

Norfolk Boreas Offshore Wind Farm Updated Joint Position Statement Noise Sensitive Receptors

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Table of Contents

| | | |
|------------|--|-----------|
| 1 | Introduction | 3 |
| 2 | Definition of Noise Sensitive Receptors | 4 |
| 3 | Identification of Noise Sensitive Receptors..... | 5 |
| 3.1 | Locations with potential for enhanced mitigation measures | 5 |
| 3.2 | Construction Noise and Vibration Management Plan..... | 6 |
| 4 | Broadland District Council Specific Concerns | 7 |
| 5 | North Norfolk District Council’s Position..... | 11 |
| 6 | Broadland District Council’s Position | 11 |
| 7 | The Applicant’s Position..... | 12 |

Table of Tables

| | | |
|---------|---|----|
| Table 1 | Definitions of the different sensitivity levels for noise..... | 5 |
| Table 2 | Baseline noise data – onshore cable route DAYTIME..... | 9 |
| Table 3 | Baseline noise data – onshore cable route NIGHT-TIME..... | 9 |
| Table 4 | Updated Definitions of the different sensitivity levels for noise and vibration | 13 |

1 Introduction

1. Following Issue Specific Hearing 3 on Onshore Effects including the draft Development Consent Order held on Tuesday 21st January 2020, an action was identified by the Examining Authority for the Applicant to work with North Norfolk District Council (NNDC) to agree the process for and locations of site-specific noise sensitive receptors. An approach was agreed by both parties a joint position statement with NNDC on noise sensitive receptors was produced and submitted at Deadline 6 [REP6-022].
2. Subsequently in the Norfolk Boreas Broadland District Council Statement of Common Ground (SoCG) Version 2 (submitted at Deadline 6 [REP6-026]) Broadland District Council (BDC) raised concerns with regards to noise sensitive receptors during construction. In the third round of written questions from the Examining Authority on the 23rd March 2020, Q3.12.2.1, the Examining Authority requested a joint position statement regarding noise sensitive receptors with the Applicant, NNDC and BDC. This note has been prepared to fulfil this requirement and is an update of the previous joint position statement with NNDC [REP6-022].
3. Section 2 and 3 of the document address concerns raised by NNDC regarding the definition and identification of noise sensitive receptors during construction. The information in these sections were provided to NNDC on 20th February 2020. NNDC's response to this information and position is reflected in Section 5. NNDC were contacted to confirm if they had any updates to their position but were unable to respond for Deadline 7. As such the position is as agreed and detailed in the original joint position statement submitted at Deadline 6 [REP6-022].
4. Section 4 provides clarification on the specific concerns over noise sensitive receptors and construction impacts raised by BDC in the Norfolk Boreas Broadland District Council Statement of Common Ground (SoCG) Version 2 (submitted at Deadline 6 [REP6-026]). Following discussions with BDC Section 3.1 was also updated to provide clarity on other locations which may also require enhanced mitigation. The information in Sections 2 to 4 were provided to BDC on 20th March 2020 and was discussed and updated following a telephone conference on 30th March 2020. The response from BDC and the agreed position is reflected in Section 6 of this joint position statement.
5. The Applicant's position in Section 6 has been updated to reflect the consultation with BDC.

2 Definition of Noise Sensitive Receptors

6. Sensitive receptors, in the context of noise are typically residential premises but can also include schools, places of worship, recreational areas and noise sensitive commercial premises.
7. Definitions of noise receptors are presented within the Environment Statement (ES) Chapter 25 Noise and Vibration [APP-238], with ES Table 25.26 presenting the definitions used relating to the sensitivity of the receptors.
8. NNDC has provided the following definition relating specifically to noise sensitive receptors:

“In terms of the list of locations that are considered sensitive receptors when determining construction hours, a number are related to tourism: footpaths and other walking routes; cycling routes including rural roads; bird watching areas; areas used for recreation/amenity; dog walking routes; holiday lets; shops and cafés; visitor attractions and public amenity space/play areas. Both temporary and permanent residential dwellings and gardens, as well as workplaces, schools and public buildings will also be sensitive receptor locations.”

9. The ES definition table was provided for review and comment to NNDC during consultation, throughout Expert Topic Group meetings and as part of the Evidence Plan Process.
10. The ES chapter Table 25.26 detailed examples of each different type of receptor, corresponding definitions, commentary of and examples of each classification for use in the noise assessment. The detail was not exhaustive and was considered indicative of typical sensitive receptors.
11. It is acknowledged that the NNDC statement identifies a number of additional receptor types which were not specifically included in the ES table. The definition and categorisation of sensitive receptors have been amended in Table 1 below to include these receptors and it is proposed that Table 1 is included in an updated version of the Outline Code of Construction Practice (OCoCP), once agreed with NNDC.
12. Furthermore, some categories of receptors i.e. permanent residential dwellings, hospitals or schools are regarded as a static receptor and are therefore defined as a different sensitivity to transient receptors i.e. users of Public Rights of Way (PRoW).
13. It is important when identifying noise receptors that the sensitivity and tolerance of the effect is considered, and these parameters differ according to definition and classification.

14. These definitions would form the basis of any future assessment and identification of noise sensitivity as part of the detailed design and construction stages. As set out above, the Applicant proposes to include Table 1 in the OCoCP to define noise sensitive receptors to be considered during construction.

Table 1 Definitions of the different sensitivity levels for noise

| Sensitivity | Definitions |
|-------------|--|
| High | Noise Receptors have been categorised as high sensitivity where noise may be detrimental to vulnerable receptors. Such receptors include certain hospital wards (e.g. operating theatres or high dependency units) or care homes at night. |
| Medium | Noise Receptors have been categorised as medium sensitivity where noise may cause disturbance and a level of protection is required but a level of tolerance is expected. Such subgroups include residential accommodation, private gardens, hospital wards, care homes, schools, universities, research facilities, national parks (during the day); and temporary holiday accommodation (including holiday lets) at all times. |
| Low | Noise Receptors have been categorised as low sensitivity where noise may cause short duration effects in a recreational setting although particularly high noise levels may cause a moderate effect. Such subgroups include offices, shops (including cafes), outdoor amenity areas during the day (including recreation, public amenity space/play areas), long distance footpaths (including PRoW, dog walking routes, bird watching areas and other walking routes), visitor attractions, doctor's surgeries and sports facilities. |
| Negligible | Noise Receptors have been categorised as negligible sensitivity where noise is not expected to be detrimental. Such subgroups include warehouses, light industry, car parks, cycling routes (including rural roads), and agricultural land. |

3 Identification of Noise Sensitive Receptors

15. The ES Chapter 25 [APP-238] has identified the potential need for enhanced mitigation at a number of residential receptor locations during specific construction activities in order to ensure that any identified residual impacts remain non-significant. These locations are identified in the Outline Code of Construction Practice (OCoCP) Section 9.1.2 [REP1-018] along with the proposed enhanced mitigation measures and illustrated on ES Figure 25.2 [APP-470].

3.1 Locations with potential for enhanced mitigation measures

16. Receptor locations within the NNDC administrative district where the potential for enhanced mitigation has been identified include:

- a) CRR1E and CRR3F during the pre-construction, duct installation and cable pulling works due to their proximity to the cable route, and;
 - b) CRR1, CRR2, CRR3 and CRR5 in the event of any night time working at the associated trenchless crossings.
17. The receptor location within the BDC administrative district where the potential for enhanced mitigation has been identified is:
- a) CRR10 during the pre-construction, duct installation and cable pulling works due to their proximity to the cable route.
18. It is acknowledged that there are other receptor locations in close proximity to the onshore cable route not specifically assessed within the ES. The locations identified in the ES will be used as indicators to identify potential receptor at similar distances from the cable route where enhanced measures may also be required. These locations and any required mitigation measures will be identified during the detailed design stage and included in the Construction Noise (and vibration) Management Plan, which will be submitted to and reviewed by the relevant planning authority as part of the final CoCP and discharge of DCO Requirement 20 (2).
19. In addition to these specific locations where enhanced mitigation is required, there is the potential for noise to be generated during the construction process to affect noise sensitive receptors and measures will be implemented during construction to minimise any effects.

3.2 Construction Noise and Vibration Management Plan

20. A Construction Noise (and vibration) Management Plan (CNMP) will be developed and included in the final CoCP, as required under Requirement 20 (2)(e) of the draft DCO and submitted for approval to the relevant planning authority. The CNMP will detail the design of onshore assets, and will incorporate the Best Available Technique (BAT) and the Best Practicable Means (BPM) to minimise any associated noise impacts; where applicable, enhanced mitigation measures will also be detailed.
21. The CNMP will be developed prior to construction when further details of the construction activities are known, this will ensure that the most appropriate controls and mitigations are identified. The development of the CNMP will include a review of the construction activities and the identification of any potential noise sensitive receptors (as defined in Table 1) which may be affected.
22. Based on the type of construction activity proposed, e.g. establishment of a mobilisation area and the sensitivity of the receptor the CNMP will then detail the appropriate controls which will be in place to minimise any potential effects. The

results of the process will be submitted to and reviewed by the relevant planning authority as part of the final CoCP and discharge of DCO Requirement 20 (2).

4 Broadland District Council Specific Concerns

23. The Noise and Vibration method statement (APP-060) contained an outline approach to the assessment methodology and the identification of the nearest sensitive receptors to be used within the Environmental Statement (ES). Each Local Planning Authority agreed that these measurement and assessment locations were representative based on the project design detailed at the time of submission. Further to this, it was agreed with BDC as part of the Norfolk Vanguard SoCG submitted at Deadline 9 (Norfolk Vanguard Reference REP9-043) that: *'the noise and vibration monitoring survey collected sufficient data in appropriate locations to undertake the noise assessment and that impact assessment methodologies used for the assessment are appropriate'*. The same approach was taken by Norfolk Boreas.
24. BDC have raised some concerns over noise sensitive receptors and construction impacts in the Norfolk Boreas Broadland District SoCG Version 2 (submitted at Deadline 6 [REP6-026]) The Applicant considers that the ES assessed impacts are appropriate and the noise sensitive receptors are appropriately representative. However, the Applicant has provided further clarification below on the specific concerns raised to BDC.
25. In accordance with the methodology outlined in the Noise and Vibration Method Statement [APP-060] and detailed in ES Chapter 25 Section 25.4, the closest human receptors to the Project were determined during consultation with relevant stakeholders, for each identified receptor or group of receptors a representative location was chosen for the assessment as detailed in ES Figure 25.2 [APP-470] and in Table 25.27, of ES Chapter 25 [APP-238]. Adaptations to the project design and onshore cable route were made which meant some baseline receptor locations became redundant. To present an appropriate and proportionate account of potential impacts; subsequent receptor locations have been added in the vicinity of the original location, representative of a dwelling or group of dwellings at the closest point to the project. In terms of receptor locations included in ES Chapter 25 within the BDC administrative district, these are identified as CRR8 to CRR19.
26. BDC have raised concerns with the appropriateness of the position of sensitive receptors and draw attention to the following:
 - a) *Flashpit Farm cottages at Blickling are close to the cable route.*
 - b) *CRR12 is not representative of the noise environment at Beerhouse Farm Cottage.*
 - c) *CRR15 and 16 do not appear to represent the impact for dwellings in World's End Lane.*
 - d) *CRR17 does not seem an appropriate NSR as the cable route has been moved.*

27. BDC have also requested confirmation that cable route construction impacts have been considered at all sensitive receptors.
28. Clarifications on these concerns are raised below. Full details are provided in ES Chapter 25 [APP-238], all identified receptor locations are shown on ES Figure 25.2 [APP-470] and details of the baseline noise survey is presented in ES Appendix 25.1 [APP-657].

a) *“Flashpit Farm cottages at Blickling are close to the cable route.”*

Flashpit Farm Cottages – the nearest residential receptor (represented by building at co-ordinates x: 618415, y: 327870) to the cable route is located along Blickling Lane at approximately 70m setback distance from the cable route. Receptor CRR13 is approximately 54m from the cable route, so represents a conservative proxy location. From the baseline noise survey undertaken as part of the ES (detailed in Table 2 and Table 3) CRR13 would fall within the threshold category A as defined in BS5228:2009+A1:2014 (British Standards Institution [BS] 5228-1:2009+A1:2014 “Code of practice for noise and vibration control on construction and open sites – Part 1: Noise) ‘ABC method’ during the daytime, evening and weekends and night time reference periods (detailed further in Section 25.4.1 Impact Assessment Methodology of the ES Chapter 25). No impacts were predicted as receptor CRR13 during the construction phase; therefore it would be reasonable to infer the same at the nearest residential property forming the Flashpit Farm Cottage receptors.

b) *“CRR12 is not representative of the noise environment at Beerhouse Farm Cottage.”*

Beerhouse Farm Cottage (represented by the building at co-ordinates x:614214, y: 325449) – nearest residential building is approximately 19m from the cable route. CRR10 and CRR11 are approximately 8m and 33m respectively from the cable route. Therefore, it is confirmed that the range of setback distance of the assessed receptors in the ES Chapter is considered to be representative. The predicted noise levels reported for CRR10 and CRR11 would represent a reasonable worst-case scenario.

The soundscape at Beerhouse Farm is considered to be similar to CRR10 and CRR11, due to the proximity to the carriageway. The construction phase threshold category is A (65dBA) during the daytime and during the evening and night time 55dBA, and 45dBA, respectively. Further, the measured baseline noise levels presented in ES chapter Appendix 25.1 are shown in Table 2 and Table 3:

Table 2 Baseline noise data – onshore cable route DAYTIME

| Receptor identifier | Date | Start time | End time | L _{Aeq} | L _{Amax} | L _{A10} | L _{A90} |
|---------------------|------------|------------|----------|------------------|-------------------|------------------|------------------|
| CRR8 | 04/05/2017 | 15:03:45 | 15:33:45 | 63.6 | 82.8 | 62.3 | 49.9 |
| CRR9 | 04/05/2017 | 15:03:23 | 15:33:23 | 52.9 | 80.3 | 50.5 | 46.2 |
| CRR10 | 04/05/2017 | 14:19:43 | 14:49:43 | 45.4 | 63.3 | 46.3 | 41.1 |
| CRR11 | 04/05/2017 | 14:19:23 | 14:49:23 | 49.5 | 68.5 | 49.4 | 46.3 |
| CRR12 | 04/05/2017 | 13:31:46 | 14:01:36 | 57.6 | 77.3 | 57.3 | 49.9 |
| CRR13 | 04/05/2017 | 13:09:58 | 13:39:58 | 50.9 | 72.4 | 49.7 | 44.7 |
| CRR14 | 04/05/2017 | 12:50:43 | 13:20:43 | 51.5 | 76.6 | 48.7 | 44.5 |
| CRR15 | 04/05/2017 | 12:44:13 | 12:59:13 | 46.8 | 66.7 | 47.3 | 43.9 |
| | 04/05/2017 | 13:47:40 | 14:02:40 | 48.8 | 65.1 | 49.6 | 42.9 |
| CRR16 | 03/05/2017 | 16:29:16 | 16:59:16 | 53.2 | 74.0 | 51.6 | 44.0 |
| CRR17 | 03/05/2017 | 16:20:15 | 16:50:15 | 48.8 | 73.8 | 46.9 | 40.9 |
| CRR18 | 03/05/2017 | 15:48:11 | 16:06:41 | 47.7 | 62.2 | 48.1 | 43.9 |
| CRR19 | 03/05/2007 | 15:41:11 | 16:11:11 | 48.9 | 67.7 | 50.9 | 41.9 |

Table 3 Baseline noise data – onshore cable route NIGHT-TIME

| Receptor identifier | Date | Start time | End time | L _{Aeq} | L _{Amax} | L _{A10} | L _{A90} |
|---------------------|------------|------------|----------|------------------|-------------------|------------------|------------------|
| CRR8 | 05/05/2017 | 01:09:52 | 01:24:52 | 32.1 | 54.3 | 31.9 | 26.1 |
| CRR9 | 05/05/2017 | 01:07:16 | 01:22:16 | 37.5 | 51.0 | 37.9 | 34.9 |
| CRR10 | 05/05/2017 | 00:44:53 | 00:59:53 | 27.6 | 43.5 | 27.9 | 25.5 |
| CRR11 | 05/05/2017 | 00:38:17 | 00:53:17 | 33.1 | 54.1 | 33.5 | 30.9 |
| CRR12 | 05/05/2017 | 00:15:22 | 00:30:22 | 45.5 | 70.7 | 33.2 | 29.8 |
| CRR13 | 05/05/2017 | 00:15:50 | 00:30:50 | 29.6 | 54.7 | 28.8 | 25.6 |
| CRR14 | 04/05/2017 | 23:45:59 | 00:00:49 | 32.4 | 47.1 | 31.9 | 28.4 |
| CRR15 | 04/05/2017 | 23:51:20 | 00:06:20 | 31.8 | 52.9 | 31.8 | 28.0 |

| Receptor identifier | Date | Start time | End time | L _{Aeq} | L _{Amax} | L _{A10} | L _{A90} |
|---------------------|------------|------------|----------|------------------|-------------------|------------------|------------------|
| CRR16 | 04/05/2017 | 00:08:53 | 00:23:53 | 35.0 | 49.7 | 35.8 | 31.5 |
| CRR17 | 04/05/2017 | 00:08:40 | 00:23:40 | 32.3 | 57.5 | 32.9 | 26.8 |
| CRR18 | 04/05/2017 | 00:32:44 | 00:47:34 | 31.5 | 60.5 | 31.2 | 28.1 |
| CRR19 | 04/05/2017 | 00:36:18 | 00:51:18 | 30.1 | 54.5 | 30.7 | 27.5 |

No Impacts were predicted at the nearest receptors reported in the ES Chapter 25 and it is reasonable to conclude the same for the additional receptors identified by BDC.

- c) *“CRR15 and 16 do not appear to represent the impact for dwellings in World's End Lane.”*

The soundscape at receptors along Worlds End Lane is considered to be comparable with the baseline noise measurements obtained at location CRR16 during the survey. The residential properties are a similar setback from the B1145 to CRR15 and CRR16. All fall within the threshold category A as defined in BS5228:2009+A1:2014 (British Standards Institution [BS] 5228-1:2009+A1:2014 “Code of practice for noise and vibration control on construction and open sites – Part 1: Noise) ‘ABC method’ during the daytime, evening and weekends and night time reference periods (detailed further in Section 25.4.1 Impact Assessment Methodology of the ES Chapter 25).

The nearest receptor along Worlds End Lane (represented by the building at co-ordinates x: 610013, y: 323806) is approximately 20m from the proposed cable route, a similar setback distance to receptor CRR3F (approximately 20m). A moderate impact was predicted at receptor CRR3F during daytime preconstruction works and Cable pulling, joint and commissioning, with a minor impact predicted during duct installation. It is reasonable to assume the magnitude of impacts would be similar at the receptor along Worlds End Lane.

ES Chapter 25 presented a reasonable worst-case scenario for the construction phase, based upon information provided by the project engineers.

Where embedded mitigation measures (refer to Section 25.8.1 Embedded Mitigation in ES Chapter 25) are identified as not being sufficient alone to reduce the predicted impacts to negligible in terms of an EIA, enhanced measures would be detailed. These enhanced mitigation measures are presented in Section 25.8.5.7 Enhanced Mitigation.

d) *“CRR17 does not seem an appropriate NSR as the cable route has been moved.”*

As a result of adaptations to the project design and onshore cable route some baseline receptor locations, such as CRR17, became redundant. However, the predicted noise levels from all previously identified and agreed receptors (as agreed through expert topic group and as part of the evidence plan process) were included in ES Chapter 25 for transparency.

5 North Norfolk District Council’s Position

29. NNDC welcome the principle of including additional noise receptors, the purpose of which is to add items to the definition of refined receptors and it is particularly adding a wider definition of outdoor amenity uses. NNDC notes that Table 1 Definitions of the different sensitivity levels for noise is principally derived from the definitions of noise receptors which are presented within the Environment Statement (ES) Chapter 25 Noise and Vibration [APP-238], with ES Table 25.26 presenting the definitions used relating to the sensitivity of the receptors. However, it is noted that the format of this table included an additional column for definition of the receptor’s tolerance of effect and the examples column makes extensive reference to vibration receptors. NNDC consider both of these are important contents of the table and should be included within the version within this document.
30. In terms of further observations, reference is made within ES Table 25.26 to ‘places of worship’ in the low sensitivity examples row of the table but which have not been included. NNDC consider that cycling routes should be included within the low sensitivity examples row of the table.
31. In terms of the locations set out above at paragraph 14 a) and b), whilst NNDC note these examples, the locations of which are set out in document 6.2.25.2 Environmental Statement - Figure 25.2 Noise Receptor Locations [APP-470], it would be helpful and clearer to all parties if these locations are also described by their address location (e.g. road name and village) and/or add map references.
32. Subject to the revisions/amendments above NNDC would be supportive of this document, which is considered to be helpful in protecting the wider range of sensitive receptors.

6 Broadland District Council’s Position

33. BDC welcomes the applicant’s recognition that there are other receptor locations in proximity to the onshore cable route that are not specifically assessed within the ES but in those circumstances impacts will be judged at comparable locations that are at similar separation distances to the cable route. It will be necessary for required

mitigation measures to be identified during the detailed design stage and included in the Construction Noise and Vibration Management Plan to be submitted and approved by the District Council as part of the final CoCP and discharge of requirement. Also accepting of the updated definitions and sensitivity classifications set out in Table 4 – Updated definition of the different sensitivity levels for noise and vibration.

7 The Applicant's Position

34. With regards to the definition and identification of noise sensitive receptors NNDC have suggested the following updates to the information in Section 2 and 3:
- 1) Table 1 is updated to be consistent with the format of ES Table 25.26 to include an additional column for definition of the receptor's tolerance of effect and the examples column to include reference to vibration receptors;
 - 2) Table 1 is updated to include 'places of worship' as a low sensitivity receptor;
 - 3) In Table 1 Cycle routes to be identified as low sensitivity receptors rather than negligible.
 - 4) For the receptor locations identified as potentially requiring enhanced mitigation (in section 3.1) to also be described by their address location (e.g. road name and village) and/or add map references.
35. The Applicant agrees to the amendments suggested by NNDC and will update Section 9 of the OCoCP as follows:
- i. Include Table 4 to provide a definition of noise sensitive receptors (incorporating proposed changes by NNDC);
 - ii. Provide additional detail on the receptor locations requiring enhanced mitigation to include road name and village and a map reference. Add clarification as per Section 3.1 that the locations identified in the ES will be used as indicators to identify other potential receptor at similar distances from the cable route where enhanced measures may also be required.
 - iii. Include additional text (as per Section 3.2) to confirm that the development of the CNMP will include a review of the construction activities and the identification of any potential noise sensitive receptors (as defined in Table 4) which may be affected and identify any potential control to minimise effects.
36. The Applicant understands that subject to these updates the position on noise sensitive receptors is agreed with NNDC.

37. With regards to the specific concerns raised by BDC, the Applicant considers that the ES assessed impacts are appropriate and the noise sensitive receptors are appropriately representative. However, the Applicant has provided further clarification in Section 4 on the specific concerns raised to BDC. Further to this, the measures detailed in Section 2 and 3 will ensure the appropriate identification of noise sensitive receptors during construction and any potential control measures to minimise effects. This will be through the development of the CNMP which will be developed and included in the final CoCP, as required under Requirement 20 (2)(e) of the draft DCO and submitted for approval to the relevant planning authority.
38. Updates will be made to the OCoCP [REP5-010] to capture this process (as outlined above) and the Applicant understands that subject to these updates being made the position regarding noise sensitive receptors is agreed with both NNDC and BDC.

Table 4 Updated Definitions of the different sensitivity levels for noise and vibration

| Sensitivity | Definition | Examples |
|-------------|---|--|
| High | Receptor has very limited tolerance of effect | Noise Receptors have been categorised as high sensitivity where noise may be detrimental to vulnerable receptors. Such receptors include certain hospital wards (e.g. operating theatres or high dependency units) or care homes at night. Vibration Receptors have been categorised as high sensitivity where the receptors are listed buildings or Scheduled Monuments. |
| Medium | Receptor has limited tolerance of effect | Noise Receptors have been categorised as medium sensitivity where noise may cause disturbance and a level of protection is required but a level of tolerance is expected. Such subgroups include residential accommodation, private gardens, hospital wards, care homes, schools, universities, research facilities, national parks (during the day); and temporary holiday accommodation (including holiday lets) at all times. Vibration Receptors have been categorised as medium sensitivity where the structural integrity of the structure is limited but the receptor is not a listed building or Scheduled Monument. |
| Low | Receptor has some tolerance of effect | Noise Receptors have been categorised as low sensitivity where noise may cause short duration effects in a recreational setting although particularly high noise levels may cause a moderate effect. Such subgroups include offices, shops (including cafes), outdoor amenity areas during the day (including recreation, public amenity space/play areas), long distance footpaths (including PRoW, dog walking routes, bird watching areas, footpaths and other walking routes, visitor attractions, cycling routes including rural roads) doctor's surgeries, sports facilities and places of worship. Vibration Receptors have been categorised as low sensitivity where the structural integrity of the structure is expected to be high. The level of vibration required to cause damage is very high and such levels are not expected to be reached during the project. |
| Negligible | Receptor generally tolerant of effect | Noise Receptors have been categorised as negligible sensitivity where noise is not expected to be detrimental. |

| Sensitivity | Definition | Examples |
|-------------|------------|---|
| | | <p>Such subgroups include warehouses, light industry, car parks, and agricultural land.</p> <p>Vibration Receptors have been categorised as negligible sensitivity where vibration is not expected to be detrimental.</p> |