

Lower Thames Crossing

9.131 Post-event submissions, including written submission of oral comments, for ISH8

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List of contents

	Page number
1 Introduction	1
1.1 Welcome, introductions, arrangement for the Hearing.....	1
2 Purpose of the Issue Specific Hearing	2
3 ExA Questions on: Construction Compound Matters	3
3.1 Item 3(a) Construction compound matters.....	3
Item 3(a)(i).....	3
Item 3(a)(ii).....	7
Item 3(a)(iii).....	10
Item 3(a)(iv).....	11
3.2 Item 3(b) Restoration	14
Item 3(b)(i).....	14
4 ExA Questions on: Construction Impacts	17
4.1 Item 4(a) Gammonfields Traveller Site	17
Item 4(a)(i) and (ii).....	17
4.2 Item 4(b) Effect on visitor attractions	19
Item 4(b)(i).....	19
5 ExA Questions on: Operational Impacts	22
5.1 Item 5(a) Noise	22
Item 5(a)(i)-(iii).....	22
6 Next Steps and closing remarks	25
Annex A Post-hearing submissions on Agenda Item 3 Construction Compound Matters	26
A.1 Introduction	26
A.2 Hearing Action Point 4 – National Highways Policy (construction)	26
A.3 Summary of approach to noise, vibration and other disturbance on the local community	28
A.4 Hearing Action point 5 – Noise Survey Information	29
A.5 Hearing Action Point 6 – On-site Worker Accommodation	30
A.6 Response to IP questions on construction vibration	30
A.7 Responding to Holland regarding the “gap” in the earth bunding near Mr Mott’s property to allow construction access.	31

A.8	Confirmation if the construction code of conduct applies to workers offsite and out of working hours	32
A.9	Anticipated timescales and process to consider Essex Police's/ESSG report and application for increased funding	33
A.10	Examples of other Projects that have successfully used an Accommodation Helpdesk	33
Annex B Post-hearing submissions on Agenda Item 4 Construction Impacts		36
B.1	Introduction	36
B.2	Hearing Action Point 7 – Practical Delivery Review of Development Management of Gammon Field Traveller’s Site	36
B.3	Hearing action point 11: LBH: Upminster Cemetery and South Essex Crematorium	37
B.4	How 10db reduction will be achieved for traveller site	37
B.5	Gravesham Borough Council’s suggestion regarding the crossing point for construction traffic with the potential to impact on Cascades.	38
Annex C Post-hearing submissions on Agenda Item 5: Operational Impacts		41
C.1	Introduction	41
C.2	Hearing action point 13 – Brooks Farm Cottages	41
C.3	Franks Farm - Detailed response to Ms O'Leary's submissions	45
C.4	Hearing action point 14 - Franks Farm	46
Annex D Travellers Sites Noise Assessment.....		55
D.2	Construction Impacts	55
	Gammonfields Way Travellers Site – Construction Noise Assessment.....	60
	Specific BPM Night-time and Evening Works – Gammonfields Way Travellers Site .	62
	Specific BPM Daytime Works – Gammonfields Way Travellers Site	67
	Construction Noise Assessment Gammonfields Way Travellers Site, Including BPM.	68
D.3	Operational Impacts.....	71
	Gammonfields Way Travellers site	74
References		81
Glossary		82

List of plates

	Page number
Plate C.1 Option A	47
Plate C.2 Option B	47
Plate D.1 Daytime BPM Construction Noise Gammonfields Way Travellers Site	69
Plate D.2 Evening BPM Construction Noise Gammonfields Way Travellers Site	69
Plate D.3 Overnight BPM Construction Noise Gammonfields Way Travellers Site.....	70
Plate D.4 ProPG Stage 1 Noise Risk Assessment	78

List of tables

	Page number
Table C.1 Barrier Appraisal Option AB 4 at 4.0m	42
Table C.2 Barrier Appraisal Option AB 4 at 5.0m	43
Table C.3 Barrier Appraisal Option AB 4 at 6.0m	44
Table C.4 Barrier Appraisal Option A at 1.0m.....	48
Table C.5 Barrier Appraisal Option A at 2.0m.....	49
Table C.6 Barrier Appraisal Option A at 3.0m.....	50
Table C.7 Barrier Appraisal Option B at 1.0m.....	51
Table C.8 Barrier Appraisal Option B at 2.0m.....	52
Table C.9 Barrier Appraisal Option B at 3.0m.....	53
Table D.1 Construction Impacts and Significance at Travellers Sites.....	56
Table D.2 Gammonfields Way travellers' site Construction Noise Assessment.....	61
Table D.3 Travellers Sites - Operational Daytime Impacts	71
Table D.4 Travellers Sites - Operational Night-time Impacts	71
Table D.5 Gammonfields Way travellers' site Operational Daytime Road Traffic Noise Levels	75
Table D.6 Gammonfields Way travellers' site Operational Night-time Road Traffic Noise Levels	75

1 Introduction

Please note: this document contains the Applicant’s oral summary of evidence and post-hearing comments on submissions made by others at Issue Specific Hearing 6 held on 8 September 2023.

Where the comment is a post-hearing comment submitted by National Highways, this is indicated. This document uses the headings for each item in the agenda published for Issue Specific Hearing 8 [EV-062] on 19 October 2023 by the Examining Authority.

1.1 Welcome, introductions, arrangement for the Hearing

- 1.1.1 National Highways (the Applicant), which is promoting the A122 Lower Thames Crossing (the Project), was represented at Issue Specific Hearing 8 (ISH8) by Isabella Tafur, of Counsel (IT).
- 1.1.2 The following persons were also introduced to the Examining Authority (ExA):
 - a. Andrew Tait, King’s Counsel (AT)
 - b. Mustafa Latif-Aramesh, BDB Pitmans, Partner (MLA)
 - c. Barney Forrest, Lower Thames Crossing, Environment Lead (BF)
 - d. Sarah Collins, National Highways, Head of Land, Property and Compensation (SC)
 - e. Mohammed Halli, Lower Thames Crossing, Construction Lead (MH)
 - f. John Clark-Hughes, Lower Thames Crossing, Construction Tunnel Lead (JCH)
 - g. Suki Coe, Lower Thames Crossing, DCO and Planning Manager (SJC)
 - h. Alison Powell, Lower Thames Crossing, Population and Human Health Lead
 - i. Richard Staite (RS), Lower Thames Crossing, Noise Specialist

2 Purpose of the Issue Specific Hearing

2.1.1 The Applicant did not make any submissions under this agenda item.

3 ExA Questions on: Construction Compound Matters

3.1 Item 3(a) Construction compound matters

Item 3(a)(i)

Item 3(a)(i) Where the approach to waste and material management is appropriate

- 3.1.1 IT submitted that the Applicant has adopted an appropriate and robust approach to waste and material management, which aligns with the core principles of a circular economy and the waste hierarchy. The approach will be managed by the framework provided by the following control plans which have been developed in collaboration with regulatory authorities with no major objections to the Applicant's approach:
- Outline Site Waste Management Plan (oSWMP) [APP-337] sets out the overarching principles and procedures that would be applied for the management of waste.
 - Outline Materials Handling Plan [REP5-050] sets out the approach and high-level principles for handling construction materials and waste for the Project, both inside and outside the Order Limits.
 - Code of Construction Practice, First Iteration of Environmental Management Plan [REP5-048] provides control around good housekeeping within compounds including the management of material and waste, detailed in Section 6.5.
- 3.1.2 IT stated that the above plans provide the framework upon which Contractors will develop detailed handling plans and construction site waste management plans. IT noted that as per paragraph 4 of Schedule 2 to the draft Order, no part of the authorised development may commence until the secondary plans for the relevant works have been submitted to, and approved by, the Secretary of State, following consultation with the stakeholders identified in Table 2.1 of the Code of Construction Practice, First Iteration of the Environmental Management Plan [REP5-048].
- 3.1.3 IT noted that these plans were supplemented by numerous commitments within Section 7 Register of Environmental Actions and Commitments (REAC) specific to material and waste management, for example, MW011 through which Contractors would divert a minimum of 95% (by weight) of inert excavation wastes and a minimum of 95% (by weight) of inert construction and demolition waste destined for offsite waste management outside the Order Limits, from final disposal in landfill.
- 3.1.4 **Post Hearing Note: The Applicant would also highlight REAC MW007, REAC MW010 and REAC MW013 secured in the Code of Construction Practice [REP5-048].**

- 3.1.5 In summary, IT concluded that the Applicant's position is that the controls contained in the outline plans are appropriate and ensure a robust and appropriate approach to waste and material management.
- 3.1.6 JCH responded to Gravesham Borough Council's concerns relating to residential uses at Polperro and traveller sites and their subsequent request for a bespoke response to address the impacts of the construction compound.
- 3.1.7 JCH noted that the layout is currently indicative of a reasonable worst-case scenario for the purposes of assessment. JCH noted that the layout will be informed by certain fundamental principles, namely the location of permanent works (for example the South Portal cutting excavation and gas main diversion) will remain fixed and form a dominant feature within the layout. JCH, speaking to the Temporary Works Plan (2.17 Temporary Works Plans (Volume B) (Sheets 1 to 20) Sheet 13 [REP4-084]), explained that the brown area to the north-west is split into two: the southern half is the eventual Chalk Park landform, the northern half is designated as storage. JCH noted that the material which will constitute Chalk Park is from the deep cutting material for the South Portal, the intention being that this material would be in the final position to avoid double handling and reduce material movement generally. JCH noted this is what informed the Applicant's preference to fill in to the permanent location. Notwithstanding this preference, JCH noted that the southern half is designated as storage if circumstances arise where preferential movement could not materialise. However, JCH clarified that the use of the compound and movement of materials would be predominately to the south away from the properties of concern outlined by GBC.
- 3.1.8 JCH directed his submissions to the haul roads. During the early stages of construction, the access points are positioned so that there is a left turn entry into the site only, which will prevent queuing traffic on the A226 and ensure safe ingress and egress. As construction progresses, the main access will be up the main alignment via the A2. JCH noted that the key aspect of that layout is that the various indicative buildings are positioned to the east of the compound away from Riverside Park.
- 3.1.9 JCH concluded his response with a general comment on the control plans. Given the stage of development the Project is currently at, it would not be desirable to provide more detailed controls as that would unduly constrain the Contractors. IT noted that was a concern also raised by Thurrock Council (TC) and is addressed in more detail below. **[Post-hearing note: the Applicant would note that the overall control framework allows for consultation on the next iteration of the management plans, and this would be independently determined by the Secretary of State.]**
- 3.1.10 BF outlined the extent to which the Polperro site (receptor CN30) and the traveller site (receptor CN28) have been adequately assessed in the Environmental Statement (ES) Chapter 12: Noise and Vibration [APP-150], taking account of reasonable worst-case impacts.
- 3.1.11 BF noted that the construction noise impacts on CN30 was assessed to have significant effects during night-time, however, the application of controls and mitigation measures would reduce the impact to below significant (See Table 12.31 of [APP-150]). The Traveller Site, CN28 was assessed as having significant construction noise impacts at day and night time, however

the application of control measures (detailed in Table 12.31 of [\[APP-150\]](#)) reduces the impact to below significant.

- 3.1.12 BF noted that the other environmental impact considered was on landscape. At Polperro it was assessed [\[REP5-062\]](#) (ES addendum page 8) that there would be significant landscape effects during construction. BF submitted that the Applicant has sought to mitigate this impact through a number of REAC controls, including the positioning of earth bunding and visual screening. Furthermore, the Applicant seeks to improve the effects on the Polperro site through the detailed design process. BF used NV004 as an example, which requires a section 61 Agreement with GBC be obtained to ensure an approach to construction and control in that area which is bespoke to Polperro during construction.
- 3.1.13 IT responded to GBC's concern on a purported lack of engagement with the Traveller Site occupants, that the Applicant has (in addition to sending out letters) sent out a mobile van to traveller sites including the one of concern, to explain the proposal in more detail.
- 3.1.14 IT, in response to TC's concern on the level of detail of the proposed outline plans and subsequent requests for terms of references, noted that the Applicant's position is as expounded by JCH (at paragraph 3.1.9 above), furthermore terms of reference have now been provided as Deadline 5 in Appendix C of the Framework Construction Travel Plan [\[REP5-054\]](#). IT responded to concerns of a lack of adherence to the waste hierarchy, that MW007 requires adherence to the waste hierarchy.
- 3.1.15 MH was introduced by IT to address the concerns raised on the extent to which the assumptions of materials was robust in the Applicant's assessment.
- 3.1.16 MH outlined how the Applicant quantified the materials to be used, with a focus on excavated materials. As set out at Table 7.1 of the outline Materials Handling Plan [\[REP5-050\]](#) a significant proportion of excavated material will be placed locally within the Order Limits to ensure approximately 95% of the excavated material is retained on site. MH directed the ExA to the Technical Note on Earthworks Quantification [\[REP2-076\]](#) which explains the earthworks quantities. Forecast waste quantities and key construction materials are set out in the oSWMP [\[APP-337\]](#) and ES Appendix 11.5: Waste Assessment Supporting Data [\[APP-439\]](#).
- 3.1.17 As a result of retaining this material on site this avoids imposing a burden of extra HGVs on the road network to transport the material away. Equally this means that the Project does not generate additional movements on the River Thames to transport excavated materials away. MH noted that the outline Traffic Management Plan for Construction [\[REP5-056\]](#), provides appropriate control and monitoring of those traffic movements.
- 3.1.18 MH in response to queries on how the materials will be sourced and transported to and from the site, submitted that the Applicant presently does not know the exact location of where material will be sourced. Rather, the Applicant has looked at who and where the local suppliers in the area are and then gained an understanding of the connectivity to and from the compounds. In turn, the outline Materials Handling Plan [\[REP5-050\]](#) based on that understanding has sought to achieve the promotion of a multimodal transport approach by setting

out key principles as supplemented by the principles of the Code of Construction Practice [\[REP5-048\]](#).

- 3.1.19 By way of example, MH referred to how Code of Construction Practice seeks to minimise the use of primary materials, promote responsible sourcing, design for material optimisation and undertake demolition orders to feed into the overall waste assessment.
- 3.1.20 IT responded to the query raised by the Port of London Authority (PLA) as to an enhanced use of the river. IT noted the Applicant has responded to this point previously in writing following Issue Specific Hearing Five [\[REP4-181\]](#). Overall, the Applicant considers the commitments already secured are appropriate. IT submitted that the Applicant is concerned about a further commitment having the potential effect of inducing further traffic onto roads given the proximity of jetty facilities to the construction sites, pertinently to the south of the river where there is no direct access to a jetty or wharf. IT welcomed the PLA's recognition of the progress that has been made in terms of monitoring and reporting with a further meeting to be held on 20 October 2023. **[Post-hearing note: a positive meeting was held, and the Applicant is hopeful of further progress which will be reported in due course.]**
- 3.1.21 IT directed submissions to the concern raised by the Port of Tilbury London Limited (PoTLL) regarding the exceptions to baseline commitments. IT noted that there had been progress made to the derogation procedure as outlined in the updated outline Materials Handling Plan [\[REP5-050\]](#). Appendix B.3 and B.4 of the outline Materials Handling Plan detail the updated derogation process, which would require a Contractor to seek approval from the Applicant following consultation with other authorities.
- 3.1.22 Prior to the commencement of Agenda Item 4, JCH responded to a question raised by the ExA in relation to use of the river and facilities on the south side of the river. JCH noted that the Applicant had a meeting scheduled with the PLA on 20 October 2023 to explore the PLA's suggestions and further explain the Applicant's position on why it does not wish to seek a commitment to enhanced use of the river and facilities.
- 3.1.23 JCH submitted that the Applicant requires the Contractor to follow a multi-modal approach and to consider the best solution for each and every material in the round. JCH posited this meant considering a range of factors such as price, miles travelled, carbon and environmental factors. The requirement for consideration of these factors is governed by the outline Materials Handling Plan [\[REP5-050\]](#), specifically clause 1.3.11.
- 3.1.24 A further pertinent consideration was the desire to avoid restricting other businesses in an anticompetitive fashion. As an example, JCH referred to the sand and gravel pits to the south of the A2 in Kent; if the Applicant secured the use of a wharf on the river, the Applicant would be ruling out competition from other suppliers which would not need to (or could not) use the wharf, which the Applicant believes would be an inappropriate approach.

Item 3(a)(ii)

Item 3(a)(ii) The effect of noise, vibration and other disturbance on the local community

- 3.1.25 BF addressed the ExA on the impacts on noise, vibration, air quality, dust, lighting.
- 3.1.26 BF noted that the assessment was informed by the details included in the Project Description [APP-140] and Appendix 2.1 [AS-049] which provides supporting construction information and indicative layouts of the compounds.
- 3.1.27 BF noted that the Applicant has based the assessment on the sensitivities of the sites which the compounds sit within and a range of environmental factors: noise, which is the focus of the agenda item, as well as landscape, visual, air quality, dust and lighting. BF then referred to the controls which are included within the CoCP [REP5-048] and REAC items which, as a result of specific environmental factors such as noise, require bespoke controls in specific areas.
- 3.1.28 Speaking further to the REAC items, by way of example, BF noted the Applicant's landscape REAC items detail specific construction sites to indicate where bunding should be created to provide a visual screen for local communities, or removing higher pieces of plant further away from sensitive receptors. BF submitted the same principle applies in relation to the best practicable means component of the noise and vibration items, NV004 [REP5-048].
- 3.1.29 In light of that approach, BF submitted that the Applicant has assessed the sensitivity for specific local areas within the construction assessment for the compounds and the effects on local communities and has developed mitigation to appropriately mitigate those impacts.
- 3.1.30 AP then gave an overview of how construction impacts on local communities were assessed.
- 3.1.31 AP stated that the Community Impact Report [REP2-032 to REP2-038] provides a ward-based summary of the potential impacts of the Project on local communities. Topics covered include traffic and transport, access and recreation, socio-economics, noise and vibration, air quality, landscape and visual, biodiversity, health and wellbeing, cultural heritage, and cumulative effects.
- 3.1.32 Chapter 6 of the Community Impact Report covers impacts on communities in the immediate area. Each ward-based summary describes the construction activities within that particular ward, the predicted impacts for each topic and proposed mitigation.
- 3.1.33 Chapter 7 of the Community Impact Report covers impacts on communities in the wider area.
- 3.1.34 AP noted that the Health and Equalities Impact Assessment (HEqIA) [REP3-118] identifies a range of sensitive populations within particular communities, enabling the Applicant to provide a fine grain approach to assess community impacts. Table 3.4 of the HEqIA sets out a range of sensitive populations which have been identified and assessed, for example people living in close proximity to the construction compounds.

- 3.1.35 Impacts and mitigation measures relevant to each of the assessment topics covered in Chapter 7 of this HEqIA are summarised within each section accordingly – 7.8 Air Quality, 7.9 Noise and Vibration and 7.14 Light Pollution. The summary of that document is included in ES Chapter 13: Population and Human Health [[APP-151](#)].
- 3.1.36 MH addressed the ExA's query on how the compounds would be developed. The compounds would be based on the functional requirements to facilitate the Project works. MH used the M25 compound as an example, noting that the M25 compound's primary use is to support the underpass under the M25 as well as the mainline south. MH stated that as those works develop, the layout may change to suit construction methodology for the that specific purpose.
- 3.1.37 The commitments made within the CoCP [[REP5-048](#)] are dynamic and to be implemented for the duration of the compound, therefore securing mitigation required for the duration of the compound's lifetime.
- 3.1.38 IT then addressed the concerns raised by TC about noise insulation and temporary rehousing. IT pointed out that the Applicant has a noise insulation and temporary rehousing policy which enables assessment to be carried out prior to construction activity for qualifying properties. The affected properties would then be contacted again at the construction stage and if certain criteria are met they could qualify for noise insulation or temporary rehousing.
- 3.1.39 IT directed the Applicant's submissions to the issue raised regarding baseline noise. NV009 provides that during a construction phase, noise and vibration monitoring would be undertaken in consultation with relevant local planning authorities. IT then noted in direct response to the concern of GBC that NV015 provides actions in case of noise monitoring exceedance, and in the event that monitoring identifies that noise and vibration limits have been exceeded, the contracts shall at the earliest practicable opportunity, investigate to confirm that the Project's works are the source of exceedance. If the investigation confirms that the Project works are the source of the exceedance, a further review will be undertaken to minimise noise and agree additional or modified mitigation with the relevant local authorities, unless otherwise agreed with the Secretary of State.
- 3.1.40 Overall, IT submitted that the Applicant has provided adequate temporal control given that the Applicant is required immediately to identify further best practicable means which then have to be agreed with the environmental health officer for the relevant local planning authority or in the unlikely event agreement is not reached, by the Secretary of State.
- 3.1.41 IT noted that vibration monitoring at this stage is only in relation to piling activity. The Applicant would reassess the commitment and consider if a suitable amendment can be made to cover other activities. **[Post-hearing note: Two items in the REAC have been updated to address vibration from other sources (see Annex A.6)].**
- 3.1.42 IT then addressed the concerns raised by the ExA on Whitecroft Care Home. The Applicant has sought to engage with Whitecroft Care home having sent them four requests for a meeting before receiving a response. A meeting had been arranged for 23 October 2023 and the Applicant will continue to liaise with Whitecroft Care Home.

- 3.1.43 BF addressed the points raised in respect to how the Mott Family’s properties have been considered in the assessment. BF noted that the Applicant has identified Goshems Farm in ES Chapter 12: Noise and Vibration [APP-150] as receptor CN45 and concluded that post implementation of mitigation measures there is no significant effect. The Applicant also identified as a visual receptor VRS09R005, Goshams Farmhouse in the landscape and visual assessment [APP-145] as a slight adverse effect. Overall, the Applicant has identified and assessed the Mott Family’s properties.
- 3.1.44 IT acknowledged the submission of the London Borough of Havering, and confirmed that the Applicant welcomes their commitment to work with the Contractor to optimise the layout of the compounds which is a process which has already begun and will continue. The Applicant endorsed the London Borough of Havering’s view that the outline controls are sufficient at this stage.
- 3.1.45 In response to a query of the ExA on the potential changes to the layout of the compounds and subsequent evolution, IT noted that the assessment and mitigation is based on a reasonable worst-case scenario. Best practicable means, in terms of noise mitigation, is an ongoing action that would continue through and be adaptive and respond to the various stages of the construction compound’s life.
- 3.1.46 BF provided a clarification to the ExA on the diagrammatic sections of the compounds and whether the representations provided at [REP5-079] represented a worst-case scenario. BF stated that they are based on the reasonable worst case but are cognisant of the controls within the REAC already, such as the positioning of earth bunds and controls on the height of the compounds.
- 3.1.47 Post-hearing written submissions:** These are contained in Annex A and include:
- a. Section A.2 Hearing Action Point 4 National Highways Policy (Construction Impacts)
 - b. Section A.3 – Summary of approach to the assessment of noise, vibration and other disturbance on the local community
 - c. Section A.6 – response to IP questions on construction vibration
 - d. Section A.7 Responding to Mr Holland regarding the “gap” in the earth bunding near Mr Mott’s property to allow construction access
- 3.1.48 **Post-hearing notes:**
- a. IT for the Applicant outlined the process for how a resident could qualify and benefit from the Applicant’s internal noise insulation schemes and temporary rehousing policy at the hearing. Notwithstanding this, the Applicant has provided more information about these schemes at Annex A.2. IT noted that the Applicant’s noise insulation schemes have not been relied on as mitigation in terms of the impacts that are reported in the ES.

- b. A landscape and visual assessment of Polperro was included as an Errata in the ES Addendum submitted at Deadline 1 [\[REP1-181\]](#) on page 8.
- c. The Applicant has responded in writing to Mr Holland’s query on a “gap” in the earth bunding near Mr Mott’s property to provide access, at Annex A.7.

Item 3(a)(iii)

Item 3(a)(iii) Whether suitable regard has been given to the impact of the construction process and duration on traveller sites, noting the propensity for greater noise exposure on those sites

- 3.1.49 AP noted that Traveller sites potentially affected by the Project (including publicly managed and privately owned sites) are identified in paragraphs 13.4.6 and 13.4.18 of ES Chapter 13: Population and Human Health [\[APP-151\]](#) for the areas to the south and north of the River Thames respectively, including Gammonfields Way Travellers’ Site.
- 3.1.50 Gypsy and traveller communities are identified as a sensitive population of high relevance to the Project in Table 3.4 of the Health and Equalities Impact Assessment (HEqIA) [\[REP3-118\]](#) and are considered a protected characteristic under the Equality Act. AP submitted that the gypsy and traveller communities, together with communities living in close proximity to the route or construction activities are highlighted as sensitive populations for a number of assessment topics during construction, including noise and vibration; or housing / community impacts (due to the relocation of the Gammonfields Way Travellers’ Site specifically). Extensive engagement with Gammonfields Way has been undertaken and is summarised on page 19 of App B of HEqIA [\[APP-541\]](#). The Applicant has also visited all affected sites in the London Borough of Havering.
- 3.1.51 The impact of the construction process on traveller sites in relation to noise exposure has been set out in Section 7.9 of the HEqIA [\[REP3-118\]](#). Paragraphs 7.9.41 and 7.9.42 of the HEqIA note that a separate assessment of potential noise impacts has been undertaken for all travellers’ sites potentially affected by construction activities. This includes sites located off Rochester Road in Gravesham (View Point Place); a site located at the end of Lower Crescent, Linford; Gammonfields Way Travellers’ Site; and sites within Havering including Fair oak Showman’s Quarters, Railway Sidings and Tyas Stud Farm.
- 3.1.52 BF addressed the noise and vibration assessment undertaken in relation to traveller sites. BF noted that there were 10 sites identified across the Project’s route. Of the sites which were identified to be within the distance where an effect would be realised (Viewpoint Place, Gravesham, Lower Crescent, Linford, Gammonfields Way, Fair oak Showman’s Quarter, the Railway Sidings in Havering and Tyas Stud Farm) none were assessed to be subjected to a significant effect.
- 3.1.53 BF noted that a table in the response provided to [\[REP2-064\]](#) was inadvertently omitted on page 23 and would be submitted at the next deadline. BF noted that the text explains that during construction and subject to best practicable means, construction-related noise impacts at the Gammonfields Way Travellers’ Site will be below the significant observed adverse effect level (SOAEL).

Furthermore, as noted by BF the new site for the relocated Gammonfields Way site would also be below the SOAEL.

- 3.1.54 In response to the concerns raised by TC regarding construction impacts on Gammonfields site, IT pointed out that as shown on the table to be submitted in writing, the noise assessment demonstrates that the new and relocated assessment subject to best practicable means will be below SOAEL. IT acknowledged GBC's request for further reassurance and will provide the same information that was produced in the missing table, in respect of their sites. The Applicant will also provide a note summarising the robustness of assuming a 10dB reduction.
- 3.1.55 BF addressed the ExA on monitoring any further remediation. BF noted that within the suite of REAC items the Applicant makes provision for monitoring as well as a section 61 which would be agreed with the local authority. BF considered that within that section 61 the Applicant expects there to be controls and triggers should exceedance occur above agreed levels. BF stated an important component is how the Applicant liaises with the community. BF noted that the CoCP [REP5-048] provides detail of the Community Liaison Group to ensure that the Applicant is engaged with affected communities. IT confirmed that REAC Item NV009 requires that noise monitoring is to be done in consultation with the local authority so any issues can be raised at that juncture.
- 3.1.56 **Post-hearing written submissions:** These are within the Annexes and include:
- a. Section A.4 Hearing Action Point 5 Noise Survey Information
 - b. Section B.2 Section B.2 Response to Action Point 7 – Practical Delivery Review of Development Management of Gammon Field Traveller's Site
 - c. Annex D Travellers sites noise assessment, provides the details of the noise assessment on 10 travellers sites which addresses the ExA action 5 – Noise Survey Information.

Item 3(a)(iv)

Item 3(a)(iv) The effect of the proposed onsite accommodation and related management of potential socio-economic impacts

- 3.1.57 IT noted that the general strategy is to understand and manage the use of the local accommodation market by the Project workforce while making sure the Project can be delivered efficiently, safely and on time by attracting a high-quality workforce.
- 3.1.58 The Applicant aims to create a balanced approach through:
- a. Promoting local employment.
 - b. Making provision for up to 480 onsite single bedrooms at the northern tunnel entrance compound, which includes hyperbaric beds in relevant construction phases.

- c. Making use of existing accommodation in the local area to house Project workers temporarily in order to provide economic benefits while being mindful of the statutory duties of local authorities relating to housing need.
 - d. Identifying, and where necessary, reducing potential strain on the accommodation market and local communities.
 - e. Incorporating sustainable transport opportunities.
 - f. Providing appropriate monitoring, review, and measures where needed.
- 3.1.59 SJC was introduced to discuss the proposed onsite accommodation. SJC stated the proposals are to reduce the demand for worker accommodation and then to manage proactively.
- 3.1.60 The Worker Accommodation Report (WAR) [APP-551] shows that while the Project would bring workers into the area that would require accommodation, the market can absorb these workers. The Project recognises that there is a greater impact in those areas closest to the northern and southern tunnel entrance compounds and that this would impact the Private Rented Sector the most. As a result, the Applicant has considered appropriate measures described below.
- 3.1.61 SJC noted the Applicant seeks provision for up to 480 onsite single bedrooms (page 12 of the WAR [APP-551]) at the northern tunnel entrance compound, which includes (60) hyperbaric beds in relevant construction phases. This is in order to provide suitable accommodation for an element of the workforce that is very likely to be non-local due to very specific tunnelling skillsets.
- 3.1.62 The Project has assumed that there would be provision for up to 480 workers to be accommodated onsite and that they would be part of the 65% of those requiring accommodation in the area. SJC noted that arriving at this figure is a matter of professional judgement, primarily targeted at nightshift workers who would amount to about 540 at the peak of activity, taking account that 35% of these workers would be from the travel to work area, the required number of bed spaces would be 353 and that the 480 bedspaces are in excess of that figure.
- 3.1.63 IT addressed TC's request for further detail. The Applicant met with TC on 23 September to provide the information requested. TC subsequently provided comments which were further discussed. As submitted by IT these discussions resulted in various proposed changes which will be submitted at Deadline six. The Applicant considers these changes respond to the concerns raised by TC. **[Post-hearing note: the Applicant and TC remain in dialogue on this point with a meeting scheduled for the 2 November. A revised note will be submitted at Deadline 7 capturing any progress.]**
- 3.1.64 IT in response to the concerns of GBC noted that the framework travel plan includes a number of controls to monitor and review impacts on the housing markets as further detailed by SJC. Broadly, IT noted that this included the following measures:
- a. Accommodation helpdesk operated by the Applicant to assist workers find accommodation

- b. Accommodation database that Contractors will be required to create and maintain to monitor the accommodation being used by workers
- c. Accommodation working group, which will include representatives from the Applicant, Contractors and local authorities and be involved in regular meetings. The working group will look into the future housing market and identify any changes in the housing market. The response to reported changes in demand may involve a change to the order in which works are undertaken. The Terms of Reference for the accommodation working group has been included in the deadline five version of the Framework Construction Travel Plan [[REP5-054](#)] at Appendix D.

- 3.1.65 IT also submitted that the proposals for onsite accommodation provide the potential for collaboration opportunities. Contractors will be required to report on the details of the reasonable endeavours taken to coordinate and jointly manage construction workforce impacts with the developers of other projects.
- 3.1.66 IT further noted that the Section 6.7 of the WAR [[APP-551](#)] has concluded on the basis of sensitivity testing that even if all projects are constructed at once there would be no adverse impact on the local housing market.
- 3.1.67 In response to the concerns raised by the Emergency Services Group, IT noted that the Applicant invited them to submit an impact report and justification for further funding. This report has been received and submitted to the Department for Transport for consideration. The Applicant will respond at Deadline 7 in writing to the ExA's query on potential timescales and implications of this report.
- 3.1.68 SJC addressed the ExA's concern on the socio-economic impacts of bringing a large workforce into the area.
- 3.1.69 SJC noted that the Applicant has assessed the socioeconomic impact of worker accommodation at page 160, ES Chapter 13: Population and Human Health [[APP-151](#)]. SJC acknowledged that the presence of a workforce can have effects on the local community and related anxiety on local housing pressures, hence the focus on the WAR in this response.
- 3.1.70 In relation to healthcare provision, REAC Item PH002 ensures collaborative working with the integrated care partnership to develop and ensure that measures are taken on arrangement of services to meet the mental and physical health requirements of the construction workforce.
- 3.1.71 SJC then directed attention to worker behaviour. SJC noted that per Section 2.5 of the REAC within the CoCP [[REP5-048](#)], the Applicant has signed up to the Considerate Constructors Scheme measures to promote good practice not only on construction sites. Workers would be signed up to the Contractor's code of conduct and therefore worker behaviour would be a matter of worker discipline. In response to a query of the ExA on the reach of the considerate construction measures, SJC clarified that it was related specifically to worker conduct. While workers living in the general area would be not be subject to those measures outside of work hours, those occupying onsite accommodation would effectively be in work accommodation. **[Post-hearing note: the Applicant has included detail on this point in Annex A.8 of this note].**

- 3.1.72 In response to a concern raised by PoTLL, SJC clarified that workers operating within the port would be subject to the code of conduct for the Port. With respect to the queries raised on emergency services, SJC emphasised the context in which workers would be situated. Unlike Sizewell C, Hinkley Point C or Horizon which are in rural locations distant from public transport, the Project is proximate to public transport, close to recreational opportunities and will be drawing on an area where workers could be living. Comparisons to other projects which are located in rural locations are therefore of little utility.
- 3.1.73 IT, in response to the concern of PoTLL concerning vehicle movements by workers, noted that the Framework Construction Travel Plan includes a proposal for a shuttle bus to run from public transport hubs to the compounds in order to reduce impacts on the local highway network. For further details see paragraphs 5.4.28 and 6.4.4 of the Framework Construction Travel Plan [\[REP5-054\]](#).
- 3.1.74 **Post-hearing written submissions:**
- a. Section A.5 Hearing Action Point 6 Onsite Worker Accommodation
 - b. Section A.8 Confirmation if the construction code of conduct applies to workers offsite and out of working hours
 - c. Section A.9 Anticipated timescales and process to consider Essex Police's/ESSG report and application for increased funding.
 - d. Section A.10 Examples of other projects that have successfully used an Accommodation Desk.

3.2 Item 3(b) Restoration

Item 3(b)(i)

Item 3(b)(i) The intentions in respect of the construction compound sites post construction and the plan for restoration.

- 3.2.1 AT noted that there would be different intentions for the compound sites depending on whether there is a permanent requirement for a construction compound after the completion of the Project.
- 3.2.2 AT illustrated examples of where compounds would be retained on a permanent basis. CA3 is intended to be retained for landscape integration and the road itself this is shown in Figure 2.4: Environmental Masterplan [\[REP4-124, REP3-098, REP2-018, APP-162, REP4-127, REP4-129, REP2-024 to REP2-031\]](#). In addition the Applicant has developed the outline Landscape and Ecology Management Plan (LEMP) [\[REP4-140\]](#), which outlines the proposed management of the landscape and ecological elements of the Project following their completion. The outline LEMP is secured via requirement (5) in Schedule 2 to the Development Consent Order (DCO) [\[REP5-024\]](#). CA2 carpark at Thong Lane is proposed to be repurposed to provide car parking for recreational function as shown in Figure 2.4: Environmental Masterplan.
- 3.2.3 The intent for temporary use is reflected in ES Chapter 2: Project Description [\[APP-140\]](#), paragraph 2.7.34. *“Once the temporary working areas are no longer*

required, they would be demobilised and removed, and the area reinstated using the stockpiled topsoil. Grass seeding would be carried out in accordance with the landscape design and/or landowner agreement if the land is being returned.”

- 3.2.4 AT referred to article 35(5) which governs the restoration of temporary compounds. This is supplemented by the following REAC items ensuring the preservation of the reinstatement condition of land that was temporarily acquired during construction. These commitments are:
- a. GS002: Prior to any construction compound area being prepared, a pre-condition survey would be undertaken to determine the current land quality across the compound area. A repeat survey would be done after the compounds have been removed to confirm that the area has been restored in line with article 35 of the draft DCO.
 - b. GS014: Following soil reinstatement there would be a five-year aftercare period. The Contractors would prepare and present to National Highways for acceptance a schedule of aftercare monitoring, maintenance and correction. This would include soil testing, appropriate to the target specification (e.g. land grade where restoration is to agricultural use or specific characteristics where restoration is to support habitat creation or re-provision). Implementation of the aftercare monitoring, maintenance and correction will be overseen by an Environmental Clerk of Works.
- 3.2.5 AT noted article 35(5)(g) of the draft Order provides that although the undertaker must remove all temporary works to restore the land to the reasonable satisfaction of the owners of the land, the undertaker is not required to remove any temporary works where agreed to with the owners of the land. AT noted article 35(5)(g) was intended for the circumstance where a landowner obtains planning permission for an activity other than agricultural use, in which instance the Order would not require restoration which would contradict the owner’s aspirations for the land. AT emphasised that in terms of the handover, the Applicant would need to be satisfied that any alternative use pursuant to article 35(5)(g) was lawful.
- 3.2.6 With respect to the aspirations of Kent County Council (KCC) for the car park to have a commercial element provided for, AT noted that a response will be given in writing as it forms one of the ExA’s second round of Written Questions at 11.4. With respect to the specific question as to whether the car park forms mitigation or compensation, AT noted that the Applicant is in agreement with KCC that it would form enhancement at the request of KCC. AT submitted that the Proposal could be reconsidered if the terms are not agreed to.
- 3.2.7 With respect to the concerns raised by TC on REAC Items GS02 and GS14, AT submitted they are strong and clear commitments. GS14’s five-year aftercare period deals expressly with the concern raised by TC. In relation to Mr Holland’s query, this deals with temporary possession rather than subsoil, therefore article 35 does not impact upon rights of a permanent character.
- 3.2.8 Furthermore, AT noted that article 35(5)(g) is a precedented provision as exemplified by the A428 Black Cat to Caxton Gibbet Order.

3.2.9 **Post-hearing written submissions:** These are contained within Annex A and include:

- a. Section A.2 Hearing Action Point 4 National Highways Policy (Construction Impacts)
- b. Section A.3 – Summary of approach to the assessment of noise, vibration and other disturbance on the local community
- c. Section A.4 Hearing Action Point 5 Noise Survey Information
- d. Section A.5 Hearing Action Point 6 Onsite Worker Accommodation
- e. Section A.6 – response to IP questions on construction vibration
- f. Section A.7 Responding to Mr Holland regarding the “gap” in the earth bunding near Mr Mott’s property to allow construction access
- g. Section A.8 Confirmation if the construction code of conduct applies to workers offsite and out of working hours
- h. Section A.9 Anticipated timescales and process to consider Essex Police’s/ESSG report and application for increased funding.
- i. Section A.10 Examples of other projects that have successfully used an Accommodation Desk.

4 ExA Questions on: Construction Impacts

4.1 Item 4(a) Gammonfields Traveller Site

Item 4(a)(i) and (ii)

Item 4(a)(i) What progress has been made on the relocation of the Gammonfields Traveller Site?

Item 4(a)(ii) Is the applicant intending to submit a planning application to the local planning authority or is it relying upon the DCO for the change of use approval of the land for the new site?

- 4.1.1 The Applicant attended to Agenda Item 4, noting the ExA's request for the Applicant to set out its position in relation to both Agenda Item 4(a)(i) and 4(a)(ii) together.
- 4.1.2 AT outlined the progress made thus far on the relocation of the Gammonfields Travellers' Site. AT noted the relocation is governed by the following:
- a. Requirement 13 of Schedule 2
 - b. The Design Principles [\[REP4-146\]](#), specifically S-11.12, which has a number of specifications for which the provision of relocation needs to apply.
 - c. Following a request from TC, a Stakeholder Actions and Commitments Register (SACR) [\[REP5-060\]](#) commitment has been included – SACR-008 – which requires the Applicant not to carry out Work Nos.7E, 7Z and MU54 in or over any part of the existing travellers' site until the replacement Gammon Field Travellers' Site is laid out and capable of occupation by the residents of the existing travellers' site; and TC agrees in writing.
- 4.1.3 AT noted that TC are happy with the location and design of the provision, furthermore, per page 40 of Comments on Applicant's submissions at Deadlines 1 and 2 [\[REP3-210\]](#), TC have confirmed they do not object to requirement 13.
- 4.1.4 AT addressed Agenda item 4(a)(ii) and outlined the Applicant's legal position. The Applicant is not proposing to make a separate Town and Country Planning Act 1990 (TCPA) application for the replacement travellers' site; the Applicant is seeking powers within the draft Order [\[REP5-024\]](#) to secure the replacement of the traveller site through Work No. 7R.
- 4.1.5 The detailed design of the travellers' site is also secured by draft DCO [\[REP5-024\]](#) Schedule 2 Requirement 13, which requires the details of its layout and design to be approved in writing by the local planning authority. It also requires that the design must be in accordance with Design Principles [\[REP4-146\]](#) clause no. S11.12.

- 4.1.6 The Applicant responded to why the relocated site encompasses “related housing development” at [\[AS-089\]](#). AT submitted that the term is distinct from the planning regime and is to be given its ordinary meaning. AT posited the term does not necessarily have the narrow meaning of ‘dwelling house’, that is in the TCPA, furthermore the guidance refers to ‘dwellings’, not ‘dwelling houses’. AT noted that the ordinary Oxford English Dictionary definition of a dwelling is ‘a house, flat or other place of residence’. Therefore, is not constrained to bricks and mortar.
- 4.1.7 AT directed his submissions to Appendix C of the REAC and, the Design Principles [\[REP4-146\]](#) clause S-11.12 which states: The residents of Gammonfield Travellers’ Site shall be relocated to a new purpose-built site, located west of and adjacent to the current site.
- 4.1.8 Clause S-11.12 requires the relocation to be in accordance with the indicative plan in Appendix C. The relocated site includes a chalet/bungalow/static caravan and amenity blocks which are buildings in an ordinary sense, as well as a touring caravan. AT posited that the works were substantial permanent works. AT noted that the position just espoused was made without prejudice to AT’s broader submission, that the related housing development does not limit it to the definitions in the Planning Act 2008.
- 4.1.9 The Applicant has had detailed discussions with the traveller community and the local authority in the development of the proposals for the replacement of the traveller site. Details for the discussions have been shared with Thurrock Council and in principle the issues relating to the replacement of the traveller site are agreed and have been since 2022 and therefore there has been little need for further engagement with the traveller community or the council until such time as the DCO is granted. At that point further discussions would take place under the delivery of the works as required by Requirement 13 of the DCO.
- 4.1.10 In response to the concerns of the ExA regarding the lawfulness of the relocated traveller site in planning terms, AT noted two points. Firstly, that article 56(3) of the Order allows planning permissions to be pursued for changes to this site, therefore an amendment to the DCO would not be required. Secondly, TC own and manage the current site and would own and manage the future site. Therefore, in terms of operational management that would be within TC’s control. [\[REP3-210\]](#) confirms TC’s position that no conditions were required to be imposed.
- 4.1.11 **Post-hearing written submissions:** These are contained within Annex B and include:
- a. Section B.2 Response to Action Point 7 – Practical Delivery Review of Development Management of Gammon Field Traveller’s Site
 - b. Section B.3 How 10db reduction will be achieved for the traveller site
 - c. Section D Traveller sites noise assessment

4.2 Item 4(b) Effect on visitor attractions

Item 4(b)(i)

Item 4(b)(i) Whether the scale of the potential lost revenue to visitor attractions, such as Shorne Country Park, Thames Chase Forest Centre, Cascades Leisure Centre, etc, as well as potential lost revenue to businesses has been sufficiently represented in the Applicant's submission.

- 4.2.1 AT responded to the concerns raised by KCC on Shorne Woods Country Park by outlining five key points:
- a. The compensation code not only applies to the value of the land but also to injurious affection during the course of the Project.
 - b. Within the compensation code is a reference to section 52 of the Land Compensation Act 1973 which expressly provides for advance payment of compensation from the date of either notice of entry or general vesting declaration. Advance payments can be requested and paid out well in advance of completion of the Project.
 - c. Section 52 advance payments can be made at any time following the dates mentioned above, during the course of the Project and on a multiple basis; there is no limit on the amount of times an advance payment can be made.
 - d. There has been extensive dialogue between KCC and the Applicant with respect to the use of advanced payment legislation, including seeking baseline financial data to provide a rolling benchmark from which the advance payment can be determined.
 - e. AT noted this cannot be a unilateral process since it requires provision of estimates to allow for payment from the public purse. The process is bilateral and the Applicant will continue to discuss the best way to provide a mechanism outlining how the section 52 process works and is governed.
- 4.2.2 SC was then introduced to build on in more detail the points outlined by AT above. SC noted that the Applicant is in ongoing discussions to agree to baseline figures and how compensation figures can be evidenced for Shorne Woods. SC submitted that the advantage of the advance payment scheme is it can be advanced by other parties and not solely the Applicant. SC explained how under the legislation a party may apply for advance payment at any time, there are then statutory timeframes for responding to and making payments. SC noted however that the Applicant is content to agree on a case-by-case basis with individual claimants on how the process works in practice.

- 4.2.3 SC explained how the Applicant would expect evidence-based information for the level of compensation payable, however, the intent of the advance payment process is an assessment at a particular point in time to enable monies to be available at the time it is needed to offset ongoing impacts with a final claim being settled at the end of the Project. SC reiterated that the Applicant will continue discussions with KCC around how that process works and formulate protocol and an agreement on that basis.
- 4.2.4 SC clarified for the ExA that the Applicant does not dispute there is a potential for harm on revenue. SC noted this harm will need to be evidenced and this invokes a priority for obtaining a baseline. SC noted that assumptions on loss in light of future aspirations are difficult to make; while certain assumptions can be made on the behaviour of the general public, SC emphasised that the basis for compensation is reimbursing actual loss. Notwithstanding that however, the Applicant can undertake work to understand the potential parameters and form an agreement with KCC to outline the process to be worked through.
- 4.2.5 SC clarified for the ExA that this agreement is presently under negotiation in the form of a section 106 agreement, although AT noted that a section 106 agreement is not the only potential vehicle. AT noted that if the section 106 agreement route is chosen and there has not been an agreement reached by Deadline 7, then the Applicant would provide a holding position explaining progress made with an aim to resolve outstanding matters by Deadline 8.
- 4.2.6 AT then responded to the concerns of the London Borough of Havering with respect to the closure of Ockendon Road and subsequent impacts on the Crematorium. AT noted that the closure of Ockendon Road was reduced from 19 months to 10 months as reflected by Stakeholder Actions and Commitments Register Item SACR-007 [\[REP5-060\]](#). AT clarified that the crematorium is unlikely to fall within the scope of the compensation code.
- 4.2.7 However, the Applicant has sought to further mitigate impacts on the crematorium through the outline traffic management forum, and is presently in discussions with the London Borough of Havering in relation to the diverted route. AT submitted that the crematorium can remain open, rather it is only one route that will not be available for that period. AT concluded his submission on the issue by noting that the outline Traffic Management Plan for Construction oTMPfC [\[REP5-056\]](#) includes a specific provision in relation to crematoria about access at Table 2.3.
- 4.2.8 AT outlined the Applicant's position in relation to the Cascades Leisure Centre as outlined at CAH3. AT noted that oTMPfC [\[REP5-056\]](#) paragraph 4.5.8 which states that '*where traffic signals or similar would be required to facilitate construction movements, such as access to compounds and construction vehicle crossing points, [where signals are proposed] they would be locally controlled to ensure that the [Local Road Network] has priority*'. While the Applicant acknowledges the concern of GBC and will consider it further, at present the Applicant submits that paragraph 4.5.8 is an appropriate measure of control.

- 4.2.9 In relation to Thames Chase Forest Centre, AT briefly noted that assessments in relation to all recreational, visitor attractions and other business listed in the agenda have been undertaken and outlined at ES Chapter 13: Population and Human Health [[APP-151](#)].
- 4.2.10 **Post-hearing written submissions:** These are contained within Annex B and include:
- a. Section B.3 – Hearing Action Point 11 LBH: Upminster Cemetery and South Essex Crematorium
 - b. Section B.5 – Gravesham Borough Council suggestion regarding the crossing point for construction traffic with the potential impact to Cascades.

5 ExA Questions on: Operational Impacts

5.1 Item 5(a) Noise

Item 5(a)(i)-(iii)

Item 5(a)(i) Whether the assessment of operational noise impacts is adequate; and

Item 5(a)(ii) Whether the approach on mitigation is appropriate; and

Item 5(a)(iii) Whether there would be adequate controls in respect of future maintenance works.

- 5.1.1 As directed by the ExA, AT responded to Agenda Item 5 as a whole with a specific focus on maintenance issues.
- 5.1.2 In summary, AT noted the scope and obligations of the Applicant's operating licence to maintain the network. More specifically, REAC item NV013 at [\[REP5-048\]](#) secures the performance requirements for any replacement surfaces. The commitment was updated at Deadline 5 to secure that the replacement road surfacing on the strategic road network will have no worse noise emission performance than that laid for the Project's opening. The REAC is secured as part of the CoCP by Requirement 4 of Schedule 2 to the draft DCO [\[REP5-024\]](#).
- 5.1.3 The commitment discussed above will be included in the Handover Environmental Management Plan (EMP3). By the end of the construction, commissioning and handover stage of any part of the Project, the Contractors will have developed the EMP3. EMP3 will detail maintenance and monitoring activities throughout the operational phase having regard for the specific mitigation measures identified within the REAC as well as operating procedures of National Highways, the local authority and local highway authority including commitments outlined above. This is set out in Section 6.13 of the CoCP. AT further noted that the EMP will be required to comply with the Applicant's latest standard, Design Manual for Roads and Bridges (DMRB) LA 120 Environmental Management Plans (Highways England, 2020a).
- 5.1.4 In relation to Thurrock Council's (TC's) issue regarding the absence of noise assessment for the relocated Gammonfields Way travellers' site in the operational stage, that information formed part of a table erroneously omitted from the Applicant's Local Impact Report response and would be provided to TC at Deadline six **[Post-hearing note: this can be found in Annex D of this note]**.
- 5.1.5 BF responded to the points raised on requests for further noise barriers. BF noted that the Applicant had met with TC on 16 October 2023 which provided useful clarity on the locations where additional noise barriers are sought. BF noted that noise barriers at the three locations identified by TC near East Tilbury were not considered appropriate.
- 5.1.6 BF initially noted that various options at the three locations were considered by the Applicant but given the low cost-benefit value a noise barrier would provide for those sites, the options were withdrawn.

- 5.1.7 BF noted that from a landscape perspective, the Applicant is seeking to avoid drawing the eye to the Project. BF explained that given the Applicant proposes a false cutting in that location, an additional barrier on top of that false cutting would result in a detrimental impact for all three locations. During consultation the Applicant identified that the East Tilbury conservation area would be impacted were the same visual impact to be presented and the eye drawn to the height of the false cutting.
- 5.1.8 The Applicant welcomes further engagement with TC on the three locations, but considers it necessary to discuss impacts in the round rather than specifically on noise impacts.
- 5.1.9 AT then clarified for the ExA that REAC commitment NV018 provides for the way in which the Noise Insulation Regulations 1975 assessment is undertaken, noting it will be undertaken within the first year of construction. AT then introduced Richard Staite (RS), noise specialist for the Applicant. RS noted that the final calculations for the Noise Insulation Regulations assessment will be undertaken with the final scheme design, post detailed design and subject to any updates of the traffic model and proposed mitigation.
- 5.1.10 BF then outlined the Applicant's position regarding Brook Farm Cottages. BF noted that Brook Farm Cottages is a very particular location where there are two cottages right beside the alignment. The Applicant has extended an offer to acquire the cottages but that has not progressed (the Applicant committed to confirm the nature of the offer and progress made, in writing at Deadline 6). The cottages would be able to apply for noise insulation noting that proposed noise barriers are proximate to the site.
- 5.1.11 AT in response to the concern raised by the owners of Franks Farm noted that there is predicted to be a beneficial effect in operation between the do minimum and do something scenario in the range of 3 – 5dB.
- 5.1.12 AT concluded his submissions by providing the Applicant's overall position in terms of adequacy of the assessment of operational noise impacts. The Applicant considers the measures are adequate, noting that all the methodologies in the scoping report and scoping opinion have been followed. The proposed mitigation measures are in accordance with DMRB LA 111 Noise and Vibration (Highways England, 2020b) and the Applicant is not aware of roads assessed using other guidance. The Applicant's detailed explanation for considering mitigation is outlined at ES Appendix 12.10: Road Traffic Noise Mitigation and Cost Benefit Analysis [[APP-450](#)].
- 5.1.13 AT noted that of 94,707 receptors that have been assessed, 1.5% have significant adverse effects and the other 98.5% have either no significant effects or would accrue a benefit. The approach to mitigation is set out in ES Chapter 12: Noise and Vibration [[APP-150](#)] and is informed by the National Policy Statement on National Networks (Department for Transport, 2014) paragraph 5.195 and in accordance with DMRB LA 111 guidance. AT directed attention to Table E1.3 and the various securing mechanisms for mitigation, REAC Items NV11, 13, 14, 18 and 19. As outlined at Appendix 12.10 [[APP-450](#)] there are 19 proposed barrier locations with 57 locations having been considered.

- 5.1.14 IT concluded the submissions for the Applicant by noting that the scope of the forthcoming Whitecroft Care Home meeting was limited by the representative of the Care Home to technical noise and vibration matters. The Applicant seeks a meeting to discuss wider solutions to the Care Home’s aspirations and concerns, and invited the Examining Authority to support that.
- 5.1.15 **Post-hearing written submissions:** These are contained within Annex C and include:
- a. Section C.2 Hearing action point 13 – Brooks Farm Cottages
 - b. Section C.3 Franks Farm – Detailed response to Ms O’Leary’s submissions
 - c. Section C.3 Hearing action point 14 – Franks Farm

6 Next Steps and closing remarks

6.1.1 No submissions were made on this Agenda Item.

Annex A Post-hearing submissions on Agenda Item 3 Construction Compound Matters

A.1 Introduction

A.1.1 This section provides the post-hearing submissions for agenda item 3 Construction Compound Matters, from Issue Specific 8 (ISH) on 17 October 2023 for the A122 Lower Thames Crossing (the Project).

A.2 Hearing Action Point 4 – National Highways Policy (construction)

A.2.1 Hearing Action point 4 states “Provide details of existing National Highways processes on mitigating issues relating to construction works policies and how they are accessed by the public. Also please provide details on the certainty that such policies will be implemented and how any future policy changes could develop based on previous experience. How can policy be protected so that future loss of rights etc is no worse than the current position?”

A.2.2 **Noise Insulation Regulations** – The noise insulation regulations process is part of National Highways Project Control Framework and therefore audited within National Highways (by a central governance team) to ensure all projects have carried out the requirements. As the policy is based on the legislation, it is unlikely to change unless the legislation does. It is highly unlikely that the legislation will change to anything worse than the current position and National Highways must adhere to the legislation (relevant at the time of implementation). The National Highways guidance on noise insulation can be accessed here <https://nationalhighways.co.uk/media/doseci3z/your-property-and-compensation-or-mitigation-for-the-effects-of-our-road-proposals.pdf>.

A.2.3 Under the Noise Insulation Regulations 1975 ('the Regulations'), National Highways has an absolute duty to provide noise insulation or an equivalent grant to residents at qualifying properties who are subject to additional traffic noise at or above a specified level if the noise arises directly from the use of a new road or one where an additional carriageway has been constructed.

A.2.4 The Regulations also empower National Highways to provide noise insulation or make equivalent grants to residents at eligible properties who are affected by increased noise from (i) traffic using roads which have been altered other than by resurfacing, and (ii) construction works for new roads, new carriageways or altered highways.

A.2.5 Following the assessment of noise being reviewed in the pre-construction phase a map/list is produced identifying affected properties. A noise insulation

notice is then published in the local press identifying the properties (or confirming that no properties have been identified as meeting the regulations) and providing contact details for people who believe their property should have been considered.

A.2.6 Following publication of the notice the residents of the properties identified will be contacted by National Highways to discuss the provision of noise insulation or appropriate grant.

A.2.7 The notices are published before the start of construction (in relation to noise from construction) and again six months before the road improvement is opened to traffic (in relation to operational noise) to ensure the insulation is in place before works begin or before the road is opened to traffic.

A.2.8 **Temporary Rehousing** - S28 Of the Land Compensation Act 1973 provides a discretionary power for National Highways to pay the reasonable additional expenses of an occupier(s) of a residential property to move into suitable temporary alternative residential accommodation during a period(s) where the carrying out of the construction works affects the enjoyment of their dwelling.

A.2.9 To be eligible, the claimant must own or occupy a dwelling and the dwelling must be one which the predicted or actual noise exceeds the relevant statutory thresholds for:

- a. A period of 10 or more days working in any consecutive 15 days during construction; or
- b. A total of 40 days or more in any consecutive months during construction.

A.2.10 The eligible rooms to which this policy applies are defined in the Noise Insulation Regulations 1975.

A.2.11 Prior to the start of construction noise assessments will be carried out and predictions made of properties that may be affected. These properties will be contacted directly by National Highways to discuss and agree a way forward.

A.2.12 National Highways will then instruct suitable qualified and experienced surveyors to discuss a suitable claim for reimbursement of the temporary rehousing which will depend on the individual circumstances.

A.2.13 Anybody can approach National Highways at any time if they believe they are being adversely affected by the construction noise and each case will be dealt with quickly and efficiently to ensure full consideration is given of the impact in each individual circumstance.

A.3 Summary of approach to noise, vibration and other disturbance on the local community

- A.3.1 The Applicant has identified the range of construction activities likely to occur in a given location, for example a compound. In assessing the environmental impacts, the specialists have taken the reasonable worst case for a particular type of impact or receptor and that has formed the basis of the assessment reported in the ES. For example, the tallest structures have been taken for landscape and visual assessment and the noisiest activities closest to receptors have been taken for noise. In the case of noise, the approach is outlined in section 12.3.146 of ES Chapter 12 [\[APP-150\]](#).
- A.3.2 The construction noise and vibration assessment of impacts on sensitive receptors within the Project study area (presented in ES Figure 12.1 Construction Noise and Vibration Study Area [\[APP-309\]](#)) is set out within Section 12.6 of ES Chapter 12 Noise and Vibration [\[APP-150\]](#) and ES Appendix 12.4 Construction Noise and Vibration Assessment [\[REP1-169\]](#). The construction noise and vibration assessment concluded no significant impacts for construction noise with Best Practicable Means (BPM) implemented, including specification of specific BPM measures necessary for certain construction activities. There are however some predicted likely significant effects in relation to construction road traffic noise and construction vibration as summarised in Table 12.60 of ES Chapter 2 Noise and Vibration [\[APP-150\]](#).
- A.3.3 The Community Impact Report [\[REP2-032\]](#) provides a ward-based summary of the potential impacts of the Project on local communities. Topics covered include traffic and transport, access and recreation, socio-economics, noise and vibration, air quality, landscape and visual, biodiversity, health and wellbeing, cultural heritage and cumulative effects. Chapter 6 covers impacts on communities in the immediate area. Each ward-based summary describes the construction activities within that particular ward, the predicted impacts for each topic and proposed mitigation. Chapter 7 covers impacts on communities in the wider area.
- A.3.4 Chapter 4 of the HEqIA [\[REP3-118\]](#) provides a detailed description of the construction activities, timelines, compounds and summary of mitigation measures proposed to avoid, reduce or offset impacts on health, wellbeing and equality during the construction phase, particular focus on healthcare services and facilities. Impacts and mitigation measures relevant to each of the assessment topics covered in Chapter 7 of this HEqIA are summarised within each section accordingly – 7.8 Air Quality, 7.9 Noise and Vibration, 7.14 Light Pollution.
- A.3.5 Section 13.6 ES Chapter 13 Population and Human Health [\[APP-151\]](#) provides an assessment of the potential effects on private property and housing,

community land and assets, development land and businesses, agricultural land holdings, and walkers, cyclists and horse riders (WCH), as well as a summary of effects on human health from the HEqIA.

A.4 Hearing Action point 5 – Noise Survey Information

- A.4.1 ISH8 Hearing action point 5 requests that “the Applicant provide details to Thurrock Council and Gravesham Borough Council on construction noise issues on Traveller sites including the proposed site for relocation of the Gammon Field Traveller site”.
- A.4.2 Traveller sites potentially affected by the Project (including publicly managed and privately owned sites) are identified in paragraphs 13.4.6 and 13.4.18 of Chapter 13 Population and Human Health [APP-151] for the areas to the south and north of the River Thames respectively.
- A.4.3 Gypsy and traveller communities are identified as a sensitive population of high relevance to the Project in Table 3.4 of the Health and Equalities Impact Assessment [APP-539]. Gypsy and traveller communities, together with communities living in close proximity to the route or construction activities (such as residents of a number of travellers’ sites) are highlighted as sensitive populations for a number of assessment topics during construction, including noise and vibration; or housing / community impacts (due to the relocation of the Gammonfields Way travellers’ site specifically).
- A.4.4 The impact of the construction process on traveller sites in relation to noise exposure has been set out in Section 7.9 of the Health and Equalities Impact Assessment [APP-539]. Paragraphs 7.9.41 and 7.9.42 of the HEqIA note that a separate assessment of potential noise impacts has been undertaken for all travellers sites potentially affected by construction activities. This includes sites located off Rochester Road in Gravesham (View Point Place); a site located at the end of Lower Crescent, Linford; Gammonfields Way travellers site; and sites within Havering including Fair oak Showman’s Quarters, Railway Sidings and Tyas Stud Farm.
- A.4.5 Within the noise and vibration assessment presented within ES Chapter 12, In accordance with DMRB LA111 receptor sensitivity is assumed to be the same for all noise sensitive receptors considered within the assessment, with all receptors having the same values of LOAEL and SOAEL during construction as defined within DMRB LA111.
- A.4.6 The assessment and consideration of construction noise was undertaken to 140 sensitive receptors located along the scheme to represent the worst case and most exposed receptors to construction noise effects.

- A.4.7 As such whilst the information presented in Appendix 12.4 may not specifically reference each traveller's site as a receptor there will be a representative assessment location in close proximity to each of the identified travellers sites.
- A.4.8 In order to mitigate the potential for significant effects, best practice measures (BPM) and other construction phase mitigation would be implemented through the controls inherent within the REAC. Additionally, under the controls within the CoCP, when further details of the construction method and design are known, the Contractors would develop a Noise and Vibration Management Plan (REAC NV002) to control noise as far as reasonably possible under BPM. As such it has been concluded that construction noise would be suitably controlled to a level where it would not constitute a significant effect at any of the traveller's sites identified and assessed.
- A.4.9 To further address concerns raised by Thurrock Council and Gravesham Borough Council at ISH8, a note on noise impacts on travellers' sites is provided by the Applicant within Annex D to this note.

A.5 Hearing Action Point 6 – On-site Worker Accommodation

- A.5.1 ISH8 action point 6 requests that the Applicant provide details of the methodology as to how the on-site accommodation requirements were determined. The following provides that methodology.
- A.5.2 The 400 (plus 80 hyperbaric) beds the Applicant is seeking powers to provide at the North Tunnel Entrance Compound represent a solution that the Applicant believes is reasonable and which limits the amount of land used. Using the Applicant's professional judgement and knowledge of other major projects both NSIP and highways projects, it is suggested that the on-site accommodation is targeted primarily at night shift workers and these workers amount to 544 workers at the peak construction phase. Based on the Projects assumptions, with 35% being locally employed and therefore not requiring on-site accommodation, only 353 beds would be required to house all nightshift workers. With 480 beds provision has been made above and beyond the potential requirement of 353.

A.6 Response to IP questions on construction vibration

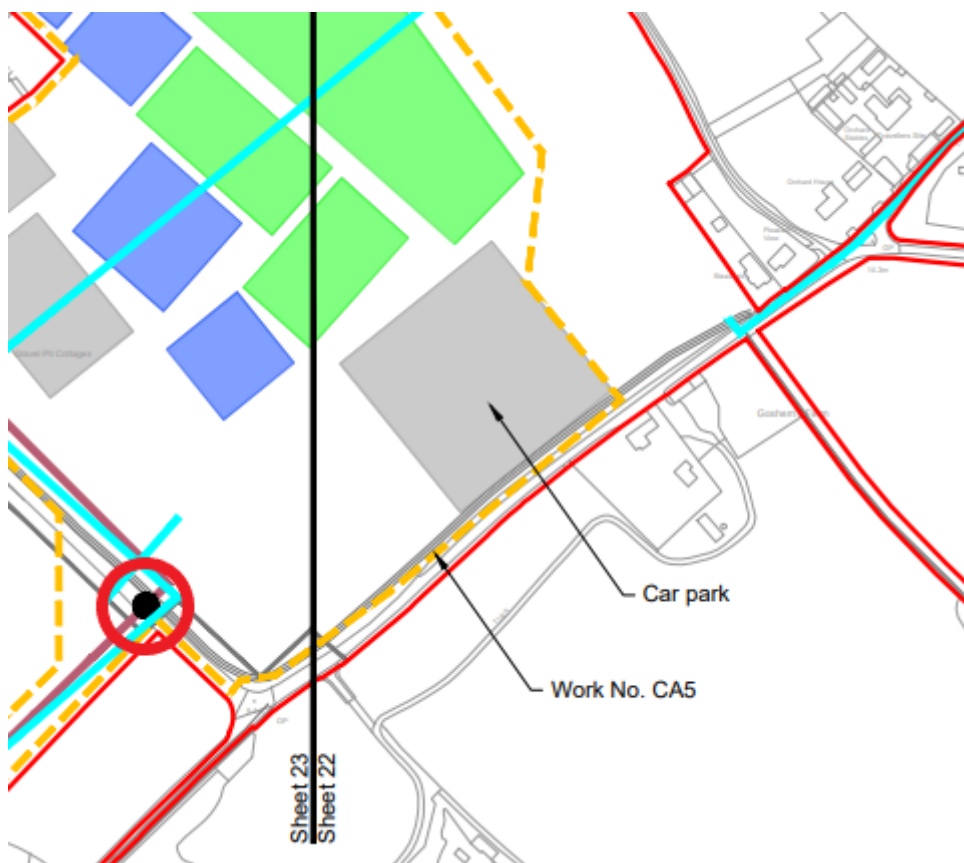
- A.6.1 In response to general construction vibration concerns raised by Thurrock council, Gravesham Borough Council and Whitecroft Care Home at ISH8, the Applicant has subsequently agreed to amend the wording to REAC commitment NV017 to cover controls from construction vibration activities and NV015 to cover actions in the event of a noise and vibration monitoring exceedance. This

update will be submitted at Deadline 6 as part of the REAC within the CoCP [\[REP5-048\]](#).

A.7 Responding to Holland regarding the “gap” in the earth bunding near Mr Mott’s property to allow construction access.

A.7.1 The issue highlighted by Mr Holland is that he considers there should be an access point which means that there would be a gap in any bund provided within the construction compound (shown below). Detail can be found in AS-049.

A.7.2 Sheet 22 of Deadline 5 Submission - 2.17 Temporary Works Plans Volume C (sheets 21 to 49) v5.0 (Clean) [\[REP5-022\]](#) and Plate 1.6 of Additional Submission - 6.3 Environmental Statement - Appendix 2.1 - Construction Supporting Information - (Clean) (Version 2) [\[AS-049\]](#) show the proposed access to the part of the northern tunnel entrance compound north of Station Road, as being to the west of Goshems Farm:



A.7.3 Visual screening measures (hoarding/ bunding) proposed in Section 6.7 and Register of Environmental Actions and Commitments measure LV015 within Deadline 5 Submission - 6.3 ES Appx 2.2 - Code of Construction Practice, First iteration of Environmental Management Plan v5.0 (Clean) [\[REP5-048\]](#) would

therefore not require a gap opposite Goshems Farm to allow access to the compound.

- A.7.4 The noise assessment assumes a worst-case scenario and does not rely on this temporary screen on the periphery of compounds. As such the screening feature at the Northern tunnel entrance compound along Station Road is not relied upon in the conclusions of the noise assessment for CN 45. Inclusion of this feature would only aid to reduce the predicted construction noise levels presented in Table 12.33 of Chapter 12 [APP-150] further as part of the BPM commitments.
- A.7.5 Consideration of the assessment for CN45 presented in Table 12.33 of Chapter 12 [APP-150] concludes evening and overnight impacts only at the receptor resulting from the construction works on the main alignment (works on the Tilbury Viaduct), and not from the low level activities in the Northern tunnel entrance compound, which contains predominantly office blocks, car parking and material storage as presented in Appendix 2.1 – Construction Supporting Information [AS-049] on Plate 1.6 Indicative layout for Northern tunnel entrance compound.

A.8 Confirmation if the construction code of conduct applies to workers offsite and out of working hours

- A.8.1 Regarding the concerns raised about the general behaviour of the workforce residing in onsite accommodation and during outside of working hours, the Applicant states the following:
- A.8.2 The Applicant has committed to the Considerate Constructors Scheme, a national scheme that promotes good practice on construction sites through its codes of considerate practice; these commit registered sites to be considerate and good neighbours, as well as being respectful, environmentally conscious, responsible and accountable, as outlined in Section 2.5 of the Code of Construction Practice [REP5-050]. These standards are binding for all members of the project workforce and applying not just during working hours but to any activity within the site's boundaries, including on site accommodation ensuring a consistent and respectful environment at all times.
- A.8.3 One key aspect of the CCS code of conduct to which the Applicant is committed is the principle of being a good neighbour. Given that the onsite accommodation is situated within the construction compound and the code of conduct applies to the entire worksite, including onsite accommodation, it extends to the workforce residing within these facilities. Thus, there is no limitation to working hours; the code of conduct applies to all activities within the site, reinforcing the Applicant's dedication to upholding the highest standards of conduct and consideration for the surrounding community,

- A.8.4 In addition, the project workforce is required to adhere to the drugs and alcohol policy established by the main works contractor. As per the terms of their employment, individuals associated with the project will be subjected to testing to ensure strict compliance with this policy.
- A.8.5 The Applicant would also highlight the project's workforce are no more or less likely to commit a crime than any other member of society. They adhere to the same laws and regulations as the general public, maintaining a standard of conduct consistent with societal norms. In this context, the Applicant would note that some sites in the Order limits have specific byelaws which are not disappplied (e.g., the Port of Tilbury Byelaws). The project has committed to a code of conduct that emphasises the importance of being of good behaviour, ensuring that all individuals associated with the project are held to the same legal and ethical standards as any other member of the general public.
- A.8.6 The Applicant notes the ExA were hosted to a visit at the HS2 Chilterns Align site as part of ASI 4 and witnessed that project's on-site accommodation block and management arrangements thereof. The Applicant considers this example to be relatable to the current application in both terms of scale and proximity to urban conurbations and notes no increase in crime or anti-social behaviour attributed to the scheme.

A.9 Anticipated timescales and process to consider Essex Police's/ESSG report and application for increased funding

- A.9.1 The Applicant understands the Department for Transport has received the Impact Assessment submitted by Essex Police in relation to the LTC project and is continuing to liaise with the Home Office. A submission will be made by the Applicant at Deadline 7 with an update in relation to this matter.

A.10 Examples of other Projects that have successfully used an Accommodation Helpdesk

- A.10.1 Most large scale / long term construction projects use measures such as Accommodation Helpdesks and/or Accommodation Management Systems – for example HS2, Heathrow (Terminal 5) and Hinkley Point C.
- A.10.2 The Hinkley Point C accommodation office (wayfinding service) / portal has been successful as a part of the on-site induction process for workers, providing them access to a database of accommodation and brokering relationships between them and providers. It is also used to book accommodation at the project-provided on-site campus. As a result the forthcoming Sizewell C project is being brought forward with a similar Accommodation Management System. These systems allow the developer to work with providers of accommodation to

ensure it is safe and appropriate (for example ensuring environmental and utility safety such as confirmation of gas safety certificates and fire safety standards), and it also protects the provider by giving them certainty over occupancy, and an audit trail on the occupants.

- A.10.3 At Hinkley Point C it allows EDF Energy to promote accommodation in certain locations and signpost workers towards certain areas or types of accommodation.
- A.10.4 The accommodation helpdesk at Heathrow (Terminal 5) secured private rented housing and hotel bookings for workers, sometimes at a reduced rate by block booking, and was successful in recording worker accommodation impacts and diverting workers from sensitive locations. Workers chose to use the helpdesk over finding their own accommodation which assisted the Project in managing that aspect.
- A.10.5 HS2 used their helpdesk to help bring new beds to the market by engaging with local communities, helping to bring economic value to the areas impacted as well as reducing the impact on existing bed stock. They also used the helpdesk to manage their onsite bedspaces. The Applicant understand these measures were beneficial but the effectiveness of accommodation is based on qualitative information. There is a fundamental difference in the proposals for the Projects Helpdesk where through, the WAWG, the Project will measure the effectiveness of the Helpdesk in managing the impact of workers and their accommodation needs.
- A.10.6 The Accommodation Helpdesk for the Lower Thames Crossing is described at paragraph 5.4.13 of the Framework Construction Travel Plan [[REP5-054](#)] which sets out that it:
- A.10.7 “would be operated by the Applicant and would be a tool to assist workers with finding suitable and available accommodation near the Project. The Helpdesk would support prospective providers of accommodation in understanding the Project and its workforce and managing tenancies safely and legally. Workers would not be mandated to use accommodation registered on the Accommodation Helpdesk. The Helpdesk would also oversee collation of monthly data from the Contractors and produce accommodation monitoring reports, which would in turn, inform where workers could be directed/recommended via the Helpdesk”
- A.10.8 This provision is part of a suite of measures to support Contractors to control and minimise the potential for effects on the local housing market while also promoting the Project and attracting a high-skilled workforce.
- A.10.9 This suite of measures also includes a best-practice monitoring system and commitments to work with Local Authorities to reduce the potential for overlap in

the use of accommodation sectors relied upon for the provision of temporary or emergency accommodation used by Local Authorities as part of their statutory housing duty. These measures are set out within paragraphs 5.4.13-14 and Appendix D of the Framework Construction Travel Plan [\[REP5-054\]](#).

Annex B Post-hearing submissions on Agenda Item 4 Construction Impacts

B.1 Introduction

B.1.1 This section provides the post-hearing submissions for agenda item 4 Construction Impacts, from Issue Specific 8 (ISH) on 17 October 2023 for the A122 Lower Thames Crossing (the Project).

B.2 Hearing Action Point 7 – Practical Delivery Review of Development Management of Gammon Field Traveller’s Site

B.2.1 Hearing Action Point 7 sets out: “Please audit the operational development management and enforcement capability of the LPA in relation to the proposed relocated site. Do the provisions in the dDCO, and control documents, provide the LPA with the ability to manage and (if required) enforce in relation to possible future breaches of planning control in a manner equivalent to that available under the conditions of a planning permission under the Town and Country Planning Act 1990 (as amended)? Are you content that the development management tools that the LPA would normally hold will remain in place?”

B.2.2 In response, the Applicant’s position is set out in [\[AS-089\]](#). The Applicant considers that the works authorised, including the replacement of a travellers’ site, provide permission for the use and operations of the relocated site. Schedule 1 specifically authorises the relocated travellers’ site. In addition, the Applicant, nor Thurrock Council, have identified the need for any specific conditions. This reflects the existing situation where the use is not subject to any planning conditions, and the operations at the site are managed by Thurrock Council.

B.2.3 In relation to future development control, the Applicant would further note that article 56(3) would permit the council, or any future landowner, to seek a planning permission which varied the existing use or need for conditions should that be necessary. The Applicant has amended the Explanatory Memorandum at Deadline 6 to underline the importance of that provision in this context, and would highlight again that Thurrock Council has confirmed their support for that provision.

B.2.4 In relation to enforcement, the Applicant understand the regulation of the existing site is dealt with utilising the management of land. These would remain in place and are unaffected by the DCO. Nonetheless, the Applicant would highlight that enforcement provisions under Part 8 of the Planning Act 2008 are

available to local planning authorities and considers this provides an equivalent level of control insofar as the works authorised under the DCO are concerned.

B.3 Hearing action point 11: LBH: Upminster Cemetery and South Essex Crematorium

- B.3.1 Action point 11 sets out: “To the extent that under the compensation code there is no claim for injurious affection available to a cemetery or crematorium, is it agreed that the only mitigation measures relate to access configurations and operating hours?”
- B.3.2 The Applicant considers that it is unlikely that the Upminster Cemetery will be eligible under the scope of the compensation code. This answer was given in the hearing and is repeated in the following two paragraphs for completeness:
- B.3.3 AT then responded to the concerns of the London Borough of Havering with respect to the closure of Ockendon Road and subsequent impacts on the Crematorium. AT noted that the closure of Ockendon Road was reduced from 19 months to 10 months as reflected by Stakeholder Actions and Commitments Register Item SACR-7 [REP5-060]. AT clarified that the crematorium is unlikely to fall within the scope of the compensation code.
- B.3.4 However, the Applicant has sought to further mitigate impacts on the crematorium through the outline traffic management forum, and is presently in discussions with the London Borough of Havering in relation to the diverted route. AT submitted that the crematorium can remain open, rather it is only one route that will not be available for that period. AT concluded his submission on the issue by noting that the outline Traffic Management Plan for Construction oTMPfC [REP5-056] includes a specific provision in relation to crematoria about access and agrees at Table 2.3.
- B.3.5 The Applicant agrees that the only mitigation measures relate to access configurations and operating hours.

B.4 How 10db reduction will be achieved for traveller site

- B.4.1 The Applicant’s response and noise assessment of Gammonfields Way Travellers’ site was included in Deadline 2 Submission - 9.54 Comments on LIRs Appendix H – Thurrock Council (Part 3 of 5) [REP2-064] pages 17-23 “*During construction, unmitigated reasonable worst case construction noise levels at the existing site are predicted to have a moderate adverse impact during the night-time, with a maximum exceedance of 8.8dB(A) above the night-time period SOAEL. No significant impacts are reported at this location during the daytime or evening periods.*”

- B.4.2 As a conservative assumption, based upon the activities being undertaken in close proximity to at this receptor, a 10dB(A) attenuation attributable to the robust implementation of BPM measures can be reasonably applied. This correction for BPM would therefore reduce the predicted unmitigated reasonable worst case construction noise levels to below the night-time SOAEL and would therefore not constitute a significant effect”.
- B.4.3 Details of how Best Practicable Means could achieve a reduction of 10dB is included in Table 1 of Annex D.2. Examples include:
- a. Acoustic screening between construction works and noise sensitive receptor (BS5228-1 indicates up to 10 dB reduction in noise)
 - b. Enclose static plant in ventilated acoustic enclosure (BS5228-1 indicates up to 20 dB reduction in noise)
 - c. Fit construction plant with efficient exhaust sound reduction and equipment enclosure panels to be kept closed (BS5228-1 indicates a 5 to 10dB reduction in noise)

B.5 Gravesham Borough Council’s suggestion regarding the crossing point for construction traffic with the potential to impact on Cascades.

- B.5.1 The Applicant's approach to managing excavated material focuses on maximising its beneficial reuse within the project's Order Limits while prioritising movement along designated haul routes. This fundamental principle has been effectively applied in the transportation of excavated material between the Southern Tunnel Entrance Compound and A2 Compound, as outlined in Section 7.4 of the oMHP. Notably, this movement necessitates the requirement of temporary traffic lights at Thong Lane to enable safe management of the interface between construction traffic and public using Thong Lane.
- B.5.2 To mitigate the impact on the local road network, the Applicant has committed to prioritising movements at crossing points. This commitment is set out in paragraph 4.5.8, specifying that: Where traffic signals or similar would be required to facilitate construction movements such as access to compounds and construction vehicle crossing points, they would be locally controlled to ensure that the LRN has priority in terms of traffic movements. Additionally, when not required operationally the traffic signals would be turned off.
- B.5.3 Furthermore, the Applicant has committed to establish a comprehensive monitoring system to oversee the performance of temporary traffic management on the road network. The selection of monitoring locations would be done in consultation with members of the Traffic Management Forum (TMF), which includes Gravesham Borough Council. These locations would be adjusted as

construction progresses to address specific impacts, including those at crossing points such as Thong Lane.

- B.5.4 The TMF also provides a platform for planning this work effectively in consultation with Gravesham Borough Council. Through ongoing discussions, potential issues would be identified and resolved collaboratively. Solutions may involve scheduling movements at crossing points during periods of lower demand on the local road network. The monitoring system would provide data to inform these solutions, ensuring that construction activities proceed with minimal disruption to the surrounding community.
- B.5.5 In regards to noise and visual impact at this crossing point the Applicant has committed to the following:
- B.5.6 Haul route locations and daily haulage movements considered in the noise assessment are set out in Table 2.5 and Plate 2.1 of ES Appendix 12.4 Construction Noise and Vibration Assessment [REP1-169]. The impacts of these construction haul route movements on construction noise receptors is set out in ES Chapter 12 Noise and Vibration [APP-150]. The closest construction noise receptor to the crossing point is CN 19. Unmitigated reasonable worst case construction noise levels at this receptor are predicted to have a moderate or greater impact during the daytime as a result of pavement works, Thong Lane bridge construction, construction operations within the Southern Tunnel Entrance Compound, movements along construction haul routes, and construction of utilities work No(s) MU19, MU17, MU18.
- B.5.7 With regard to BPM associated with the daytime activities in proximity to this receptor, measures would be required to include the following:
- a. Acoustic screening between construction works (including compounds and haul routes) and noise sensitive receptors (BS 5228-1 indicates up to 10 dB reduction in noise)
 - b. Enclose static plant in ventilated acoustic enclosure (BS 5228-1 indicates up to 20 dB reduction in noise)
 - c. Fit construction plant with efficient exhaust sound reduction and equipment enclosure panels to be kept closed (BS 5228-1 indicates a 5 to 10dB reduction in noise)
- B.5.8 As a conservative assumption, based upon the activities being undertaken in close proximity to at this NSR, a 10dB(A) attenuation attributable to the robust implementation of BPM measures can be reasonably applied. This correction for BPM would therefore reduce the predicted unmitigated reasonable worst case construction noise levels to below a SOAEL for the identified time period. With the inclusion of the above BPM mitigation measures (REAC NV007), and all other construction phase control measures secured through REAC Ref.

NV001 to NV010 and NV012, it is concluded that daytime construction noise at this NSR would be suitably controlled to a level where it would not constitute a significant effect.

- B.5.9 To provide context and address the concerns expressed by Gravesham Borough Council, it is essential to outline the anticipated further improvements associated with the earthwork strategy that are likely to occur during the detailed design development and construction phasing. These enhancements would be part of the detailed construction phasing that would form part of EMP2, to which the Council would be consulted upon as detailed in Code Of Construction Practice paragraph 2.3.9.
- B.5.10 The quantities and movements set out in the oMHP reflect a reasonable worst case scenario. The contractor would look to refine the quantities and movements as part of a detailed earthwork and mass haul strategy, which would be developed as part of the detailed design development. Potential improvements could include a reduction in the quantity of material as a result of the detailed design process, where greater clarity is achieved regarding the quantities and needs between different compounds. Additionally, it is anticipated that the majority of this material movement would occur later in the program. Consequently, opportunities arise for the transportation of excavated material under Thong Lane (avoiding the crossing point) once these details are finalised. However, the feasibility of this movement depends on intricate phasing, a level of detail that would be established in conjunction with the detailed design development and the associated earthwork strategy.

Annex C Post-hearing submissions on Agenda Item 5: Operational Impacts

C.1 Introduction

- C.1.1 This section provides the post-hearing submissions for agenda item 5 Operational Impacts, from Issue Specific 8 (ISH) on 19 October 2023 for the A122 Lower Thames Crossing (the Project).

C.2 Hearing action point 13 – Brooks Farm Cottages

- C.2.1 Action point 13 states “Provide clarity/update on the status of discussions/negotiations in respect of the purchase and any mitigation measures Offered.”

The properties are outside the Order Limits. The applicant is in regular contact with the owners. At previous meetings with the owners an offer was put forward to purchase the properties by agreement, but the offer is still under consideration.

- C.2.2 Within The scope of ISH8 on the 19th October 2023, additional justification of the measures considered and the reasons for discounting them was requested by the ExA. Specifically relating to whether taller barriers would mitigate the significant night time effects reported in the application.
- C.2.3 The position and lateral extent of the barrier considered herein remains consistent with that reported in Chapter 12 - Noise and Vibration [[APP-150](#)] and detailed on Figure 12.6 Operational Road Traffic Noise Mitigation [[APP-314](#)] page 3 of 4 noted as measure AB 4.
- C.2.4 Presented in Table C.1 to Table C.3 below is consideration of acoustic effect, value for money and other pertinent factors such as buildability and environmental impacts such as visual impacts and impacts on cultural heritage of the barrier option adjacent to the properties being increased to:
- C.2.5 Barrier AB 4 at 4.0m
- C.2.6 Barrier AB 4 at 5.0m
- C.2.7 Barrier AB 4 at 6.0m
- C.2.8 The process followed accords with that used in the preparation of Appendix 12.10 - Road Traffic Noise Mitigation and Cost Benefit Analysis [[APP-450](#)], detailed in Section 4.

Table C.1 Barrier Appraisal Option AB 4 at 4.0m

	Noise impact and benefit				Acoustic Summary
	Change in Impacts				
	Impact	ES Design	Barrier Option Design	Change	
Option AB 4 at 4.0m Height	Daytime				Daytime- Measure does not remove any significant effects but removes two impacts from above a SOAEL
	Major Beneficial	2	2	0	
	Moderate Beneficial	0	0	0	
	Minor Beneficial	0	0	0	
	Negligible	0	0	0	
	Above LOAEL	0	2	2	
	Above SOAEL	2	0	-2	Night-time – Measure does not remove any significant effects. Measure does not change number of dwellings above the SOAEL.
	Night-time				
	Major Beneficial	2	2	0	
	Moderate Beneficial	0	0	0	
	Minor Beneficial	0	0	0	
	Negligible	0	0	0	
	Above LOAEL	0	0	0	
	Above SOAEL	2	2	0	
Mitigation Cost				£123,936.00	
TAG Value				£28,677.47	
Indicative VfM				0.23	
<p>Eng. / Env issues:</p> <p>Landscape: This fence would likely help screen the Project from the nearby residential property. Above 3.0m, it will be a huge fence, advise 2.0 to 3.0m height max</p> <p>Cultural Heritage: 3.0m height would be acceptable, above 3.0m height would need reviewing</p>					
<p>Justification:</p> <p>Cost of mitigation measure exceeds monetised acoustic benefit and returns an indicative VfM of less than 1, however, does not present a material acoustic benefit over the ES 3.0m design during either the daytime or night-time.</p> <p>Measure not implemented at 4.0m height due to the potential for significant Landscape and Visual, and Cultural Heritage impacts whilst presenting no material acoustic benefit over the 3.0m design option.</p>					

Table C.2 Barrier Appraisal Option AB 4 at 5.0m

	Noise impact and benefit				Acoustic Summary
	Change in Impacts				
	Impact	ES Design	Barrier Option Design	Change	
Option AB 4 at 5.0m Height	Daytime				Daytime- Measure does not remove any significant effects but removes two impacts from above a SOAEL
	Major Beneficial	2	2	0	
	Moderate Beneficial	0	0	0	
	Minor Beneficial	0	0	0	
	Negligible	0	0	0	
	Above LOAEL	0	2	2	
	Above SOAEL	2	0	-2	Night-time – Measure does not remove any significant effects. Measure does not change number of dwellings above the SOAEL.
	Night-time				
	Major Beneficial	2	2	0	
	Moderate Beneficial	0	0	0	
	Minor Beneficial	0	0	0	
	Negligible	0	0	0	
	Above LOAEL	0	0	0	
	Above SOAEL	2	2	0	
Mitigation Cost				£158,304.00	
TAG Value				£28,677.47	
Indicative VfM				0.18	
<p>Eng. / Env issues:</p> <p>Landscape: This fence would likely help screen the Project from the nearby residential property. Above 3.0m, it will be a huge fence, advise 2.0 to 3.0m height max</p> <p>Cultural Heritage: 3.0m height would be acceptable, above 3.0m height would need reviewing</p>					
<p>Justification:</p> <p>Cost of mitigation measure exceeds monetised acoustic benefit and returns an indicative VfM of less than 1, however, does not present a material acoustic benefit over the ES 3.0m design during either the daytime or night-time.</p> <p>Measure not implemented at 4.0m height due to the potential for significant Landscape and Visual, and Cultural Heritage impacts whilst presenting no material acoustic benefit over the 3.0m design option.</p>					

Table C.3 Barrier Appraisal Option AB 4 at 6.0m

	Noise impact and benefit				Acoustic Summary
	Change in Impacts				
	Impact	ES Design	Barrier Option Design	Change	
Option AB 4 at 6.0m Height	Daytime				Daytime- Measure does not remove any significant effects but removes two impacts from above a SOAEL
	Major Beneficial	2	2	0	
	Moderate Beneficial	0	0	0	
	Minor Beneficial	0	0	0	
	Negligible	0	0	0	
	Above LOAEL	0	2	2	
	Above SOAEL	2	0	-2	Night-time – Measure does not remove any significant effects. Measure does not change number of dwellings above the SOAEL.
	Night-time				
	Major Beneficial	2	2	0	
	Moderate Beneficial	0	0	0	
	Minor Beneficial	0	0	0	
	Negligible	0	0	0	
	Above LOAEL	0	0	0	
	Above SOAEL	2	2	0	
Mitigation Cost					£192,768.00
TAG Value					£29,401.24
Indicative VfM					0.15
Eng. / Env issues:					
Landscape: This fence would likely help screen the Project from the nearby residential property. Above 3.0m, it will be a huge fence, advise 2.0 to 3.0m height max					
Cultural Heritage: 3.0m height would be acceptable, above 3.0m height would need reviewing					
Justification:					
Cost of mitigation measure exceeds monetised acoustic benefit and returns an indicative VfM of less than 1, however, does not present a material acoustic benefit over the ES 3.0m design during either the daytime or night-time.					
Measure not implemented at 6.0m height due to the potential for significant Landscape and Visual, and Cultural Heritage impacts whilst presenting no material acoustic benefit over the 3.0m design option.					

C.2.9 The DfT document Value for Money Framework, as referenced in Appendix 12.10 [APP-450], outlines the Department’s approach to value for money appraisals. The DfT guidance concludes an indicative VfM of 1 or greater to demonstrate a monetary benefit of the measure, with the measure returning a greater monetised benefit than the cost of implementation.

- C.2.10 As detailed within Chapter 12 - Noise and Vibration [APP-150] and on Figure 12.6 Operational Road Traffic Noise Mitigation [APP-314] page 3 of 4 mitigation option AB 4 has been incorporated into the design at 3.0m.
- C.2.11 From the information presented in Appendix 12.10 - Road Traffic Noise Mitigation and Cost Benefit Analysis [APP-450] for barrier option 9 within Table 4.9 (heights of 1.0m to 3.0m), and detailed in Tables C.1 to C.3 above (heights of 4.0m to 6.0m), the applicant feels the justification for the inclusion of barrier option AB 4 at 3.0m is justified. This justification is based upon acoustic performance, whilst not introducing new significant Landscape and Cultural Heritage effects.

C.3 Franks Farm - Detailed response to Ms O'Leary's submissions

- C.3.1 The Applicants response to Franks Farm written representation was provided in the Deadline 2 Submission - 9.53 Comments on WRs Appendix F – Landowners [REP2-051] “5. *In this location there is predicted to be a moderate reduction in noise which is due to the provision of low noise surfacing and the earthworks provided by the additional lane for the M25 screening the traffic noise. This is presented in ES Figure 12.6: Operational Road Traffic Noise Mitigation [APP-314]. The Applicant is not intending to install any specific noise mitigation in this location for the operational noise for the finished Project. Had a noise barrier been considered in this location the calculations would have been included within ES Appendix 12.10: Road Traffic Noise Mitigation and Cost Benefit Analysis [APP-450]. However, with the area showing a reduction in noise the calculations were not undertaken. Based on professional judgement and the calculations undertaken at other locations to determine the suitability of noise barriers, the Applicant considers that a noise barrier in this location would not prove to be cost effective or proportionate. The Applicant considers that the Project meets the aims of national policy and this is described within Table 1.3 of ES Appendix 12.1: Noise and Vibration Legislation and Policy [APP-441].*”
- C.3.2 Franks Farm provided a response in the Deadline 4 Submission - Post-event submissions, including written submission of oral comments made at the hearings held w/c 4 and 11 Sept 2023 [REP4-389] “*However, notwithstanding the acknowledged benefits of mitigating the development, the Applicant’s noise response says that it is not considered to be cost effective or proportionate and therefore, no such mitigation has been offered. It is hoped that the Applicant will have a change of heart over this approach and support the requested acoustic screening. However, if such a measure is not forthcoming, it is requested that the ExA considers the position with a view to including the screening within the scheme at the specified location*”.

- C.3.3 The Applicants response was provided in the Deadline 5 Submission - 9.109 CAH2 Action 3 Response Franks Farm - Lawson Planning Partnership / Mrs Carver [\[REP5-080\]](#) *“As stated within paragraph 3.65 of Design Manual for Roads and Bridges (DMRB) LA 111 Noise and Vibration (Highways England, 2020), when considering the provision of mitigation measures, including acoustic screening, factors need to be considered to determine the suitability of the mitigation measures. These factors would include a comparison of the monetised noise benefit of a mitigation measure against the cost of the mitigation measure. Within point 5 of the Applicant’s response [REP2-051] to the Written Representation from the Lawson Planning Partnership [REP1-389], it was stated that ‘Based on professional judgement and the calculations undertaken at other locations to determine the suitability of noise barriers, **the Applicant considers that a noise barrier in this location would not prove to be cost effective or proportionate**’. The Applicant therefore considers that **the Project meets the aims of the NPSNN as the cost for providing acoustic screening in this location would outweigh the benefit**”.*

C.4 Hearing action point 14 - Franks Farm

- C.4.1 Application point 14 states “Provide additional information in respect of how the quantum of acoustic benefit to Franks Farm was calculated.”
- C.4.2 In order to consider the requested barrier at Franks Farm, two options have been modelled through the DCO assessment acoustic model. These options have then been considered in the Tables below relating to acoustic effect, value for money and including the consideration of other pertinent factors such as buildability and environmental impacts such as visual impacts and impacts on cultural heritage.
- C.4.3 The process followed accords with that used in the preparation of Appendix 12.10 - Road Traffic Noise Mitigation and Cost Benefit Analysis [\[APP-450\]](#), detailed in Section 4.
- C.4.4 The barrier options considered for this analysis are presented on the Plates below and detailed to be as follows, each considered for 1.0m, 2.0m and 3.0m tall options:
- C.4.5 Option A – 230m in length as detailed on Plate C.1
- C.4.6 Option B – 96m Length as detailed on Plate C.2

Plate C.1 Option A

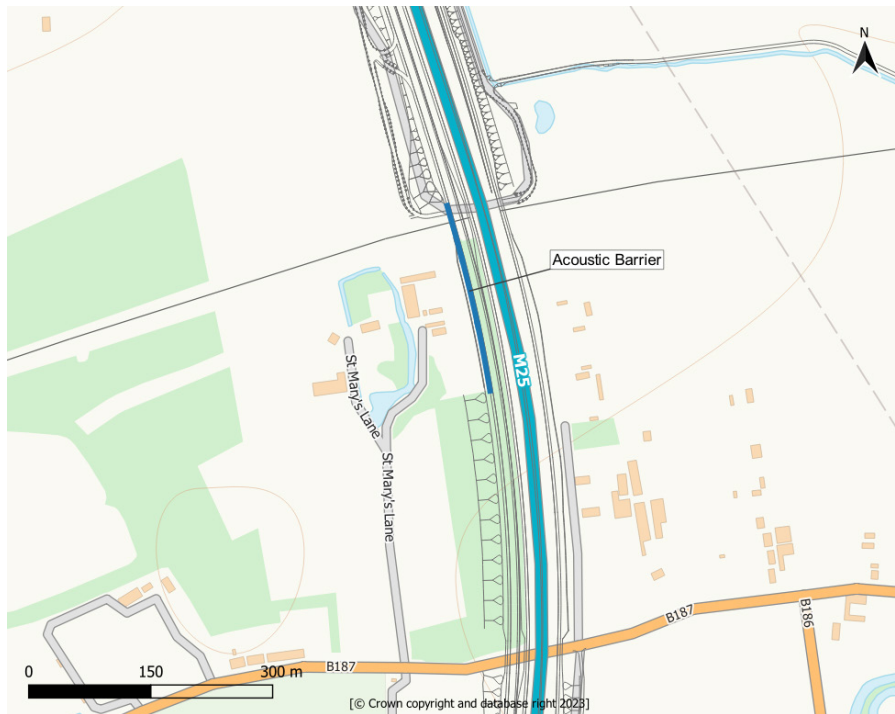
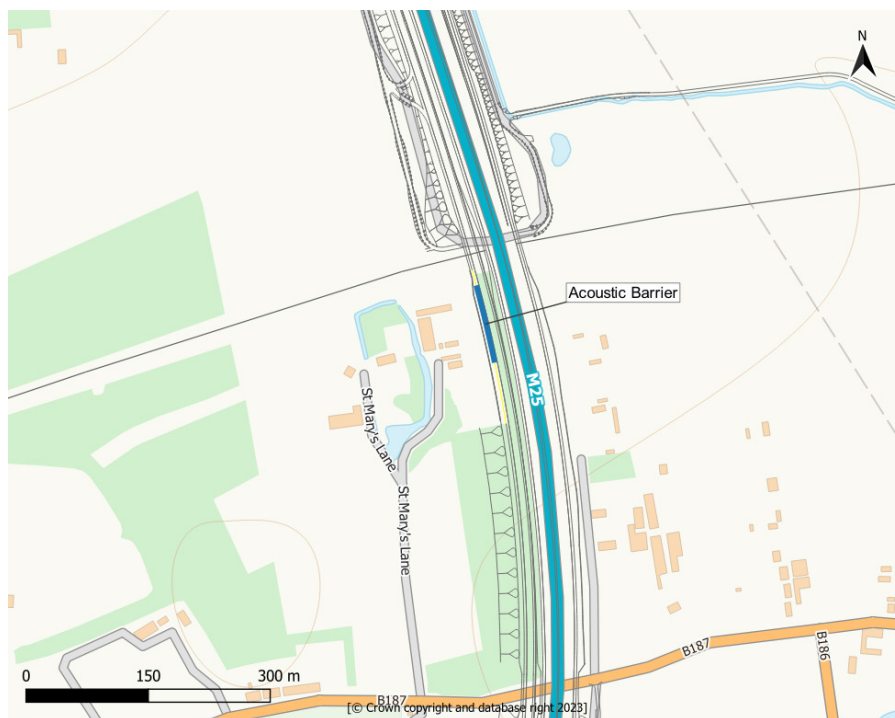


Plate C.2 Option B



C.4.7 The indicative VfM and the consideration of other environmental factors are presented for each barrier option within Table C.4 to Table C.9. These tables present the information to conclude whether noise barrier options present value for money for National Highways and should be taken forward into the design of the Project.

Table C.4 Barrier Appraisal Option A at 1.0m

	Noise impact and benefit				Acoustic Summary
	Change in Impacts				
	Impact	ES Design	Barrier Option Design	Change	
Option A at 1m Height	Daytime				<p>Daytime – Measure does not increase the magnitude of any beneficial significant effects, which occur below a SOAEL.</p> <p>Night-time – Measure does not increase the magnitude of any beneficial significant effects, which occur below a SOAEL.</p>
	Major Beneficial	0	0	0	
	Moderate Beneficial	2	2	0	
	Minor Beneficial	0	0	0	
	Negligible	0	0	0	
	Above LOAEL	2	2	0	
	Above SOAEL	0	0	0	
	Night-time				
	Major Beneficial	0	0	0	
	Moderate Beneficial	2	2	0	
	Minor Beneficial	0	0	0	
	Negligible	0	0	0	
	Above LOAEL	2	2	0	
	Above SOAEL	0	0	0	
Mitigation Cost					£115,460.00
TAG Value					£2,759.39
Indicative VfM					0.02
<p>Justification:</p> <p>Cost of mitigation measure exceeds monetised acoustic benefit by a factor of approximately 40 times and returns an indicative VfM of less than 1. Option presents no material acoustic benefit over the beneficial design presented within the application. Measure not viable at this height from an Acoustic perspective</p> <p>Landscape: Subject to detailed design, a 1m high barrier is likely to have a negligible visual impact in this location.</p> <p>Cultural Heritage; the barrier whilst providing a degree of visual shielding would have a negligible impact on the setting of the heritage assets</p> <p>Measure not viable for implementation due to overall assessment conclusions.</p>					

Table C.5 Barrier Appraisal Option A at 2.0m

	Noise impact and benefit				Acoustic Summary
	Change in Impacts				
	Impact	ES Design	Barrier Option Design	Change	
Option A at 2m Height	Daytime				Daytime – Measure would change one noise sensitive receptor from moderate beneficial to major beneficial below a SOAEL, Night-time – Measure does not increase the magnitude of any beneficial significant effects, which occur below a SOAEL.
	Major Beneficial	0	1	1	
	Moderate Beneficial	2	1	-1	
	Minor Beneficial	0	0	0	
	Negligible	0	0	0	
	Above LOAEL	2	0	0	
	Above SOAEL	0	0	0	
	Night-time				
	Major Beneficial	0	0	0	
	Moderate Beneficial	2	2	0	
	Minor Beneficial	0	0	0	
	Negligible	0	0	0	
Above LOAEL	2	2	0		
Above SOAEL	0	0	0		
Mitigation Cost					£164,910.00
TAG Value					£6,177.85
Indicative VfM					0.04
<p>Justification:</p> <p>Cost of mitigation measure exceeds monetised acoustic benefit by a factor of approximately 26 times and returns an indicative VfM of less than 1. Whilst changing the significance of the beneficial effect from moderate to major, both the ES case and barrier Option A at 2.0m present the same number of significant beneficial effects. As such the barrier option does not present a material acoustic benefit over the design presented within the application, and the measure would not be concluded as viable at this height from an Acoustic perspective.</p> <p>Landscape: A 2m high acoustic barrier would partially screen views of traffic on the Lower Thames Crossing J29 link road from the Franks Farm buildings adjoining the widened M25 corridor. However, subject to the angle of view the upper parts of larger vehicles including high sided vehicles could remain visible. Conversely, a 2m high barrier is likely to have some adverse visual impact on views of road users from the Lower Thames Crossing J29 link road.</p> <p>Cultural Heritage; the barrier whilst providing a degree of visual shielding would have a negligible impact on the setting of the heritage assets</p> <p>Measure not viable for implementation due to overall assessment conclusions.</p>					

Table C.6 Barrier Appraisal Option A at 3.0m

	Noise impact and benefit				Acoustic Summary
	Change in Impacts				
	Impact	ES Design	Barrier Option Design	Change	
Option A at 3m Height	Daytime				Daytime – Measure would change two noise sensitive receptor from moderate beneficial to major beneficial below a SOAEL, Night-time – Measure does not increase the magnitude of any beneficial significant effects, which occur below a SOAEL.
	Major Beneficial	0	2	2	
	Moderate Beneficial	2	0	-2	
	Minor Beneficial	0	0	0	
	Negligible	0	0	0	
	Above LOAEL	2	2	0	
	Above SOAEL	0	0	0	
	Night-time				
	Major Beneficial	0	0	0	
	Moderate Beneficial	2	2	0	
	Minor Beneficial	0	0	0	
	Negligible	0	0	0	
	Above LOAEL	2	2	0	
	Above SOAEL	0	0	0	
Mitigation Cost					£214,590.00
TAG Value					£7,968.89
Indicative VfM					0.04
<p>Justification:</p> <p>Cost of mitigation measure exceeds monetised acoustic benefit by a factor of approximately 27 times and returns an indicative VfM of less than 1. Whilst changing the significance of the beneficial effect from moderate to major, both the ES case and barrier Option A at 3.0m present the same number of significant beneficial effects. As such the barrier option does not present a material acoustic benefit over the design presented within the application, and the measure would not be concluded as viable at this height from an Acoustic perspective.</p> <p>Landscape: A 3m high acoustic barrier would partially screen views of traffic on the Lower Thames Crossing J29 link road from the Franks Farm buildings adjoining the widened M25 corridor. However, subject to the angle of view the tops of high sided vehicles could remain visible. Conversely, a 3m high barrier is likely to have some adverse visual impact on views of road users from the Lower Thames Crossing J29 link road and potentially also on views from the surrounding landscape.</p> <p>Cultural Heritage; the barrier whilst providing a degree of visual shielding would have a negligible impact on the setting of the heritage assets</p> <p>Measure not viable for implementation due to overall assessment conclusions.</p>					

Table C.7 Barrier Appraisal Option B at 1.0m

	Noise impact and benefit				Acoustic Summary
	Change in Impacts				
	Impact	ES Design	Barrier Option Design	Change	
Option B at 1m Height	Daytime				<p>Daytime – Measure does not increase the magnitude of any beneficial significant effects, which occur below a SOAEL.</p> <p>Night-time – Measure does not increase the magnitude of any beneficial significant effects, which occur below a SOAEL.</p>
	Major Beneficial	0	0	0	
	Moderate Beneficial	2	2	0	
	Minor Beneficial	0	0	0	
	Negligible	0	0	0	
	Above LOAEL	2	2	0	
	Above SOAEL	0	0	0	
	Night-time				
	Major Beneficial	0	0	0	
	Moderate Beneficial	2	2	0	
	Minor Beneficial	0	0	0	
	Negligible	0	0	0	
	Above LOAEL	2	2	0	
	Above SOAEL	0	0	0	
Mitigation Cost					£45,180.00
TAG Value					£1,179.61
Indicative VfM					0.026
<p>Justification:</p> <p>Cost of mitigation measure exceeds monetised acoustic benefit by a factor of approximately 38 times and returns an indicative VfM of less than 1. Option presents no material acoustic benefit over the design presented within the application. Measure not viable at this height from an Acoustic perspective</p> <p>Landscape: Subject to detailed design, a 1m high barrier is likely to have a negligible visual impact in this location.</p> <p>Cultural Heritage; the barrier whilst providing a degree of visual shielding would have a negligible impact on the setting of the heritage assets</p> <p>Measure not viable for implementation due to overall assessment conclusions.</p>					

Table C.8 Barrier Appraisal Option B at 2.0m

	Noise impact and benefit				Acoustic Summary
	Change in Impacts				
	Impact	ES Design	Barrier Option Design	Change	
Option B at 2m Height	Daytime				<p>Daytime – Measure does not increase the magnitude of any beneficial significant effects, which occur below a SOAEL.</p> <p>Night-time – Measure does not increase the magnitude of any beneficial significant effects, which occur below a SOAEL.</p>
	Major Beneficial	0	0	0	
	Moderate Beneficial	2	2	0	
	Minor Beneficial	0	0	0	
	Negligible	0	0	0	
	Above LOAEL	2	2	0	
	Above SOAEL	0	0	0	
	Night-time				
	Major Beneficial	0	0	0	
	Moderate Beneficial	2	2	0	
	Minor Beneficial	0	0	0	
	Negligible	0	0	0	
	Above LOAEL	2	2	0	
	Above SOAEL	0	0	0	
Mitigation Cost					£64,530.00
TAG Value					£2,759.39
Indicative VfM					0.043
<p>Justification:</p> <p>Cost of mitigation measure exceeds monetised acoustic benefit by a factor of approximately 23 times and returns an indicative VfM of less than 1. Option presents no material acoustic benefit over the design presented within the application. Measure not viable at this height from an Acoustic perspective</p> <p>Landscape: A 2m high acoustic barrier would partially screen views of traffic on the Lower Thames Crossing J29 link road from the Franks Farm buildings adjoining the widened M25 corridor. However, subject to the angle of view the upper parts of larger vehicles including high sided vehicles could remain visible. Conversely, a 2m high barrier is likely to have some adverse visual impact on views of road users from the Lower Thames Crossing J29 link road.</p> <p>Cultural Heritage; the barrier whilst providing a degree of visual shielding would have a negligible impact on the setting of the heritage assets</p> <p>Measure not viable for implementation due to overall assessment conclusions.</p>					

Table C.9 Barrier Appraisal Option B at 3.0m

	Noise impact and benefit				Acoustic Summary
	Change in Impacts				
	Impact	ES Design	Barrier Option Design	Change	
Option B at 3m Height	Daytime				<p>Daytime – Measure does not increase the magnitude of any beneficial significant effects, which occur below a SOAEL.</p> <p>Night-time – Measure does not increase the magnitude of any beneficial significant effects, which occur below a SOAEL.</p>
	Major Beneficial	0	0	0	
	Moderate Beneficial	2	2	0	
	Minor Beneficial	0	0	0	
	Negligible	0	0	0	
	Above LOAEL	2	2	0	
	Above SOAEL	0	0	0	
	Night-time				
	Major Beneficial	0	0	0	
	Moderate Beneficial	2	2	0	
	Minor Beneficial	0	0	0	
	Negligible	0	0	0	
	Above LOAEL	2	2	0	
	Above SOAEL	0	0	0	
Mitigation Cost				£83,970.00	
TAG Value				£2,759.39	
Indicative VfM				0.033	
<p>Justification:</p> <p>Cost of mitigation measure exceeds monetised acoustic benefit by a factor of approximately 30 times and returns an indicative VfM of less than 1. Option presents no material acoustic benefit over the design presented within the application. Measure not viable at this height from an Acoustic perspective</p> <p>Landscape: A 3m high acoustic barrier would partially screen views of traffic on the Lower Thames Crossing J29 link road from the Franks Farm buildings adjoining the widened M25 corridor. However, subject to the angle of view the tops of high sided vehicles could remain visible. Conversely, a 3m high barrier is likely to have some adverse visual impact on views of road users from the Lower Thames Crossing J29 link road and potentially also on views from the surrounding landscape.</p> <p>Cultural Heritage; the barrier whilst providing a degree of visual shielding would have a negligible impact on the setting of the heritage assets</p> <p>Measure not viable for implementation due to overall assessment conclusions.</p>					

- C.4.8 The DfT document Value for Money Framework, as referenced in Appendix 12.10 [[APP-450](#)], outlines the Department’s approach to value for money appraisals. The DfT guidance concludes an indicative VfM of 1 or greater to demonstrate a monetary benefit of the measure, with the measure returning a greater monetised benefit than the cost of implementation.
- C.4.9 As detailed in Table C.4 to Table C.9 none of the barrier options presented herein conclude acceptable value for money for National Highways. Furthermore, the measures do not present a material change to the already beneficial conclusions of the ES with regard to Franks Farm, and have the potential at certain heights to result in adverse effects relating to Landscape and Visual impacts relating to views of road users from the Lower Thames Crossing J29 link road and potentially also on views from the surrounding landscape.
- C.4.10 As such it is not recommended that these measures present a viable mitigation option in this location as a result of the already significant beneficial conclusions of the noise assessment.

Annex D Travellers Sites Noise Assessment

- D.1.1 The following travellers' sites have been identified as having the potential for noise and vibration impacts as a result of the Lower Thames Crossing (the Project):
- a. Ashlea View
 - b. View Point Place
 - c. End of Lower Crescent, Linford
 - d. Gammonfields Way travellers' site
 - e. Laburnham Stables
 - f. Fair oak Showman's Quarters
 - g. Railway Sidings
 - h. Tyas Stud Farm
 - i. Willow Tree Lodge
- D.1.2 It should be noted that Gammonfields Way travellers' site would be demolished as a result of the Project and the occupants will be relocated to a new site approximately 100m to the west of the existing site in July 2026; however, within the scope of this report it will continue to be referenced as Gammonfields Way travellers' site in its new location.
- ### D.2 Construction Impacts
- D.2.1 Table D.1 presents a summary of the predicted unmitigated construction noise impacts, the measures necessary to control these and the resulting significance at the identified travellers' sites, during the following time periods as defined within BS5228-1:
- D.2.2 Daytime (07:00–19:00 weekday and 07:00– 13:00 Saturdays);
- D.2.3 Evening (19:00–23:00 weekdays, 13:00–23:00 Saturdays and 07:00–23:00 Sundays); and,
- D.2.4 Night-time period (23:00–07:00).

Table D.1 Construction Impacts and Significance at Travellers Sites

Site	Justification of significance conclusion
Ashlea View	<p>More than 300m away from any significant construction works, as such no adverse significant effects anticipated as a result of the Project during the construction phase. The construction noise study area is described in paragraphs 12.3.28 to 12.3.31 of 6.1 Environmental Statement - Chapter 12: Noise and Vibration [Application Document APP-150], which is in accordance with DMRB LA 111 and BS 5228-1.</p>
View Point Place	<p>Unmitigated reasonable worst case construction noise levels at this receptor are predicted to have a moderate adverse impact during the daytime and night-time, with a maximum exceedance of 3.1dB(A) above the daytime period SOAEL and 4.3dB(A) above the night-time period SOAEL. No significant impacts are reported at this location during the evening period.</p> <p>During the daytime these exceedances would occur during the construction operations within Southern Tunnel Entrance Compound and A226 Gravesend Road Compound, movements along construction haul routes and construction of utilities work No(s) MU24, MUT3.</p> <p>During the night-time these exceedances would occur during the operation of the Southern Tunnel Entrance Compound.</p> <p>As a result of the exceedance of a SOAEL mitigation will be required to be implemented through the controls inherent within REAC commitment NV007 (Section 7 of the CoCP (Application Document 6.3, Appendix 2.2)) relating to BPM.</p> <p>A comprehensive list of BPM measures is presented within Section 12.5 (Good Practice Mitigation) which will be implemented where appropriate across all construction activities associated with the Project. With regard to BPM for this Noise Sensitive Receptor (NSR), measures would be required to include the following:</p> <ul style="list-style-type: none"> Acoustic screening between construction works and noise sensitive receptor (BS5228-1 indicates up to 10 dB reduction in noise) Enclose static plant in ventilated acoustic enclosure (BS5228-1 indicates up to 20 dB reduction in noise) Fit construction plant with efficient exhaust sound reduction and equipment enclosure panels to be kept closed (BS5228-1 indicates a 5 to 10dB reduction in noise) <p>As a conservative assumption, based upon the activities being undertaken in close proximity to at this NSR, a 10dB(A) attenuation attributable to the robust implementation of BPM measures can be reasonably applied. This correction for BPM would therefore reduce the predicted unmitigated reasonable worst case construction noise levels to below a SOAEL for the identified time period.</p> <p>With the inclusion of the above BPM mitigation measures (REAC NV007), and all other construction phase control measures secured through REAC Ref. NV001 to NV010 and NV012, it is concluded that construction noise at this NSR would be suitably controlled to a level where it would not constitute a significant effect.</p>
End of Lower Crescent, Linford	<p>Unmitigated reasonable worst case construction noise levels at this receptor are predicted to have a moderate or greater impact during the night-time, with a maximum exceedance of 1.4dB(A) above the night-time period</p>

Site	Justification of significance conclusion
	<p>SOAEL. No significant impacts are reported at this location during the daytime or evening periods.</p> <p>During the night-time these exceedances would occur during the construction of utilities Work No. OHT3</p> <p>As a result of the exceedance of a SOAEL, mitigation will be required to be implemented through the controls inherent within REAC commitment NV007 (Section 7 of the CoCP (Application Document 6.3, Appendix 2.2)) relating to BPM.</p> <p>A comprehensive list of BPM measures is presented within Section 12.5 (Good Practice Mitigation) which will be implemented where appropriate across all construction activities associated with the Project. With regard to BPM for this NSR, measures would be required to include the following:</p> <p>Acoustic screening between construction works and noise sensitive receptor (BS5228-1 indicates up to 10 dB reduction in noise)</p> <p>Enclose static plant in (overhead line hydraulic tensioner) (BS5228-1 indicates up to 20 dB reduction in noise)</p> <p>As a conservative assumption, based upon the activities being undertaken in close proximity to at this NSR, a 10dB(A) attenuation attributable to the robust implementation of BPM measures can be reasonably applied. This correction for BPM would therefore reduce the predicted unmitigated reasonable worst case construction noise levels to below a SOAEL for the identified time period.</p> <p>With the inclusion of the above BPM mitigation measures (REAC NV007), and all other construction phase control measures secured through REAC Ref. NV001 to NV010 and NV012, it is concluded that construction noise at this NSR would be suitably controlled to a level where it would not constitute a significant effect.</p>
Laburnham Stables	<p>More than 300m away from any significant construction works, as such no adverse significant effects anticipated as a result of the Project during the construction phase.</p>
Fairoak Showman's Quarters	<p>Unmitigated reasonable worst case construction noise levels at this receptor are predicted to have a moderate adverse impact during the night-time, with a maximum exceedance of 1.1dB(A) above the night-time period SOAEL.</p> <p>No significant impacts are reported at this location during the daytime or evening periods.</p> <p>During the night-time these exceedances would occur during the construction of utilities Work No. MU82 which is a multiutility corridor installed by trenchless techniques in proximity to this receptor</p> <p>As a result of the exceedance of a SOAEL, mitigation will be required to be implemented through the controls inherent within REAC commitment NV007 (Section 7 of the CoCP (Application Document 6.3, Appendix 2.2)) relating to BPM.</p> <p>As the issue relates to the trenchless crossing the following specific control would be necessary relating to this activity:</p> <p>Trenchless installation at Work No. MU82 to use machine inside temporary acoustic enclosure/building with adequate ventilation - BS5228-1 indicates up to 15 dB reduction in noise.</p> <p>With the inclusion of the above BPM mitigation measures (REAC NV007), and all other construction phase control measures secured through REAC</p>

Site	Justification of significance conclusion
	<p>Ref. NV001 to NV010 and NV012, it is concluded that construction noise at this NSR would be suitably controlled to a level where it would not constitute a significant effect.</p>
<p>Railway Sidings</p>	<p>Unmitigated reasonable worst case construction noise levels at this receptor are predicted to have a moderate or greater impact during the daytime, evening and night-time periods with a maximum exceedance of 6.9dB(A) above the daytime period SOAEL, 16.3dB(A) above the evening period SOAEL and 16.2dB(A) above the night-time period SOAEL.</p> <p>A comprehensive list of BPM measures is presented within Section 12.5 (Good Practice Mitigation) which will be implemented where appropriate across all construction activities associated with the Project.</p> <p>Daytime Impacts</p> <p>During the daytime these exceedances would occur associated with: topsoil strip, earthworks, overbridge northbound onto Ockendon Road, movements along construction haul routes and construction of utilities work No(s) MU72, MU76, MU75, MUT31, MU77, MUT30</p> <p>With regard to BPM associated with the daytime activities in proximity to this NSR, measures would be required to include the following: Acoustic screening between construction works (including compounds and haul routes) and noise sensitive receptors (BS5228-1 indicates up to 10 dB reduction in noise) Fit construction plant with efficient exhaust sound reduction and equipment enclosure panels to be kept closed (BS5228-1 indicates a 5 to 10dB reduction in noise) Enclose static plant in ventilated acoustic enclosure (BS5228-1 indicates up to 20 dB reduction in noise)</p> <p>As a conservative assumption, based upon the activities being undertaken in close proximity to at this NSR, a 10dB(A) attenuation attributable to the robust implementation of BPM measures can be reasonably applied. This correction for BPM would therefore reduce the predicted unmitigated reasonable worst case construction noise levels to below a SOAEL for the identified time period.</p> <p>With the inclusion of the above BPM mitigation measures (REAC NV007), and all other construction phase control measures secured through REAC Ref. NV001 to NV010 and NV012, it is concluded that daytime construction noise at this NSR would be suitably controlled to a level where it would not constitute a significant effect.</p> <p>Night-time and evening Impacts</p> <p>During the evening and night-time these exceedances would occur associated with: construction of utilities Work No. MU75.</p> <p>These impacts above a SOAEL are reported relating to short duration utilities activities programmed to occur sometime during construction month 8 to 16, where the utilities works are located very close to the receptor location.</p> <p>With regard to MU75 this relates to the installation of a multi-use utility corridor, with the overnight works relating specifically to overnight</p>

Site	Justification of significance conclusion
	<p>possession works for trenchless crossing activities linking to MU76 and MU79 underneath Network Rail assets which will be done under possession of the railway.</p> <p>As the issue relates to the trenchless crossing the following specific control would be necessary relating to this activity:</p> <p>Trenchless installation at Work No. MU75 to use machine inside temporary acoustic enclosure/building with adequate ventilation - BS5228-1 indicates up to 15 dB reduction in noise.</p> <p>With regard to the evening and night-time impacts at this receptor, whilst BPM will be applied along with other control measures through commitments secured within the REAC to reduce construction noise levels as far as reasonably possible, there remains the potential for construction noise to exceed a SOAEL and report a moderate adverse impact. However, based upon the construction programme, night-time impacts associated with these works would relate to rail possessions and as such would not occur for a duration of 10 or more days in any 15 consecutive day period or for more than 15 days in any six-month period as detailed within Tables 1.1 and 1.2 of Appendix 2.1 (Application Document 6.3). As such the impacts would therefore not constitute a significant effect on the basis of duration in line with DMRB LA 111.</p>
Tyas Stud Farm	<p>Unmitigated reasonable worst case construction noise levels at this receptor are predicted to have a moderate adverse impact during the daytime and night-time periods with a maximum exceedance of 3.0dB(A) above the daytime period SOAEL and 2.6dB(A) above the night-time period SOAEL. No significant impacts are reported at this location during the evening period.</p> <p>During the daytime these exceedances would occur during the earthworks activities, construction of the retaining wall adjacent east of M25, lane widening, movements along construction haul routes and construction of utilities work No(s) MU81.</p> <p>During the night-time these exceedances would occur during the construction of utilities Work No. MU83</p> <p>As a result of the exceedance of a SOAEL, mitigation will be required to be implemented through the controls inherent within REAC commitment NV007 (Section 7 of the CoCP (Application Document 6.3, Appendix 2.2)) relating to BPM.</p> <p>A comprehensive list of BPM measures is presented within Section 12.5 (Good Practice Mitigation) which will be implemented where appropriate across all construction activities associated with the Project. With regard to BPM for this NSR, measures would be required to include the following:</p> <p>Acoustic screening between construction works and noise sensitive receptor (BS5228-1 indicates up to 10 dB reduction in noise)</p> <p>Enclose static plant in (overhead line hydraulic tensioner) (BS5228-1 indicates up to 20 dB reduction in noise)</p> <p>Trenchless installation at Work No. MU83 to use machine inside temporary acoustic enclosure with adequate ventilation (BS5228-1 indicates up to 15 dB reduction in noise)</p> <p>As a conservative assumption, based upon the activities being undertaken in close proximity to at this NSR, a 10dB(A) attenuation attributable to the</p>

Site	Justification of significance conclusion
	robust implementation of BPM measures can be reasonably applied. This correction for BPM would therefore reduce the predicted unmitigated reasonable worst case construction noise levels to below a SOAEL for the identified time period and would therefore not constitute a significant effect.
Willow Tree Lodge	More than 300m away from any significant construction works, as such no adverse significant effects anticipated as a result of the Project during the construction phase.

D.2.5 In order to mitigate the potential for significant effects, BPM and other construction phase mitigation will be implemented through the controls inherent within the REAC (Section 7 of the CoCP (Application Document 6.3, Appendix 2.2)). Additionally, under the controls within the CoCP, when further details of the construction method and design are known, the Contractors will develop a Noise and Vibration Management Plan (REAC NV002) to control noise as far as reasonably possible under BPM.

D.2.6 As such it can be concluded that construction noise would be suitably controlled to a level where it would not constitute a significant effect at any of the traveller’s sites which have been identified and assessed.

Gammonfields Way Travellers Site – Construction Noise Assessment

D.2.7 Table D.2 below presents the construction noise assessment for the Gammonfields Way Travellers Site. As a result of the alignment of the Project there is a requirement to relocate the Gammonfields Way Travellers Site as part of the construction activities. This has been assumed to occur after Month 19 in the construction programme. The assessment in the table below therefore assesses the construction noise impacts on the basis of:

D.2.8 “Existing Site”: this relates to the existing Gammonfields Way Travellers Site, located adjacent to the A1089. Assessment of construction noise impacts have been undertaken to this site from month 1 to month 19; and,

D.2.9 “Proposed Site”: this relates to the proposed new Gammonfields Way Travellers Site adjacent to Long Lane. Assessment of construction noise impacts have been undertaken to this site from month 20 to month 60.

Table D.2 Gammonfields Way travellers’ site Construction Noise Assessment

Site	Justification of significance conclusion
<p>Gammonfields Way travellers’ site Existing Site from Construction Month 1 to Month 19</p>	<p>From the information supporting the DCO the Travellers will remain at the exiting Gammonfields Way Travellers Site adjacent to the A1089 until Month 19 and will then be relocated to the new site. Assessment has therefore been undertaken for month 1 to month 19 at the existing location.</p> <p>Unmitigated reasonable worst case construction noise levels at this receptor are predicted to have a moderate adverse impact during the night-time, with a maximum exceedance of 8.8dB(A) above the night-time period SOAEL. No unmitigated reasonable worst case significant impacts are reported at this location during the day-time or evening periods.</p> <p>During the night-time these exceedances would only occur during the construction of utilities Works No. OHT 4 and 7 and OH6. The night-time works associated with Work No 7E do not occur within close enough proximity to the receptor to influence the night-time assessment and all works associated with Work No 7Z and MU54 would only occur during the daytime period.</p> <p>As a result of the exceedance of a SOAEL, mitigation will be required to be implemented through the controls inherent within REAC commitment NV007 (Section 7 of the CoCP (Application Document 6.3, Appendix 2.2)) relating to BPM. This is discussed further in the sections below relative to the activities causing the night-time exceedances.</p> <p>As a conservative assumption, proven in the text to follow, based upon the activities being undertaken in close proximity to the existing Gammonfields Way Travellers Site, a 10dB(A) attenuation attributable to the robust implementation of BPM measures can be reasonably applied. This correction for BPM would therefore reduce the predicted unmitigated reasonable worst case construction noise levels to below a SOAEL for the identified time period and would therefore not constitute a significant effect.</p>
<p>Gammonfields Way travellers’ site Proposed new Site from Construction Month 20 to Month 60</p>	<p>From the information supporting the DCO the Travellers will be relocated to the new site at construction month 20, assessment has therefore been undertaken for month 20 to month 60 at the new location.</p> <p>Unmitigated reasonable worst case construction noise levels at the new Gammonfields Way Travellers Site are predicted to have a moderate adverse impact during the daytime, with a maximum exceedance of 0.5dB(A) above the daytime period SOAEL. No unmitigated reasonable worst case significant impacts are reported at this location during the evening or night-time periods.</p> <p>During the daytime these exceedances would occur for 1 month only out of the 60month programme, during the decommissioning of Long Lane Compound A in very close proximity to the receptor.</p> <p>As a result of the slight exceedance of a SOAEL, mitigation will be required to be implemented through the controls inherent within REAC commitment NV007 (Section 7 of the CoCP (Application Document 6.3, Appendix 2.2)) relating to BPM. This is discussed further in the sections below relative to the activities causing the night-time exceedances.</p> <p>Whilst not covered under BPM as it forms part of the design of the new site, an approximately 2.5m earth bund will be located along the northern, southern and western boundaries of the new travellers site limiting line of sight to the compound operations. However, this feature has not been included within the unmitigated construction noise scenario.</p>

Site	Justification of significance conclusion
	As a conservative assumption, proven in the text to follow, based upon the activities being undertaken in close proximity to the Gammonfields Way Travellers Site, minimal attenuation attributable to the robust implementation of BPM measures is necessary. A minimal correction for BPM implementation would therefore reduce the predicted unmitigated reasonable worst case construction noise levels to below a SOAEL for the identified time period and would therefore not constitute a significant effect .

D.2.10 As a result of the potential construction noise levels predicted at the Gammonfields Way Travellers Site, it was requested by the Examining Authority that further justification of the assumptions around BPM be provided for the Gammonfields Way Travellers Site. This has been undertaken through the detailed consideration of the activities that are causing the noise impacts during the overnight, evening and daytime at both Gammonfields Way Travellers Sites, and the specific measures that could be included through discussion with the Project Construction Team to ensure they are reasonable assumptions and can be implemented.

Specific BPM Night-time and Evening Works – Gammonfields Way Travellers Site

- D.2.11 Consideration and analysis of the noise model concluded the following construction activities to result in the significant effects at the Gammonfields Way Travellers Site, with appropriate and reasoned BPM measures presented for each.
- D.2.12 Detailed consideration of the BPM measures possible associated with these works have been undertaken in consultation with the Project Construction Team. These measures would be implemented through REAC commitment NV007 by the contractors, and considered in advance of any works under REAC commitments NV002 and NV004, for re assessment and CoPA s61 agreements.
- D.2.13 The measured detailed below have been implemented into the noise model to predict a “mitigated scenario” level at the Gammonfields Way Travellers Site, accounting also for the mid construction program relocation.
- D.2.14 Bridge Works BRN0000046 and BRN0000048
- D.2.15 Whilst the works on structure BRN0000046 and associated link road that ties in with the existing A0189 are represented in the night-time noise model as affecting the night-time noise climate concurrently with other activities in the area overnight for the full month, in reality they only occur for 3No. 48hr weekend night-time possessions where the new roads tie in to existing roads, effectively at each end of the structure. Additionally, non-intrusive procedures are necessary for BRN Structures 000046 and 000048 to monitor potential settling of the A13 during the pushing phase of the structure. It's crucial to note

that these monitoring activities are conducted without intrusion and do not add any extra noise to the existing noise on the A13. As such the impact of the works is overrepresented in the noise model as a result of the monthly nature of the supplied information, with the majority of the works being limited to daytime activities.

- D.2.16 The works on BRN0000048 relate to box jacking activities under the A13 for 3 months. These works were represented in the DCO model as surface plant as a worst case assumption, but would occur within an excavation approximately 8-10m deep. The plant associated with these works would be operational at existing ground level initially to form the excavation. Following this, the majority of the works associated with this structure would be carried out within the approximately 8-10m excavation and as such significantly screened. With the assumption that the box jack operations will occur from the north and drive south, the works would be considerably screened from the Gammonfields Way Travellers Site.
- D.2.17 In addition to this the following BPM could be implemented in the works, acoustic modelling has been undertaken to predict the noise levels at the Travellers site with these measures implemented.
- a. Consideration of the plant necessary to complete the overnight works, and restriction to only those items absolutely essential to the completion of the required overnight task, with no ancillary or peripheral plant or activities occurring. Any task or plant activity that could be reasonably completed during the daytime would not be undertaken overnight.
 - b. Provision of local temporary acoustic screens of 3m height between the activity and the Travellers site. The screens would be relocated as necessary to screen works.
 - c. Driving of the “box jack” from the north within an 8-10m deep shaft. The majority of the activity would therefore be underground.
- D.2.18 In addition, there is the option available to the contractor to replace the diesel plant considered in the ES with electric alternatives reducing the noise levels generated by the plant or provision of the quietest plant available to undertake the works. However, that has not been included within the scope of this assessment with representative noise levels selected for each plant item.
- D.2.19 Bridge Works BRN0000042
- D.2.20 Whilst these works are represented in the night-time noise model as affecting the noise climate concurrently with other activities in the area overnight for the full month, in reality they only occur for isolated periods of 3No. 48hr weekend night-time possessions for surfacing and tie in works. As such the impact of the works is overrepresented in the noise model as a result of the monthly nature of

the supplied information, with the majority of the works being limited to daytime activities.

- D.2.21 In addition to this the following BPM could be implemented in the works, acoustic modelling has been undertaken to predict the noise levels at the Travellers site with these measures implemented.
- a. Provision of local temporary acoustic screens of 4m height between the activity and the Travellers site. The screens would be relocated as necessary to screen works.
- D.2.22 In addition, there is the option available to the contractor to replace the diesel plant considered in the ES with electric alternatives reducing the noise levels generated by the plant or provision of the quietest plant available to undertake the works. However, that has not been included within the scope of this assessment with representative noise levels selected for each plant item.
- D.2.23 Bridge Works BRE0012830
- D.2.24 Whilst these works are represented in the night-time noise model as affecting the noise climate concurrently with other activities in the area overnight for the full month, in reality they only occur for an isolated period of 1No. 48hr weekend night-time possession for demolition works. As such the impact of the works is overrepresented in the noise model as a result of the monthly nature of the supplied information, with the majority of the works being limited to daytime activities.
- D.2.25 In addition to this the following BPM could be implemented in the works, acoustic modelling has been undertaken to predict the noise levels at the Travellers site with these measures implemented.
- a. Use of hydraulic concrete sheers as opposed to percussive breaking methods; and,
 - b. Provision of local temporary acoustic screens of 4m height between the activity and the Travellers site. The screens would be relocated as necessary to screen works.
- D.2.26 In addition, there is the option available to the contractor to replace the diesel plant considered in the ES with electric alternatives reducing the noise levels generated by the plant or provision of the quietest plant available to undertake the works. However, that has not been included within the scope of this assessment with representative noise levels selected for each plant item.
- D.2.27 Utilities works OHT 4-7 and OH 6
- D.2.28 Whilst the noise model assumes this activity to occur in totality 24/7 for a total of 18 months as indicated in the construction information informing the ES, it has

now been confirmed by the construction team that information supplied by National Grid indicates only limited activities would occur during the overnight, and not the full works as assumed in the DCO assessment. In addition, the information from National Grid confirmed that within the total 18 months assumed for these works in the ES noise model the 24/7 activities would likely not exceed 11 weeks for each set of works.

- D.2.29 Predominantly the works associated with OHT 4-7 and OH 6 would be during the core daytime hours, with the night time activities limited to:
- a. Infrequent oversized and abnormal deliveries that cannot be accommodated during daytime hours;
 - b. Positioning of protective netting over roads (it is noted that the supporting scaffolding works would be limited to daytime activities); and,
 - c. Commissioning and tensioning.
- D.2.30 In addition to this the following BPM could be implemented in the works, acoustic modelling has been undertaken to predict the noise levels at the Travellers site with these measures implemented.
- a. The overhead line hydraulic tensioning plant could be located at more remote tower locations, thus increasing the separation distance to the Travellers site. However, this has not been assumed in the modelling as it cannot be confirmed at this point with other issues needing to be considered aside from noise;
 - b. The tensioning rig enclosed in a 3m high enclosure; and,
 - c. Limiting of the operational plant overnight to only that required to support the tensioning works.
- D.2.31 In addition, there is the option available to the contractor to replace the diesel plant considered in the ES with electric alternatives reducing the noise levels generated by the plant or provision of the quietest plant available to undertake the works. However, that has not been included within the scope of this assessment with representative noise levels selected for each plant item.
- D.2.32 Utilities Works MU46 – Trenchless crossing of A13 and MU47 – Trenchless crossing of the A1089
- D.2.33 The following BPM could be implemented in the works and the validity of these measures as an option discussed and agreed with the Construction team.

Acoustic modelling has been undertaken to predict the noise levels at the Travellers site with these measures implemented.

a. *Utilities Works MU46 – Trenchless crossing of A13*

- i. Replacement of the diesel drill considered in the DCO assessment with an electric alternative reducing the noise level for the HDD by 10dB;
- ii. Launch of the drill and positioning of the HDD rig to the north of the A13 (assumed to the south in the ES), increasing the separation distance and providing screening by the A13 from the Travellers site;
- iii. Positioning of the HDD rig in a shallow pit (2m deep) to reduce the height of the source thus increasing the performance of screening provision;
- iv. Enclosure of the HDD rig in a 4m high temporary acoustic enclosure; and,
- v. Restriction of night time activities associated with MU46 to only the electric HDD rig with no other plant or deliveries occurring. All associated works and materials would be organised during the daytime period to allow night-time activities to occur.

b. *Utilities Works MU47 – Trenchless crossing of A1089*

- i. Replacement of the diesel drill considered in the DCO assessment with an electric alternative reducing the noise level for the HDD by 10dB;
- ii. Launch of the drill and positioning of the HDD rig to the west of the A1089 (assumed to the works on both sides in the ES);
- iii. Positioning of the HDD rig in a shallow pit (2m deep) to reduce the height of the source thus increasing the performance of screening provision;
- iv. Enclosure of the HDD rig in a 4m high temporary acoustic enclosure; and,
- v. Restriction of night time activities associated with MU47 to only the electric HDD rig with no other plant or deliveries occurring. All associated works and materials would be organised during the daytime period to allow night-time activities to occur.

D.2.34 In addition, in the noise model the HDD rig and the drilling is assumed in 18 months of the model as a result of the representation in the programme. In reality the construction team have advised the drilling would need to be 24/7 only for the period under the A13 and 13m either side, and for the period under the A1089 as a result of the road operators requirements, meaning that the 24hr

drilling is only required for approximately 4-6 weeks for the A13 crossing and 2 weeks for the A1089 crossing, at an assumed rate of progress of 100m per week.

- D.2.35 Additionally, regarding MU46 this would not be a continuous 4 week period but split into 2No. 2-3 week periods. As such the overnight impacts would not therefore occur for the entire 18 month period that the works are in the programme as reflected in the ES.
- D.2.36 Utilities Works MUT13 - Trenchless crossing of A1013
- D.2.37 Whilst the noise model assumes this activity to occur 24/7, it has now been confirmed by the construction team that these utilities works could be satisfactorily delivered with a restriction to daytime works. As such these works have been removed from the overnight noise models in all months.
- D.2.38 In addition to this the following BPM could also be implemented in the works, acoustic modelling has been undertaken to predict the noise levels at the Travellers site with these measures implemented.
- a. Replacement of the diesel drill considered in the ES with an electric alternative or a small electric Impact Mole positioned in the bottom of a 2m trench reducing the noise level for the drill rig by 10dB;
 - b. Launch of the drill and positioning of the HDD rig to the north of the A1013 (assumed to the south in the ES), increasing the separation distance from the Travellers site;
 - c. Positioning of the HDD rig/electric Impact mole in a shallow pit (2m deep) to reduce the height of the source thus increasing the performance of screening provision; and,
 - d. Enclosure of the HDD rig/ electric impact mole in a 4m high temporary acoustic enclosure.

Specific BPM Daytime Works – Gammonfields Way Travellers Site

- D.2.39 Consideration and analysis of the DCO assessment noise model concluded the following construction activities to result in the potential for significant effects at the Gammonfields Way Travellers Site during the daytime period.
- D.2.40 Decommissioning of Long Lane Compound A, impacting during the daytime period at the New Gammonfields Way Travellers Site.
- D.2.41 Consideration of BPM relating to this activity presents the following options, which have been modelled to consider the effects these measures would potentially have on the predicted construction noise levels at the Travellers site

and to prove the effectiveness of the suggested BPM measures to control noise impacts.

- D.2.42 However, these measures would relate to all daytime construction activities in the vicinity of the Travellers site under the requirements of commitment NV007.
- D.2.43 Commitment to undertake no earthworks activities within 300m of any sensitive receptors during daytime and evening periods;
- D.2.44 Provision of local temporary acoustic screens of up to 3.0m height adjacent to works and positioned between the activity and the Travellers site. The screens would be relocated as necessary as works progress to screen works.
- D.2.45 In addition, there is the option available to the contractor to replace the diesel plant considered in the ES with electric alternatives reducing the noise levels generated by the plant or provision of the quietest plant available to undertake the works. However, that has not been included within the scope of this assessment with representative noise levels selected for each plant item.
- D.2.46 Whilst not covered under BPM as it forms part of the design of the new site, an approximately 2.5m earth bund will be located along the northern, southern and western elevations of the new Gammonfields Way Travellers Site limiting line of sight to Long Lane Compound A operations.

Construction Noise Assessment Gammonfields Way Travellers Site, Including BPM.

- D.2.47 With the implementation of the above BPM measures for the daytime, evening and night-time works into the DCO assessment noise model the following construction noise levels are predicted at the Gammonfields Way Travellers Sites, considering both the existing site and the proposed new site, with a relocation at the end of month 19.
- D.2.48 It is specifically noted that in the modelling informing this assessment, where temporary acoustic fencing/barriers are proposed these have been calculated within the noise model in accordance with appropriate methodologies.
- D.2.49 Plate D.1 to Plate D.3 details the monthly daytime, evening and overnight construction noise levels at the Gammonfields Way Travellers Site including the consideration of all of the prescribed mitigation measures discussed above. As there are 21 plots on the existing and proposed Gammonfields Way Travellers Sites within the graphs below, the maximum predicted construction noise level at any plot is reported, with the other plots actually reporting levels at or below this value. As such the levels presented in the graphs for each month are not inherent on all plots for that month and represent the worst affected plot within the existing Gammonfields Way Travellers Site up to month 19, and the new site from month 20.

Plate D.1 Daytime BPM Construction Noise Gammonfields Way Travellers Site

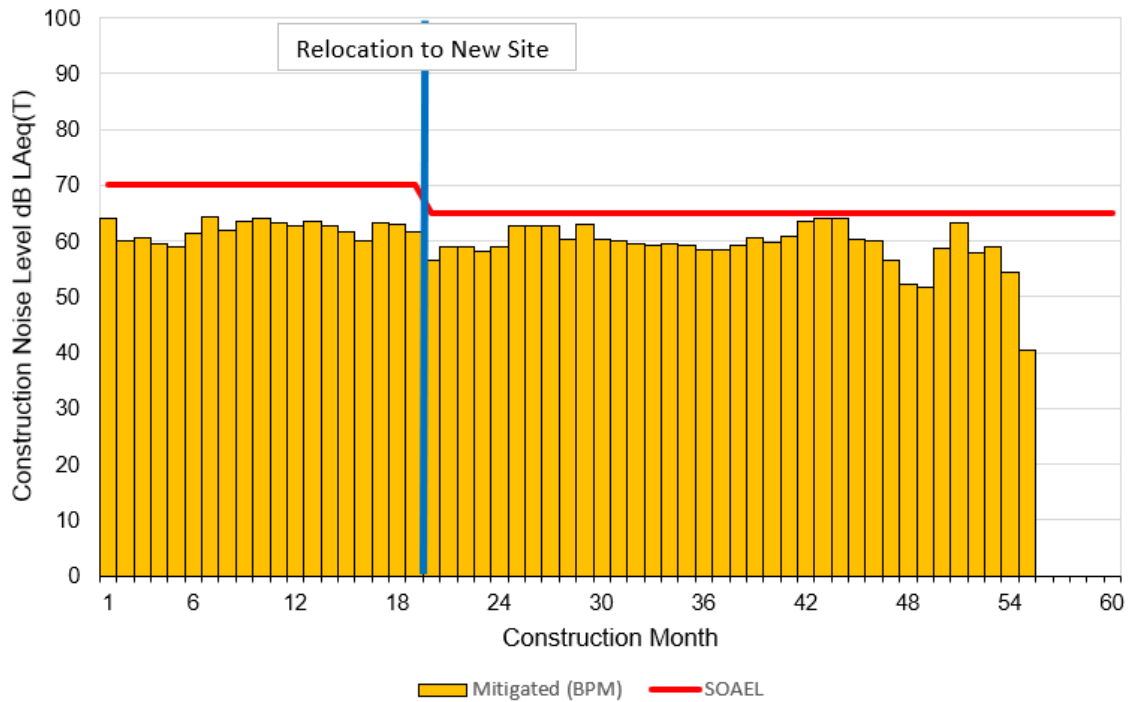


Plate D.2 Evening BPM Construction Noise Gammonfields Way Travellers Site

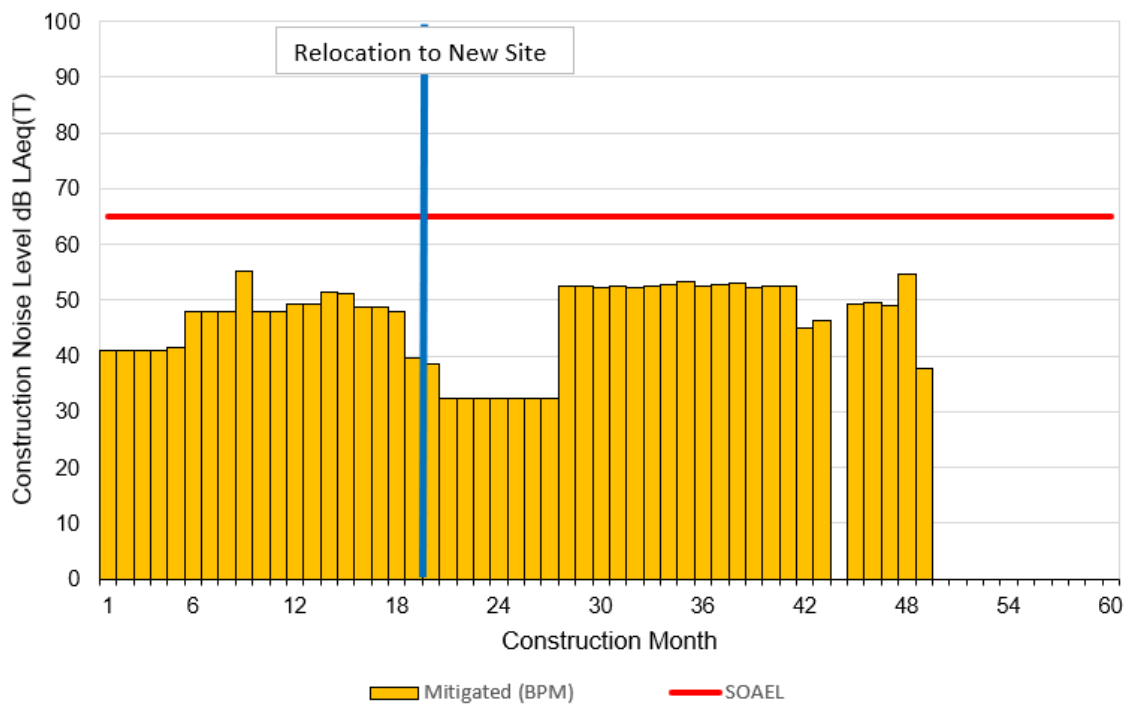
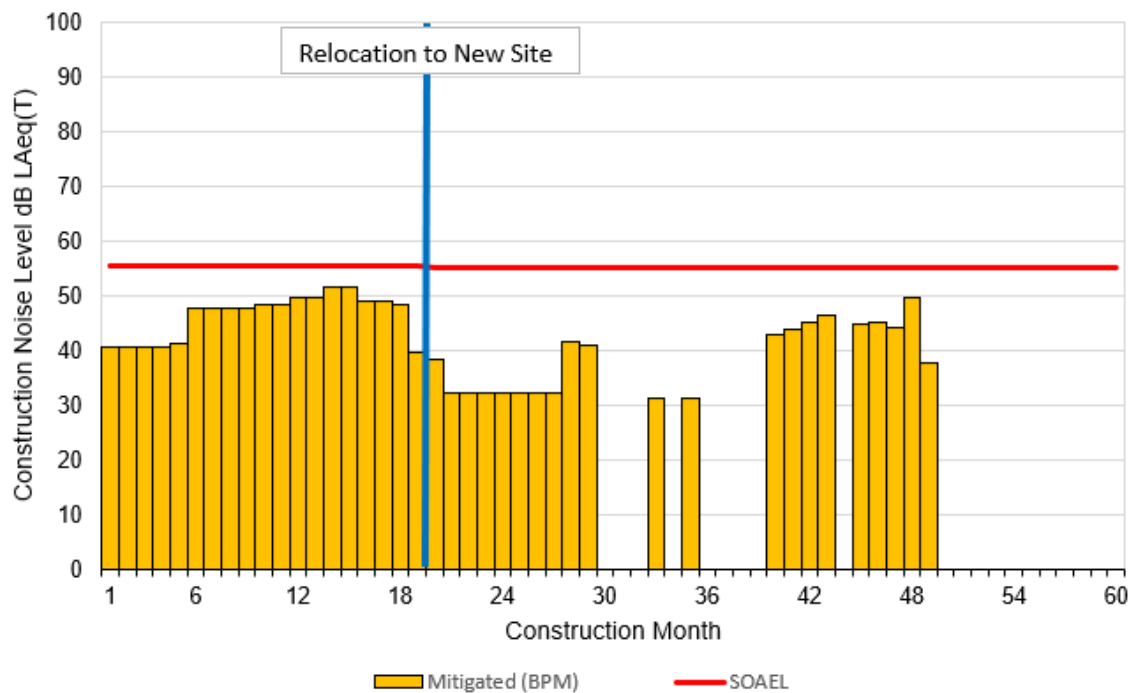


Plate D.3 Overnight BPM Construction Noise Gammonfields Way Travellers Site



D.2.50 Consideration of the acoustic performance of the proposed BPM measures listed in this document against the unmitigated construction noise assessment results concludes:

- a. The implementation of all of the BPM mitigation specified in the sections above relating to plant and screening has afforded a calculated reduction in construction noise at the Gammonfields Way Travellers Site of:
 - i. up to approximately 13dB during the night-time and evening attributable to the implementation of all of the BPM measures listed above; and,
 - ii. up to approximately 5dB during the daytime attributable to the implementation of all of the BPM measures listed above.
- b. With the implementation of all of the BPM measures listed above, daytime, evening and overnight construction noise levels at the existing and proposed Gammonfields Way Travellers Sites are predicted to be below the appropriate SOAEL values defined in DMRB LA111 and BS5228:1 2014 (+A1:2019) construction noise threshold criteria values as detailed in the DCO submission documents for the consideration of construction noise impacts.
- c. As such in no instance, with the implementation of BPM would construction noise be concluded to represent a significant adverse effect at either the existing or new Gammonfields Way Travellers Sites.

D.3 Operational Impacts

D.3.1 Table D.3 and Table D.4 present the predicted levels and change in road traffic noise in the opening year of the Project during the daytime and night-time periods at the identified travellers sites.

D.3.2 With regard to the operational road traffic noise impacts at Gammonfields Way travellers' site the assumption has been made that the occupants of the existing site would relocate to the equivalent plot number at the new site. Tables 4 and Table 5 present the predicted daytime and night-time road traffic noise levels at the existing plot number and at the relocated plot number.

Table D.3 Travellers Sites - Operational Daytime Impacts

Site	DM Opening Year L _{A10, 18hr}	DS Opening Year L _{A10, 18hr}	Noise Level Difference	Magnitude of Impact
Ashlea View	45.8	45.4	-0.4	Negligible
View Point Place	54.1	54.0	-0.1	Negligible
End of Lower Crescent, Linford	45.0	50.9	+5.9	Major Adverse
Gammonfields Way travellers' site	Refer to Table 4			
Laburnham Stables	58.3	56.6	-1.7	Minor Beneficial
Fairoak Showman's Quarters	65.6	61.8	-3.8	Moderate Beneficial
Railway Sidings	58.8	56.8	-2.0	Minor Beneficial
Tyas Stud Farm	68.8	62.7	-6.1	Major Beneficial
Willow Tree Lodge	66.5	67	+0.5	Negligible

Table D.4 Travellers Sites - Operational Night-time Impacts

Site	DM Opening Year L _{Night}	DS Opening Year L _{Night}	Noise Level Difference	Magnitude of Impact
Ashlea View	44.1	43.7	-0.4	Negligible
View Point Place	51.3	51.2	-0.1	Negligible
End of Lower Crescent, Linford	43.4	48.5	+5.1	Major Adverse
Gammonfields Way travellers' site	Refer to Table 5			
Laburnham Stables	55.0	53.5	-1.5	Minor Beneficial
Fairoak Showman's Quarters	61.3	58.0	-3.3	Moderate Beneficial

Site	DM Opening Year	DS Opening Year	Noise Level Difference	Magnitude of Impact
	L _{Night}	L _{Night}		
Railway Sidings	55.4	53.7	-1.7	Minor Beneficial
Tyas Stud Farm	64.1	58.8	-5.3	Major Beneficial
Willow Tree Lodge	62.1	62.5	+0.4	Negligible

D.3.3 With reference to Tables 2 and Table 3 the following Short-term impacts and resultant significance of effects have been predicted to occur:

- a. One site (End of Lower Crescent, Linford) is predicted to experience a major adverse change in road traffic noise level during the daytime and night-time.
 - i. Adverse impacts at this receptor would be mitigated as far as reasonably possible through the Project design via low noise surfacing with a road surface influence of -7.5dB(A) and a 4m false cutting adjacent to the Project main alignment as presented on Page 3 of Figure 12.6: Operational Road Traffic Noise Mitigation (Application Document 6.2). An appraisal of noise mitigation options such as acoustic barriers is considered in 6.3 Environmental Statement - Appendix 12.10 - Road Traffic Noise Mitigation and Cost Benefit Analysis [Application Document APP-450]. Acoustic barriers were determined to not be a viable option for road traffic noise mitigation in this area.
 - ii. Resultant road traffic noise levels would be below a SOAEL during the daytime and night-time, but as a result of the magnitude of the change would constitute a significant adverse environmental effect.

D.3.4 However, in terms of health and quality of life, as defined under the policy considerations of the National Networks Network Policy Statement (NN-NPS) (paragraph 5.195):

- a. Daytime: as the changes occur below a LOAEL these impacts would not be expected to have an adverse effect on health and quality of life as defined under UK Policy on noise.
- b. Night-time: as the changes occur above a LOAEL these impacts could present an adverse effect on health and quality of life as defined under UK Policy on noise; however, as they are below a SOAEL they would not be classified as significant.

D.3.5 It is noted that a significant environmental effect does not necessarily equate to a significant effect on health and quality of life, which requires an exceedance of the SOAEL criteria, which is an absolute level. Therefore, with reference to paragraph 5.195 of the NPS NN all adverse impacts on health and quality of life

relating to noise have been mitigated and minimised as far as reasonably possible as detailed in 6.1 Environmental Statement - Chapter 12 - Noise and Vibration [Application Doc APP-150] and 6.3 Environmental Statement - Appendix 12.10 - Road Traffic Noise Mitigation and Cost Benefit Analysis [Application Doc APP-450].

- a. Three sites (Ashlea View, View Point Place and Willow Tree Lodge) are predicted to experience a negligible change in road traffic noise level during the daytime and night-time.
 - i. Changes in road traffic noise level of this magnitude would not be considered to have any effect on health or quality of life, and would not constitute a significant environmental effect.
- b. Two sites (Laburnham Stables and Railway Sidings) are predicted to experience a minor beneficial change in road traffic noise level between a LOAEL and a SOAEL during the daytime, and above a SOAEL during the night-time.
 - i. Daytime: Changes in road traffic noise level of this magnitude would not be considered to constitute a significant beneficial environmental effect.
 - ii. Night-time: Changes in road traffic noise level of this magnitude above a SOAEL would be considered to constitute a significant beneficial environmental effect.

D.3.6 In terms of health and quality of life, as defined under the policy considerations of the NN-NPS

- a. Daytime: as the changes occur between a LOAEL and a SOAEL these impacts would not be expected to have a significant effect on health and quality of life as defined under UK Policy on noise.
- b. Night-time: as the changes occur above a SOAEL these impacts would be expected to have a significant beneficial effect on health and quality of life as defined under UK Policy on noise.
- c. One site (Fairoak Showman's Quarters) is predicted to experience a moderate beneficial change in road traffic noise level during the daytime and night-time periods. During the daytime the change occurs between a LOAEL and a SOAEL, and during night-time the change occurs above a SOAEL.
 - i. Daytime: Changes in road traffic noise level of this magnitude would be considered to constitute a significant beneficial environmental effect as a result of the magnitude of change.

- ii. Night-time: Changes in road traffic noise level of this magnitude above a SOAEL would be considered to constitute a significant beneficial environmental effect as a result of both magnitude of change and absolute noise levels.

D.3.7 In terms of health and quality of life, as defined under the policy considerations of the NN-NPS

- a. Daytime: whilst the changes occur between a LOAEL and a SOAEL impacts of this magnitude of change would result in beneficial effects on health and quality of life, which when defined under UK Policy on noise would not be significant.
- b. Night-time: as the changes occur above a SOAEL these impacts would be expected to have a significant beneficial effect on health and quality of life as defined under UK Policy on noise.
- c. One site (Tyas Stud Farm) is predicted to experience a major beneficial change in road traffic noise level during the daytime and night-time periods, which in both cases occur above a SOAEL.
 - i. Daytime and Night-time: Changes in road traffic noise level of this magnitude above a SOAEL would be considered to constitute a significant beneficial environmental effect as a result of both magnitude of change and absolute noise levels.

D.3.8 In terms of health and quality of life, as defined under the policy considerations of the NN-NPS.

- a. Daytime and Night-time: as the changes occur above a SOAEL these impacts would be expected to have a significant beneficial effect on health and quality of life as defined under UK Policy on noise.

Gammonfields Way Travellers site

D.3.9 Table D.5 and Table D.6 below present the calculated $L_{Aeq, T}$ values at the Gammonfields Way Travellers Site for the existing location and the proposed new location.

D.3.10 Within Table D.5 and Table D.6 noise levels are presented for:

- a. “Existing Plot”: this relates to the plot number on the existing Gammonfields Way Travellers Site, located adjacent to the A1089; and,
- b. “Proposed Plot”: this relates to the plot number on the proposed new Gammonfields Way Travellers Site adjacent to Long Lane.

Table D.5 Gammonfields Way travellers' site Operational Daytime Road Traffic Noise Levels

Plot Number	Existing Plot DM opening year ($L_{Aeq, 16hr}$)	Proposed Plot DS opening year ($L_{Aeq, 16hr}$)	Difference	Magnitude of Impact
Plot 1	68.3	55.3	-13.0	Major Beneficial
Plot 2	64.7	54.0	-10.7	Major Beneficial
Plot 3	64.9	54.3	-10.6	Major Beneficial
Plot 4	65.1	54.5	-10.6	Major Beneficial
Plot 5	65.1	54.6	-10.5	Major Beneficial
Plot 6	68.0	55.7	-12.3	Major Beneficial
Plot 7	71.0	56.3	-14.7	Major Beneficial
Plot 8	70.3	56.3	-14.0	Major Beneficial
Plot 9	66.7	55.8	-10.9	Major Beneficial
Plot 10	65.4	54.7	-10.7	Major Beneficial
Plot 11	65.4	54.8	-10.6	Major Beneficial
Plot 12	65.4	54.9	-10.5	Major Beneficial
Plot 13	65.2	54.8	-10.4	Major Beneficial
Plot 14	67.1	55.9	-11.2	Major Beneficial
Plot 15	70.6	56.5	-14.1	Major Beneficial
Plot 16	67.5	55.9	-11.6	Major Beneficial
Plot 17	65.5	54.9	-10.6	Major Beneficial
Plot 18	65.4	54.9	-10.5	Major Beneficial
Plot 19	65.3	54.8	-10.5	Major Beneficial
Plot 20	65.0	54.7	-10.3	Major Beneficial
Plot 21	68.1	55.6	-12.5	Major Beneficial

Table D.6 Gammonfields Way travellers' site Operational Night-time Road Traffic Noise Levels

Plot Number	Existing Plot DM opening year ($L_{Night, 8hr}$)	Proposed Plot DS opening year ($L_{Night, 8hr}$)	Difference	Magnitude of Impact
Plot 1	59.5	47.8	-11.7	Major Beneficial
Plot 2	56.3	46.6	-9.6	Major Beneficial
Plot 3	56.4	46.9	-9.5	Major Beneficial

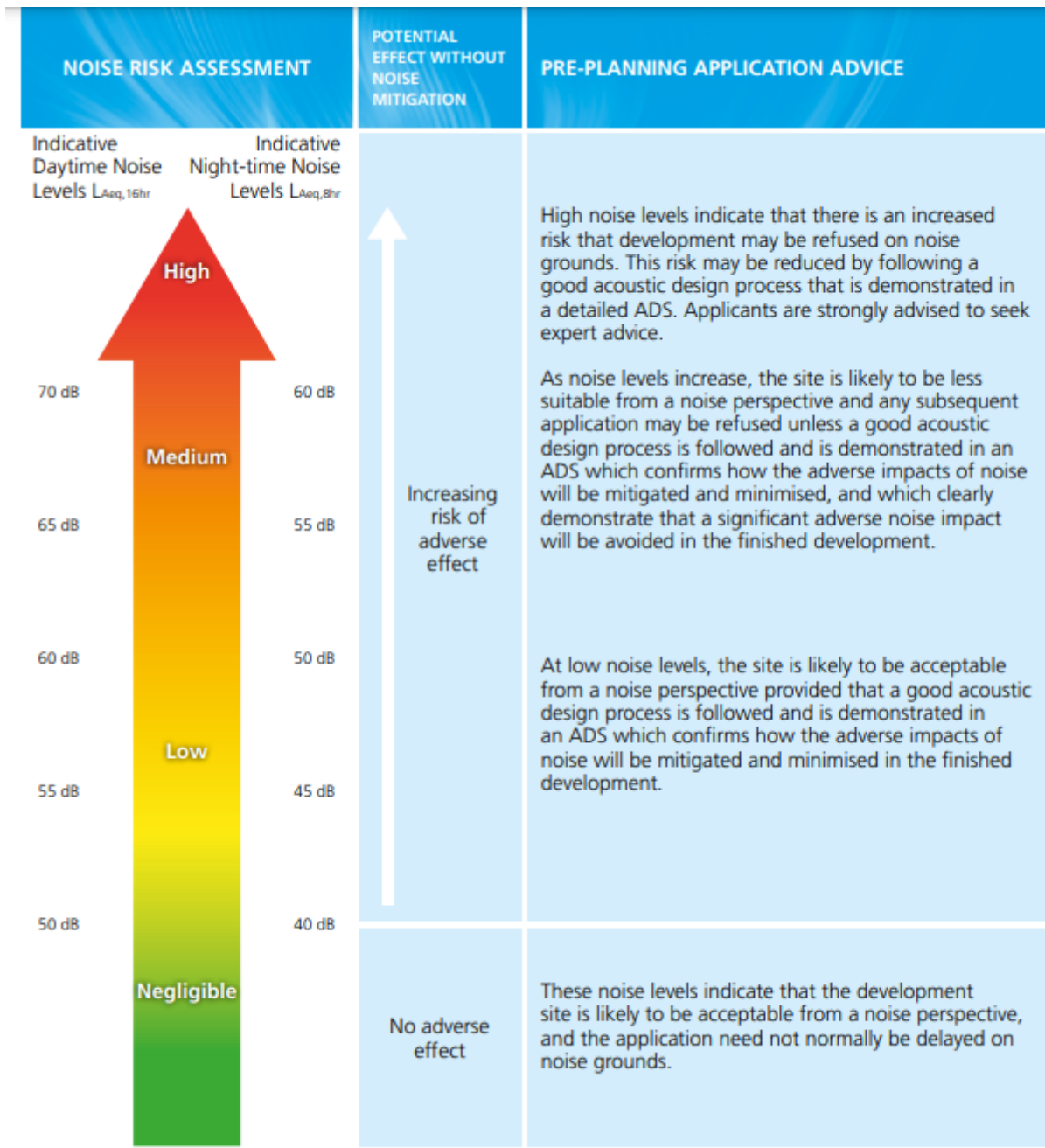
Plot Number	Existing Plot DM opening year ($L_{Night, 8hr}$)	Proposed Plot DS opening year ($L_{Night, 8hr}$)	Difference	Magnitude of Impact
Plot 4	56.6	47.1	-9.5	Major Beneficial
Plot 5	56.6	47.2	-9.4	Major Beneficial
Plot 6	59.2	48.2	-11.1	Major Beneficial
Plot 7	61.9	48.7	-13.2	Major Beneficial
Plot 8	61.3	48.7	-12.6	Major Beneficial
Plot 9	58.1	48.3	-9.8	Major Beneficial
Plot 10	56.9	47.3	-9.6	Major Beneficial
Plot 11	56.9	47.4	-9.5	Major Beneficial
Plot 12	56.9	47.4	-9.5	Major Beneficial
Plot 13	56.7	47.4	-9.4	Major Beneficial
Plot 14	58.4	48.3	-10.1	Major Beneficial
Plot 15	61.6	48.9	-12.7	Major Beneficial
Plot 16	58.8	48.3	-10.4	Major Beneficial
Plot 17	57.0	47.4	-9.5	Major Beneficial
Plot 18	56.9	47.4	-9.5	Major Beneficial
Plot 19	56.8	47.4	-9.5	Major Beneficial
Plot 20	56.5	47.3	-9.3	Major Beneficial
Plot 21	59.3	48.1	-11.3	Major Beneficial

- D.3.11 With regard to the daytime and night-time results at Gammonfields Way travellers' site presented in Table 4 and Table 5 the following can be concluded:
- a. During the daytime, inhabitants of all plots would be exposed to road traffic noise dominated levels at least 10.3dB(A) lower than on the existing site; and,
 - b. During the night-time, inhabitants of all plots would be exposed to road traffic noise dominated levels at least 9.3dB(A) lower than on the existing site.
- D.3.12 In the existing location, all plots during the daytime and night-time are predicted to experience road traffic noise levels above a SOAEL. However, following the relocation to the new site all of the plots (21) during both the daytime and night-time periods are reduced to below a SOAEL.
- D.3.13 As a result of the relocation and the fact that plot numbers for individual residents will not change, following the opening of the Project to traffic all residents are predicted to experience significant reductions in road traffic noise. Under the assessment scheme informing the ES this would be concluded to

represent a **significant beneficial environmental effect above a SOAEL**, which would therefore represent a significant beneficial effect in terms of health and quality of life as defined under UK Policy on noise.

- D.3.14 Furthermore, consideration has been given to the absolute levels of noise predicted at the new travellers site location in accordance with appropriate residential design criteria of ProPG Planning & Noise: Professional Practice Guidance on Planning & Noise, New Residential Development dated May 2017.
- D.3.15 The Stage 1 assessment of the ProPG presents a scale for the consideration of the risk of adverse effects of noise relating to residential amenity. This stage 1 assessment requires the consideration of the site prior to any mitigation or building structures being in place, to give an indication of the risk profile of the site. The scale is detailed in Plate A.1 below taken directly from the ProPG document.

Plate D.4 ProPG Stage 1 Noise Risk Assessment



D.3.16 The noise levels predicted at the new Gammonfields Way Travellers Site are as follows, presented with the conclusion of the Stage 1 ProPG noise risk analysis:

- a. Daytime Period: 54 to 56 dB(A): This would be concluded to represent a **Low risk of adverse noise effects** during the daytime period; and,
- b. Night-time Period: 47 to 49 dB(A): This would be concluded to represent a **Low risk of adverse noise effects** during the night-time period.

D.3.17 As such the absolute noise levels predicted at the new Gammonfields Way Travellers Site are concluded to present acceptable residential amenity in terms of noise.

- D.3.18 Conversely, consideration of the current noise climate at the Gammonfields Way Travellers Site location against the ProPG criteria would conclude Medium to High risk of adverse effects of noise, thus further confirming the beneficial effects for the residents of moving the travellers site to the new location.
- D.3.19 Consideration of internal levels is based upon the open window scenario. Research into the noise attenuation of caravans concludes acoustic performance requirements for permanent residential caravans (BS 3632:2023 Residential park homes – Specification) but not for touring. In this instance the consideration is necessary of predominantly touring caravans, meaning the information in BS 3632 is not directly relevant. Consideration of BS EN 1645-1:2018 Leisure accommodation vehicles – Caravans Part 1: Habitation requirements relating to health and safety and BS EN 1647:2018+A1:2021 Leisure accommodation vehicles — Caravan holiday homes — Habitation requirements relating to health and safety does not conclude any specific acoustic performance relating to touring Caravans.
- D.3.20 In the absence of any specific design criteria the acoustic performance of typical touring caravan constructions was taken from an in-depth review of commercially available information. This search concluded typical construction details for touring caravans as detailed below, with the calculated acoustic performance of the system:
- a. Frame Construction (either Timber or Aluminium frame):
 - i. ≈3mm Aluminium / Plywood
 - ii. ≈20mm thermal insulation within Aluminium / Timber Frame
 - iii. ≈2mm Aluminium / Plywood
- D.3.21 Acoustic performance of between 25dB Rw and 35dB Rw as calculated in INSUL (including a -3dB margin of error correction).
- a. Sandwich Construction (no frame):
 - i. ≈3mm Aluminium / Plywood
 - ii. ≈40mm thermal insulation within Aluminium / Timber Frame
 - iii. ≈2mm Aluminium / Plywood
- D.3.22 Acoustic performance of between 26dB Rw and 34dB Rw as calculated in INSUL (including a -3dB margin of error correction).
- D.3.23 Within the assessments informing this note, an assumption of an open window providing an Rw of 13dB has been assumed. As a result of the calculated performances of the wall structures of typical touring caravans and the percentage area of any façade taken up by windows, the applicant fees this to

be an appropriate assumption. An open window situation presents a worst case, as with windows closed the acoustic performance of the caravan would be higher.

D.3.24 Based upon the information presented within Tables 4 and 5 concludes the following assuming a façade reduction of 10-15dB for a partially open window.

a. Current Site Location adjacent to the A1089:

- i. Daytime external noise levels would result in internal noise up to 18dB above the reasonable design criteria of BS8233; and,
- ii. Night-time external noise levels would result in internal noise up to 13.9dB above the reasonable design criteria of BS8233.

b. Proposed New Gammonfields Way Travellers Site Location:

- i. Daytime external noise levels would result in internal noise up to 3.5dB above the reasonable design criteria of BS8233; and,
- ii. Night-time external noise levels would result in internal noise up to 0.9dB above the reasonable design criteria of BS8233.

D.3.25 As such whilst the internal noise climates within the caravans, assuming a partially open window, would be in slight breach of the BS8233 residential design criteria at the newly proposed site, this is significantly better than the situation that the community face on the current site. At the current Gammonfields Way Travellers Site, without any provision of the LTC Project, internal noise conditions are calculated to be significantly above the BS8233 criteria.

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Glossary

Term	Abbreviation	Explanation
A122		The new A122 trunk road to be constructed as part of the Lower Thames Crossing project, including links, as defined in Part 2, Schedule 5 (Classification of Roads) in the draft DCO (Application Document 3.1)
A122 Lower Thames Crossing	Project	A proposed new crossing of the Thames Estuary linking the county of Kent with the county of Essex, at or east of the existing Dartford Crossing.
A122 Lower Thames Crossing/M25 junction		New junction with north-facing slip roads on the M25 between M25 junctions 29 and 30, near North Ockendon.
A13/A1089/A122 Lower Thames Crossing junction		Alteration of the existing junction between the A13 and the A1089, and construction of a new junction between the A122 Lower Thames Crossing and the A13 and A1089, comprising the following link roads: <ul style="list-style-type: none"> • Improved A13 westbound to A122 Lower Thames Crossing southbound • Improved A13 westbound to A122 Lower Thames Crossing northbound • Improved A13 westbound to A1089 southbound • A122 Lower Thames Crossing southbound to improved A13 eastbound and Orsett Cock roundabout • A122 Lower Thames Crossing northbound to improved A13 eastbound and Orsett Cock roundabout • Orsett Cock roundabout to the improved A13 westbound • Improved A13 eastbound to Orsett Cock roundabout • Improved A1089 northbound to A122 Lower Thames Crossing northbound • Improved A1089 northbound to A122 Lower Thames Crossing southbound
A2		A major road in south-east England, connecting London with the English Channel port of Dover in Kent.
Application Document		In the context of the Project, a document submitted to the Planning Inspectorate as part of the application for development consent.
Construction		Activity on and/or offsite required to implement the Project. The construction phase is considered to commence with the first activity on site (e.g. creation of site access), and ends with demobilisation.
Design Manual for Roads and Bridges	DMRB	A comprehensive manual containing requirements, advice and other published documents relating to works on motorway and all-purpose trunk roads for which one of the Overseeing Organisations (National Highways, Transport Scotland, the Welsh Government or the Department for Regional Development (Northern Ireland)) is highway authority. For the A122 Lower Thames Crossing the Overseeing Organisation is National Highways.
Development Consent Order	DCO	Means of obtaining permission for developments categorised as Nationally Significant Infrastructure Projects (NSIP) under the Planning Act 2008.

Term	Abbreviation	Explanation
Development Consent Order application	DCO application	The Project Application Documents, collectively known as the 'DCO application'.
Environmental Statement	ES	A document produced to support an application for development consent that is subject to Environmental Impact Assessment (EIA), which sets out the likely impacts on the environment arising from the proposed development.
Highways England		Former name of National Highways.
M2 junction 1		The M2 will be widened from three lanes to four in both directions through M2 junction 1.
M2/A2/Lower Thames Crossing junction		New junction proposed as part of the Project to the east of Gravesend between the A2 and the new A122 Lower Thames Crossing with connections to the M2.
M25 junction 29		Improvement works to M25 junction 29 and to the M25 north of junction 29. The M25 through junction 29 will be widened from three lanes to four in both directions with hard shoulders.
National Highways		A UK government-owned company with responsibility for managing the motorways and major roads in England. Formerly known as Highways England.
National Planning Policy Framework	NPPF	A framework published in March 2012 by the UK's Department of Communities and Local Government, consolidating previously issued documents called Planning Policy Statements (PPS) and Planning Practice Guidance Notes (PPG) for use in England. The NPPF was updated in February 2019 and again in July 2021 by the Ministry of Housing, Communities and Local Government.
National Policy Statement	NPS	Set out UK government policy on different types of national infrastructure development, including energy, transport, water and waste. There are 12 NPS, providing the framework within which Examining Authorities make their recommendations to the Secretary of State.
National Policy Statement for National Networks	NPSNN	Sets out the need for, and Government's policies to deliver, development of Nationally Significant Infrastructure Projects (NSIPs) on the national road and rail networks in England. It provides planning guidance for promoters of NSIPs on the road and rail networks, and the basis for the examination by the Examining Authority and decisions by the Secretary of State.
Nationally Significant Infrastructure Project	NSIP	Major infrastructure developments in England and Wales, such as proposals for power plants, large renewable energy projects, new airports and airport extensions, major road projects etc that require a development consent under the Planning Act 2008.
North Portal		The North Portal (northern tunnel entrance) would be located to the west of East Tilbury. Emergency access and vehicle turn-around facilities would be provided at the tunnel portal. The tunnel portal structures would accommodate service buildings for control operations, mechanical and electrical equipment, drainage and maintenance operations.
Operation		Describes the operational phase of a completed development and is considered to commence at the end of the construction phase, after demobilisation.

Term	Abbreviation	Explanation
Order Limits		The outermost extent of the Project, indicated on the Plans by a red line. This is the Limit of Land to be Acquired or Used (LLAU) by the Project. This is the area in which the DCO would apply.
Planning Act 2008		The primary legislation that establishes the legal framework for applying for, examining and determining Development Consent Order applications for Nationally Significant Infrastructure Projects.
Project road		The new A122 trunk road, the improved A2 trunk road, and the improved M25 and M2 special roads, as defined in Parts 1 and 2, Schedule 5 (Classification of Roads) in the draft DCO (Application Document 3.1).
Project route		The horizontal and vertical alignment taken by the Project road.
South Portal		The South Portal of the Project (southern tunnel entrance) would be located to the south-east of the village of Chalk. Emergency access and vehicle turn-around facilities would be provided at the tunnel portal. The tunnel portal structures would accommodate service buildings for control operations, mechanical and electrical equipment, drainage and maintenance operations.
The tunnel		Proposed 4.25km (2.5 miles) road tunnel beneath the River Thames, comprising two bores, one for northbound traffic and one for southbound traffic. Cross-passages connecting each bore would be provided for emergency incident response and tunnel user evacuation. Tunnel portal structures would accommodate service buildings for control operations, mechanical and electrical equipment, drainage and maintenance operations. Emergency access and vehicle turn-around facilities would also be provided at the tunnel portals.

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