castle DL12 9BE	56.8	49.1	58.3	50.5	57.1	49.4	58.7	50.9	1.5	1.4	1.9	1.8	E	-	-	-	-	-
5 Riverside, Bridge End, Barnard Castle DL12 9BN	57.9	50.1	59.4	51.5	58.1	50.3	59.9	51.9	1.5	1.4	2	1.8	W	-	-	-	-	-
15 Bridge End, Barnard Castle DL12 9BE	57.6	49.9	59	51.1	57.8	50	59.5	51.6	1.4	1.2	1.9	1.7	E	-	-	-	-	-
17 Bridge End, Barnard Castle DL12 9BE	56.2	48.6	57.8	50	56.5	48.9	58.3	50.5	1.6	1.4	2.1	1.9	E	-	-	-	-	-
19 Bridge End, Barnard Castle DL12 9BE	52.2	45	53.3	46	52.4	45.2	53.6	46.3	1.1	1	1.4	1.3	S	-	-	-	-	-
2 Ullathorne Rise,	49	42.1	49.6	42.7	49.2	42.3	49.8	42.8	0.6	0.6	0.8	0.7	S	-	-	-	-	-

Startforth DL12 9BQ																		
21 Bridge End, Barnard Castle DL12 9BE	55.1	47.6	56.3	48.7	55.4	47.9	56.7	49.1	1.2	1.1	1.6	1.5	E	-	-	-	-	-
23 Bridge End, Barnard Castle DL12 9BE	55.7	48.2	57.1	49.4	55.9	48.3	57.4	49.7	1.4	1.2	1.7	1.5	E	-	-	-	-	-
1 Ullathorne Rise, Startforth DL12 9BQ	44.2	37.8	45	38.5	44.5	38.1	45.1	38.6	0.8	0.7	0.9	0.8	S	-	-	-	-	-
25 Bridge End, Barnard Castle DL12 9BE	56.4	48.8	57.9	50.1	56.6	49	58.3	50.5	1.5	1.3	1.9	1.7	E	-	-	-	-	-
6 Teesdale Road, Startforth DL12 9AT	50.4	43.4	51.2	44.1	50.7	43.7	51.4	44.3	0.8	0.7	1	0.9	NE	-	-	-	-	-
5 Teesdale Road, Startforth DL12 9AT	53.7	46.4	55	47.5	53.9	46.5	55.3	47.8	1.3	1.1	1.6	1.4	E	-	-	-	-	-

4 Teesdale Road, Startforth DL12 9AT	54.9	47.4	56.5	48.9	55.2	47.7	56.9	49.2	1.6	1.5	2	1.8	E	-	-	-	-	-
3 Teesdale Road, Startforth DL12 9AT	52.7	45.5	54.3	46.9	52.9	45.6	54.6	47.2	1.6	1.4	1.9	1.7	E	-	-	-	-	-
2 Teesdale Road, Startforth DL12 9AT	54.6	47.2	56.5	48.9	54.9	47.4	57.1	49.4	1.9	1.7	2.5	2.2	E	-	-	-	-	-
24 Teesdale Road, Startforth DL12 9AT	42.5	36.3	43.5	37.2	42.7	36.5	43.7	37.4	1	0.9	1.2	1.1	S	-	-	-	-	-
1 Mill Riggs, Gill Lane, Startforth DL12 9BT	51.3	44.2	52.5	45.3	51.6	44.5	52.7	45.5	1.2	1.1	1.4	1.3	S	-	-	-	-	-
2 Mill Riggs, Gill Lane, Startforth DL12 9BT	50.7	43.7	51.9	44.7	51	43.9	52.1	44.9	1.2	1	1.4	1.2	S	-	-	-	-	-
River House, Church Bank,	59.6	51.7	61.7	53.6	60.2	52.2	62.2	54	2.1	1.9	2.6	2.3	NW	-	-	-	-	-

Startforth DL12 9AE																		
Startforth House, Church Bank, Startforth DL12 9AE	57.2	49.5	59.3	51.4	57.8	50	59.8	51.8	2.1	1.9	2.6	2.3	SW	-	-	-	-	-

Table A-2: Summary of non-residential receptors situated along The Sills

Receptor address	Type of receptor	Noise level dB L_{Aeq} free-field (day: $L_{Aeq,16hr}$, night: $L_{Aeq,8hr}$)														Any OTHER façade with highest noise level >SOAEL			
		Façade with greatest magnitude of noise change (GMC)								Change, short term (With scheme 2029 - Without scheme 2029)	Change, long term (With scheme 2044 - Without scheme 2029)	Façade	Different façade from GMC result				Façade		
		Without Scheme 2029		Scheme and local roads 2029		Without scheme 2044		Scheme and local roads 2044					Scheme and local roads 2029		Scheme and local roads 2044				
		Day	Night	Day	Night	Day	Night	Day	Night				Day	Night	Day	Night		Day	Night
1 Teesdale Road, Startforth DL12 9AT	Holiday Let / Accommodation / Short-Term Let Other	54.7	47.3	56.6	49	54.9	47.4	57.1	49.4	1.9	1.7	2.4	2.1	E	-	-	-	-	-

Than CH01																			
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APPENDIX B – Assessment of noise impacts upon pedestrians along The Sills

Figure B-1 shows the predicted absolute Do-Minimum and Do-Something noise levels along The Sills.

Figure B-1: Predicted absolute noise levels along The Sills for the Do-Minimum Opening Year (top left), Do-Minimum Future Year (top right), Do-Something Opening Year (bottom left) and Do-Something Future Year (bottom right)



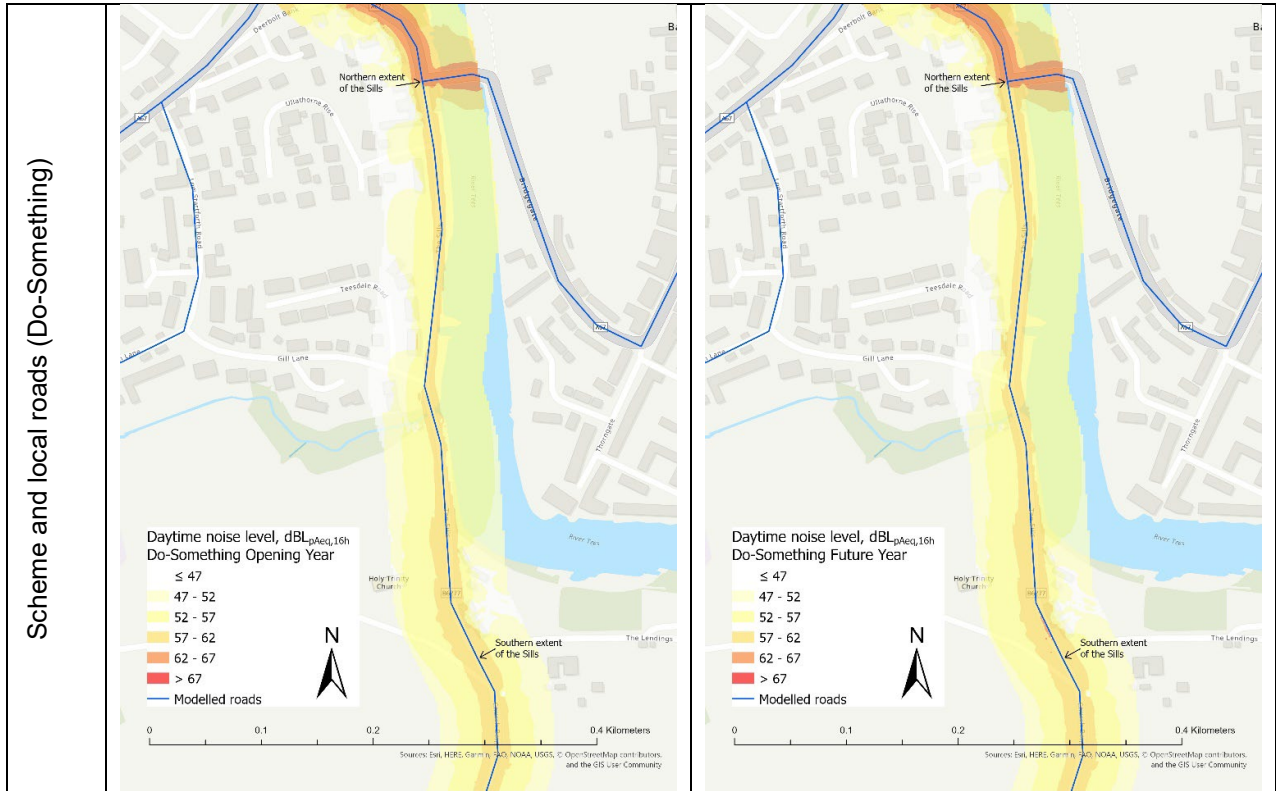


Figure B-2 shows the predicted change in noise levels due to the operation of the Project.

Figure B-1: Predicted change in noise levels along The Sills for the short-term (left) and long-term (right)

