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HS2

High Speed Rail (Crewe – Manchester) Environmental Statement

Volume 5: Appendix SV-002-0MA07

Sound, noise and vibration

MA07: Davenport Green to Ardwick

Baseline and construction sound, noise and vibration report

M265

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Department for Transport

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1 Introduction

1.1.1 This report is an appendix to the sound, noise and vibration assessment relating to the Davenport Green to Ardwick area (MA07). This appendix presents baseline and predicted construction sound, noise and vibration levels.

1.1.2 This appendix should be read in conjunction with:

- Volume 2, Community Area reports;
- Volume 3, Route-wide effects;
- Volume 4, Off-route effects; and
- Volume 5, Appendices.

1.1.3 There are three sound, noise and vibration appendices relevant to each community area, of which this should be considered the second. The first appendix contains an introduction to policy relevant to sound, noise and vibration and the assessment methodology, and can be found as Volume 5, Appendix SV-001-00000. This relates to all community areas. As the second appendix of the series, this report for MA07 provides the baseline and predicted levels as described above.

1.1.4 The third appendix is also specific to MA07, and provides detailed operational sound, noise and vibration levels, see Volume 5, Appendix SV-003-0MA07. This report should be read in conjunction with Map Series SV-03 in the Volume 5 Sound, noise and vibration Map Book.

2 Scope, assumptions and limitations

2.1 Regional and local policy guidance

2.1.1 The policy framework for sound, noise and vibration is set out in Volume 1, Section 8, and in Volume 5, Appendix SV-001-00000. As part of the engagement with local authorities where the Proposed Scheme would operate, information regarding any specific local planning guidance in respect of noise and vibration was requested. For MA07, the guidance within the following documents has been considered when applying the impact and significance criteria set out in Environmental Impact Assessment Scope and Methodology Report (SMR), (see Volume 5: Appendix CT-001-00001):

- adopted Manchester City Council Core Strategy 2012-2027 (2012)[1]; and
- Manchester Airport Sustainable Development Plan (2016)[2].

2.2 Engagement

2.2.1 Details of engagement on a route-wide basis with the local and county authorities' Environmental Health Practitioners are set out in Volume 1.

2.2.2 Meetings have been held with representatives of Manchester City Council (MCC)[3] regarding the approach taken to baseline monitoring within this area, the identification of noise and vibration sensitive receptors, the selection of assessment locations and the development of the mitigation to be included in the Proposed Scheme.

2.2.3 Changes suggested during these meetings have influenced the assessment locations used and the monitoring undertaken and are reported in this appendix. MCC officers were also invited to attend baseline sound measurements in this area and witness the measurement procedures used.

2.2.4 Local engagement, prior to and through the working draft Environmental Statement report consultation provided opportunities for local stakeholders to suggest appropriate baseline sound monitoring locations, to confirm building uses and to review the draft list of non-residential properties to be considered in the assessment.

[1] Manchester City Council (2012), *Manchester's Local Development Framework, Core Strategy Development Plan Document (Adopted 2012)*. Available online at: https://secure.manchester.gov.uk/info/200074/planning/6573/core_strategy_2012-2027.

[2] Manchester Airport (2016), *Sustainable Development Plan*. Available online at: https://www.manchesterairport.co.uk/about-us/manchester-airport-masterplan/.

[3] Meetings held on 16 August 2018 with MCC, and on 7 February 2018, 16 May 2018, 20 February 2019, 5 June 2019, 22 October 2020 and 7 July 2021 with the local and county authorities' Environmental Health Practitioners on a route-wide basis.

2.3 Methodology

2.3.1 The methodology used for the assessment of airborne sound, ground-borne sound and vibration impacts and the determination of significant effects is defined in the SMR. Further information is contained in Volume 5, Appendix SV-001-00000.

2.4 Assumptions

2.4.1 Route-wide assumptions are outlined in Volume 1, Section 8, and are further detailed in Volume 5, Appendix SV-001-00000. Local assumptions that apply to the assessment of construction sound, noise and vibration within this area are set out in Volume 2, Community Area report: Davenport Green to Ardwick (MA07), Section 13.

2.5 Limitations

2.5.1 The route-wide limitations and the approach adopted to ensure that they will not compromise the robust assessment of sound, noise and vibration are presented in Volume 5, Appendix SV-001-00000 and Volume 2.

3 Baseline

3.1 Existing acoustic environment

3.1.1 The Davenport Green to Ardwick area is predominantly suburban in character becoming more urban towards the north and interspersed with commercial premises and larger industrial estates. The sound environment is generally dominated by local and distant road traffic, overflying aircraft to and from Manchester Airport, local rail services and local neighbourhood sources, with contributing natural sounds.

3.1.2 There are several main roads that contribute to the sound environment near to the Proposed Scheme within the Davenport Green to Ardwick area. These include: the M56 and the M60 in the south of the area, and the main roads into central Manchester including the A5103 Princess Parkway/Princess Road, the A34 Kingsway/Birchfields Road/Anson Road, the A6 Stockport Road, the A57 Hyde Road and the A635 Ashton Old Road.

3.1.3 There are a number of railway lines in this area: Mid-Cheshire Line (Manchester to Chester via Stockport), south of the M56 junction 3a; Crewe to Manchester Line (Crewe north-east to Manchester); Styal Line (Manchester to Wilmslow), adjacent to the A5079 Slade Lane; Ashburys Line (north of Ardwick Depot); and Glossop Line (Manchester to Derbyshire) adjacent to the A57 Hyde Road.

3.1.4 Sound levels close to these main transportation routes are high during the daytime and are generally lower at night. Sound levels decrease with increasing distance from the main transportation routes. Manchester Airport restricts the operations permitted during the night-time, so that the noise climate is much reduced from daytime levels.

3.1.5 The community of Newall Green is characterised by sound from the M56 to the east, and from the local road network. Properties to the east of the M56 typically experience daytime sound levels of 55dB – 65dB and 45dB – 60dB during the night-time. Properties to the west of the M56 typically experience daytime sound levels of 50dB – 65dB and 45dB – 60dB during the night-time.

3.1.6 The northern area of Wythenshawe community, in the vicinity of Greenwood Road and A560 Altrincham Road is characterised by sound from the M56 and experience daytime sound levels of 60dB – 70dB and 55dB – 60dB during the night-time.

3.1.7 The area of Didsbury is characterised by sound from the M60 to the south and the B5167 Palatine Road. Properties to the south of these roads nearer to the M60 and Northenden experience daytime sound levels of 60dB – 80dB and 55dB – 65dB during the night-time. Properties to the north experience daytime sound levels of 50dB – 60dB and 45dB – 60dB during the night-time.

3.1.8 The area of Withington is characterised by the road traffic from the B5093 Wilmslow Road and the B5167 Palatine Road. Properties on the B5093 Wilmslow Road and side streets

between Mayville Drive and Rathen Road experience daytime sound levels of 45dB – 75dB and 35dB – 60dB during the night-time.

3.1.9 The south-east area of Rusholme, within the area bounded by the A34 Birchfields Road/Anson Road to the west, the A5079 Slade Lane to the east and the A6144 Old Hall Lane to the north, is characterised by sound from these local roads and the railway on the Styal Line adjacent. Sound levels are typically 50dB – 70dB in the daytime, and 45dB – 65dB during the night-time.

3.1.10 The north area of Longsight and south area of Beswick are characterised by sound from the A57 Hyde Road and bounding railways on the approach to Manchester Piccadilly[4]. The Manchester train care depot is also on the Crewe to Manchester Line on the approach to Manchester Piccadilly. Properties in Longsight experience daytime sound levels of typically 45dB – 65dB and typically 40dB – 60dB during the night-time. Properties facing the A635 Ashton Old Road in Beswick experience daytime sound levels of 55dB – 75dB, and 45dB – 65dB during the night-time. Properties further to the north in Beswick experience between 45dB – 55dB during the daytime and 35dB – 50dB during the night-time.

3.1.11 It is likely that the majority of receptors adjacent to the route of the Proposed Scheme are not currently subject to appreciable vibration. No baseline vibration monitoring has been undertaken as part of the assessment presented in this report. The effects of vibration at all receptors have been assessed using specific thresholds, below which receptors will not generally be adversely affected by vibration.

3.2 Existing baseline data collection methodology

3.2.1 The overall approach to baseline data collection for sound, noise and vibration is described in Volume 5, Appendix SV-001-00000. In summary, the approach to defining baseline levels includes a combination of sound monitoring and – where existing sound levels at assessment locations are dominated by transport sources which can be reliably modelled – sound modelling, verified using results from sound monitoring.

3.3 Existing baseline sound measurement locations

3.3.1 The assessment of impacts has been undertaken at assessment locations that are representative of a number of dwellings or other sensitive receptors. Baseline monitoring locations have been defined in order to provide representative sound levels at assessment locations within the study area as well as to verify the baseline sound model.

3.3.2 Baseline information has been gathered incrementally through successive rounds of field surveys focused on locations where likely significant effects are forecast.

[4] Within the Manchester Piccadilly Station area (MA08).

3.3.3 Where measured baseline data are required to provide representative sound levels at assessment locations, areas have been defined within which the sound climate is influenced by the same sound sources. Within each of these areas, monitoring has been undertaken together with attended observations to assist in identifying the contributing sources to the sound climate at the measurement locations.

3.3.4 Where measurements, carried out at or close to assessment locations, have been used to assist in verifying the baseline sound model, they are identified in Table 1 along with the modelled baseline for the relevant assessment location.

3.3.5 Within MA07, five baseline measurement locations have been defined. The measurement locations are shown on the detailed maps in Volume 5, Sound, noise and vibration Map Book: Map Series SV-02 and SV-03. These five locations were all long-term measurement locations, comprising unattended measurements of several days' duration.

3.3.6 An additional 13 verification measurements have been carried out, typically close to modelled sound sources and over durations of three hours (attended) or 24 hours (unattended), to assist in verifying the baseline sound model.

3.4 Existing baseline sound modelling

3.4.1 Baseline sound levels have been modelled where existing sound levels at assessment locations are dominated by transport sources which can be reliably modelled. Methodologies from the Calculation of Road Traffic Noise[5] and the Calculation of Railway Noise[6] have been used to predict baseline levels of airborne sound from road traffic and railways respectively. The methods use input data such as traffic flows and speed to predict sound levels. As described previously, verification measurements have been carried out to assist in verifying the baseline sound model.

3.4.2 Within the Davenport Green to Ardwick area, noise from all major roads and railways including the M56, the M60, the A5103 Princess Parkway/Princess Road, the A34 Kingsway/Birchfields Road/Anson Road, the A6 Stockport Road, the A57 Hyde Road, the A635 Ashton Old Road, the Mid-Cheshire Line, Styal Line, Crewe to Manchester Line and the Glossop Line have been modelled.

3.5 Future baseline methodology

Construction

3.5.1 The assessment of noise from construction activities assumes a future construction baseline year of 2025, which represents the period immediately prior to the start of the construction

[5] Department of Transport Welsh Office (1988), *Calculation of Road Traffic Noise.*

[6] Department of Transport (1995), *Calculation of Railway Noise*.

period. As a reasonable worst case, it has been assumed that no change in baseline sound levels will occur between the existing baseline year of 2018 and the future construction baseline year of 2025.

Operation

3.5.2 Changes in road and rail traffic between 2018 and 2038 may result in changes in baseline sound levels at receptors. For modelled transportation sources, future baseline sound levels for operation (2038) have been predicted, based on, for example, expected changes in road traffic flow, composition, speed, and in some cases road surface using the methodology from the Calculation of Road Traffic Noise.

3.5.3 Changes in noise level as a result of changes in road traffic flow, composition and speed are normally small. Roads in Important Areas identified in Department for Environment, Food & Rural Affairs' (Defra) Noise Action Plans[7] and trunk roads, which are likely to be resurfaced under future routine maintenance programmes, have been assumed to have a low noise surface in 2038. Assuming a low noise surface will result in a lower baseline sound level compared with other road surface types. This is conservative as a lower baseline will have the effect of increasing predicted adverse airborne noise effects during operation. This will have the effect of increasing predicted adverse airborne noise effects during operation.

3.5.4 For 2038, airborne noise levels from railways in Important Areas identified in Defra's Noise Action Plans are assumed, on a precautionary basis, to be controlled to a level of 65dB $L_{Aeq,18hour}$, where they are predicted to exceed this level. This is the lowest level of airborne railway noise where further mitigation would be considered within an Important Area.

3.6 Baseline sound levels

3.6.1 Baseline sound levels have been ascertained for each assessment location within this area. In some cases, they include adjustments to account for changes in baseline sound sources between the date of the existing baseline sound levels and the year of opening of the Proposed Scheme (2038). Further detail regarding the future baseline methodology is provided in Section 3.5. Baseline sound levels are presented in terms of the following key sound indicators:

[7] Department for Environment, Food & Rural Affairs (2019), *Noise Action Plan: Roads*. Available online at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/813666/noise-action-plan-2019-roads.pdf and

Department for Environment, Food & Rural Affairs (2019), *Noise Action Plan: Agglomerations (Urban Areas)*. Available online at:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/813663/noise-action-plan-2019-agglomerations.pdf.

- baseline levels used for the operational sound assessment:
  - $L_{pAeq,16hour}$ daytime (07:00 – 23:00) sound pressure level;
  - $L_{pAeq,8hour}$ night-time (23:00 – 07:00) sound pressure level;
  - arithmetic average of $L_{pAFmax,5min}$ night-time sound pressure level; and
  - highest $L_{pAFmax,5min}$ night-time sound pressure level.
- baseline levels used for the construction sound assessment:
  - daytime L_{pAeq} sound pressure level (Monday to Friday 07:00 – 19:00; Saturday 07:00 – 13:00);
  - evening/weekend L_{pAeq} sound pressure level (Monday to Friday 19:00 – 23:00, Saturday 13:00 – 23:00 and Sunday 07:00 – 23:00); and
  - night-time L_{pAeq} sound pressure level (Monday to Sunday 23:00 – 07:00).

3.6.2 These values are presented in Table 1. All values are free-field. The data source coding included within this table details how the baseline sound levels allocated to each assessment location have been derived. This coding is summarised in Table 2 and explained in detail in Volume 5, Appendix SV-001-00000. Codes contained within brackets relate to the derivation of night-time baseline noise levels where they are different to the daytime derivation method.

Table 1: Baseline sound levels

Assessment location		Measurement location	Baseline sound levels (dB)							Data source coding
Reference	Area represented		For construction sound assessment (2025)			For operational sound assessment (2038)				
			Daytime L_{pAeq}	Evening / weekend L_{pAeq}	Night-time L_{pAeq}	Daytime $L_{pAeq,16hour}$	Night-time $L_{pAeq,8hour}$	Arithmetic average $L_{pAFmax,5min}$	Highest night-time $L_{pAFmax,5min}$	
615001	Bleasdale Road, Manchester		56	54	49	57	51	56	61	3,A,i,b
615002	Bleasdale Road, Manchester		62	60	55	63	57	62	67	3,A,i,b
615003	Bowley Avenue, Manchester		53	51	47	54	48	53	58	3,A,i,b
615004	Rowarth Road, Manchester		58	55	51	58	52	57	62	3,A,i,b
615005	Rowarth Road, Manchester		52	49	45	52	46	51	56	3,A,i,b
615006	Rowarth Road, Manchester		51	49	44	52	45	50	55	3,A,i,b
615007	Burbage Road, Manchester		51	48	44	51	45	50	55	3,A,i,b
615008	Rowarth Road, Manchester		50	47	43	50	44	49	54	3,A,i,b
615009	Compton Drive, Manchester		53	50	46	53	47	52	57	3,A,i,b
615010	Shepton Drive, Manchester		49	46	42	49	43	48	53	3,A,i,b
615011	Rowarth Road, Manchester		48	46	42	49	43	48	53	3,A,i,b
615012	Rowarth Road, Manchester		48	46	42	49	43	48	53	3,A,i,b
615013	Greenbrow Road, Manchester		50	48	43	50	44	49	54	3,A,i,b
615014	Greenbrow Road, Manchester		49	46	42	49	43	48	53	3,A,i,b
615015	Rushall Walk, Manchester		47	45	41	48	41	46	51	3,A,i,b
615016	Galway Walk, Manchester		49	47	42	49	43	48	53	3,A,i,b
615017	Clever Clowns Day Nursery, Greenbrow Road, Wythenshawe	ML712771	55	53	48	55	48	60	85	1,A,i,a
615018	Crowland Road, Manchester		49	46	42	49	43	48	53	3,A,i,b
615019	Oldwood Road, Manchester	ML712771	55	53	48	55	48	60	85	1,A,i,a

Assessment location		Measurement location	Baseline sound levels (dB)							Data source coding
Reference	Area represented		For construction sound assessment (2025)			For operational sound assessment (2038)				
			Daytime L_{pAeq}	Evening / weekend L_{pAeq}	Night-time L_{pAeq}	Daytime $L_{pAeq,16hour}$	Night-time $L_{pAeq,8hour}$	Arithmetic average $L_{pAFmax,5min}$	Highest night-time $L_{pAFmax,5min}$	
615020	Crowland Road, Manchester		49	46	42	49	43	48	53	3,A,i,b
615021	Greenbrow Road, Manchester	ML712771	55	53	48	55	48	60	85	1,A,i,a
615022	Oldwood Road, Manchester		50	48	43	50	44	49	54	3,A,i,b
615023	Tree of Life Community Centre, Greenbrow Road, Wythenshawe	ML712771	55	53	48	55	48	60	85	1,A,i,a
615024	Kinsale Walk, Manchester		50	47	43	50	44	49	54	3,A,i,b
615025	Rowfield Drive, Manchester		48	46	42	49	43	48	53	3,A,i,b
615026	Wensleydale Close, Manchester	ML712771	55	53	48	55	48	60	85	1,A,i,a
615027	Newall Road, Manchester		52	49	45	52	46	51	56	3,A,i,b
615028	Greenbrow Road Social Club, Greenbrow Road, Wythenshawe	ML712771	55	53	48	55	48	60	85	1,A,i,a
615029	Partridge Avenue, Manchester		64	62	58	65	59	64	69	3,A,i,b
615030	Greenwood Road, Wythenshawe		66	64	59	67	61	66	71	3,A,i,b
615031	Royalthorn Avenue, Manchester		54	51	47	54	48	53	64	3,A,i,b
615032	Royalthorn Avenue, Wythenshawe		67	64	60	67	61	66	71	3,A,i,b
615033	Saxfield Drive, Manchester		57	54	50	58	51	56	68	3,A,i,b
615034	Saxfield Drive, Manchester		61	59	54	62	56	61	68	3,A,i,b
615035	Boothfield Avenue, Manchester		56	54	49	56	50	55	68	3,A,i,b
615036	Greenwood Road, Manchester		65	63	59	66	59	64	70	3,A,i,b
615037	Enterprise Point (Offices), Altrincham Road, Manchester		68	65	61	67	61	66	78	3,A,i,b
615038	Spinney Road, Manchester		62	61	55	63	56	60	87	5,A,i,b

Assessment location		Measurement location	Baseline sound levels (dB)							Data source coding
Reference	Area represented		For construction sound assessment (2025)			For operational sound assessment (2038)				
			Daytime L_{pAeq}	Evening / weekend L_{pAeq}	Night-time L_{pAeq}	Daytime $L_{pAeq,16hour}$	Night-time $L_{pAeq,8hour}$	Arithmetic average $L_{pAFmax,5min}$	Highest night-time $L_{pAFmax,5min}$	
615039	Sandacre Road, Manchester		59	58	52	59	52	57	84	5,A,i,b
615040	Spinney Road, Manchester		63	61	56	64	57	62	82	5,A,i,b
615041	Open University, Wythenshawe, Manchester		65	62	58	65	59	63	79	3,A,i,b
615042	Altrincham Road, Manchester		67	64	60	66	60	65	76	3,A,i,b
615043	The Royals (Offices), Wythenshawe, Manchester		65	62	58	65	59	64	74	3,A,i,b
615044	Altrincham Road, Manchester		64	62	57	64	57	62	73	3,A,i,b
615045	Roundwood Road, Manchester		55	53	48	55	49	54	73	3,A,i,b
615046	The Church Of Jesus Christ Of Latter-Day Saints, Altrincham Road, Wythenshawe		64	61	57	64	57	62	70	3,A,i,b
615047	Parkwood Road, Manchester		65	62	58	65	59	64	69	3,A,i,b
615048	Netherwood Road, Manchester		58	55	51	58	52	57	65	3,A,i,b
615049	Elwyn Avenue, Manchester		52	50	46	52	46	51	62	3,A,i,b
615056	St Wilfrid's Church, Ford Lane, Wythenshawe		49	46	42	49	43	48	53	3,A,i,b
615061	Ford Lane, Northenden		50	47	43	50	44	49	54	3,A,i,b
615062	Palatine Road, Manchester		70	68	63	71	65	70	75	3,A,i,b
615064	Palatine Road, Manchester		62	59	55	62	56	61	66	3,A,i,b
615065	Harefield Drive, Manchester		47	45	41	48	42	47	52	3,A,i,b
615066	Westmorland Road, Manchester		47	44	40	47	41	46	51	3,A,i,b

Assessment location		Measurement location	Baseline sound levels (dB)							Data source coding
Reference	Area represented		For construction sound assessment (2025)			For operational sound assessment (2038)				
			Daytime L_{pAeq}	Evening / weekend L_{pAeq}	Night-time L_{pAeq}	Daytime $L_{pAeq,16hour}$	Night-time $L_{pAeq,8hour}$	Arithmetic average $L_{pAFmax,5min}$	Highest night-time $L_{pAFmax,5min}$	
615067	Dene Park, Manchester	ML712796	53	51	47	53	47	53	70	1,A,i,a
615068	Palatine Road, Manchester		55	52	48	55	49	54	59	3,A,i,b
615069	Palatine Road, Manchester		63	61	56	64	58	63	68	3,A,i,b
615070	Britannia Country House Hotel, Palatine Road, Manchester	ML712795	62	60	55	63	57	62	67	3,A,i,b
615071	Winchester Park, Manchester		48	46	41	48	42	47	52	3,A,i,b
615072	Didsbury Community Church, Dene Road, Didsbury	ML712796	53	51	47	53	47	53	70	1,A,i,a
615074	Nazarene Theological College, Dene Road, Didsbury	ML712796	53	51	47	53	47	53	70	1,A,i,a
615075	Palatine Road, Manchester		62	59	55	62	56	61	66	3,A,i,b
615076	Winchester Park, Manchester		46	43	39	46	40	45	50	3,A,i,b
615077	Adamson Gardens, Manchester		52	49	45	52	46	51	56	3,A,i,b
615078	Mersey Road, Manchester		62	59	55	63	56	61	66	3,A,i,b
615080	Wilmslow Road, Manchester		55	53	49	55	49	54	59	3,A,i,b
615081	Old Broadway, Manchester		45	43	38	45	39	43	56	3,A,i,b
615082	Wilmslow Road (Offices), Manchester		65	63	59	65	59	64	69	3,A,i,b
615083	Mayville Drive, Manchester		46	44	40	46	40	45	54	3,A,i,b
615084	Sandileigh Avenue, Manchester		41	39	34	41	35	39	54	3,A,i,b
615085	Mardale Avenue, Manchester		<40	37	33	<40	33	38	52	3,C,i,b
615086	Wilmslow Road, Manchester		53	51	46	53	47	52	57	3,A,i,b

Assessment location		Measurement location	Baseline sound levels (dB)							Data source coding
Reference	Area represented		For construction sound assessment (2025)			For operational sound assessment (2038)				
			Daytime L_{pAeq}	Evening / weekend L_{pAeq}	Night-time L_{pAeq}	Daytime $L_{pAeq,16hour}$	Night-time $L_{pAeq,8hour}$	Arithmetic average $L_{pAFmax,5min}$	Highest night-time $L_{pAFmax,5min}$	
615087	Ferndene Road, Manchester		50	48	43	50	44	48	56	3,A,i,b
615088	Wilmslow Road, Manchester		65	62	58	64	58	63	68	3,A,i,b
615089	Lynway Drive, Manchester		43	40	36	42	36	41	52	3,A,i,b
615090	Wilmslow Road, Manchester		65	63	58	65	59	64	69	3,A,i,b
615091	The Circuit, Manchester		43	41	36	43	37	41	55	3,A,i,b
615092	The Circuit, Manchester		46	44	39	46	40	44	54	3,A,i,b
615093	Ferndene Gardens, Manchester		54	51	47	53	47	52	57	3,A,i,b
615094	Wilmslow Road, Manchester		64	62	58	64	58	63	68	3,A,i,b
615095	Lynway Drive, Manchester		50	47	43	49	43	48	53	3,A,i,b
615096	Lynway Drive, Manchester		42	39	35	42	36	40	52	3,A,i,b
615097	Wensley Drive, Manchester		52	50	45	52	46	51	56	3,A,i,b
615098	Parkville Road, Manchester		43	40	36	42	36	41	55	3,A,i,b
615099	Wolseley Place, Manchester		42	39	35	41	35	40	54	3,A,i,b
615100	Parkville Road, Manchester		<40	38	33	<40	34	38	54	5,C,i,b
615101	Parkville Road, Manchester		49	46	42	49	42	47	53	3,A,i,b
615102	Wilmslow Road, Manchester		63	61	57	63	57	62	67	3,A,i,b
615103	Parkville Road, Manchester		52	49	45	52	45	50	55	3,A,i,b
615104	Parkville Road, Manchester		45	43	38	45	39	43	54	3,A,i,b
615105	Alpino Cars (Office), Wilmslow Road, Manchester		65	62	58	65	58	63	68	3,A,i,b
615106	Wensley Drive, Manchester		42	40	36	42	36	41	53	3,A,i,b

Assessment location		Measurement location	Baseline sound levels (dB)							Data source coding
Reference	Area represented		For construction sound assessment (2025)			For operational sound assessment (2038)				
			Daytime L_{pAeq}	Evening / weekend L_{pAeq}	Night-time L_{pAeq}	Daytime $L_{pAeq,16hour}$	Night-time $L_{pAeq,8hour}$	Arithmetic average $L_{pAFmax,5min}$	Highest night-time $L_{pAFmax,5min}$	
615107	Rathen Road, Manchester		43	41	37	43	37	42	58	5,A,i,b
615108	Oak Road, Manchester		62	60	56	62	56	61	66	3,A,i,b
615109	Wilmslow Road, Manchester		44	41	37	43	37	42	58	5,A,i,b
615110	Oak Road, Manchester		51	49	45	51	45	50	55	3,A,i,b
615111	Rathen Road, Manchester		49	46	42	49	42	47	55	3,A,i,b
615112	The Christie Foundation NHS Trust (Hospital), Wilmslow Road, Manchester and committed development (Map Book ref.: MA07/445)		63	60	56	63	56	61	66	3,A,i,b
615113	The Christie Clinic, Cotton Lane, Manchester		41	38	34	40	34	39	52	3,A,i,b
615114	Cotton Lane, Manchester		41	40	35	41	35	39	59	5,A,i,b
615115	Oglesby Building (Cancer Research Centre), Wilmslow Road, Manchester		46	44	40	46	40	44	58	3,A,i,b
615116	Palatine Road, Manchester		42	39	35	42	36	40	52	3,A,i,b
615118	Cotton Lane, Manchester		49	47	42	49	42	47	59	3,A,i,b
615120	59 Kingsway (Office), Manchester		68	67	62	69	63	66	88	5,A,i,b
615121	Braemar Road, Manchester		59	57	53	59	53	57	77	5,A,i,b
615122	Fortuna Grove, Manchester		52	52	46	52	47	48	75	5,A,i,b
615124	Moseley Road, Fallowfield		68	66	61	68	62	67	78	3,A,i,b
615125	Kingsway, Manchester		68	67	62	68	63	66	88	5,A,i,b

Assessment location		Measurement location	Baseline sound levels (dB)							Data source coding
Reference	Area represented		For construction sound assessment (2025)			For operational sound assessment (2038)				
			Daytime L_{pAeq}	Evening / weekend L_{pAeq}	Night-time L_{pAeq}	Daytime $L_{pAeq,16hour}$	Night-time $L_{pAeq,8hour}$	Arithmetic average $L_{pAFmax,5min}$	Highest night-time $L_{pAFmax,5min}$	
615126	Monica Grove, Manchester		63	62	57	63	57	58	85	5,A,i,b
615127	Moseley Road, Manchester and committed development (Map Book ref.: MA07/161)		66	64	59	66	60	62	86	5,A,i,b
615128	Moseley Road, Levenshulme		64	62	57	64	58	62	79	5,A,i,b
615129	Birchfields Road, Manchester		63	61	57	63	57	62	78	5,A,i,b
615130	Birchfields Road, Manchester		63	61	57	63	57	62	74	3,A,i,b
615131	Kingsway, Manchester		65	65	60	65	60	63	90	4,A,i,b
615132	Birchfields Road, Manchester		63	61	57	63	57	62	73	3,A,i,b
615133	Kingsway, Manchester		61	59	54	60	53	57	77	5,A,i,b
615134	Birchfields Road, Manchester		64	62	58	64	58	63	74	3,A,i,b
615135	Peaceville Road, Manchester		69	69	64	69	64	67	94	4,A,i,b
615136	Kingsway, Manchester		58	57	52	58	52	54	81	5,A,i,b
615137	Birchfields Road, Manchester		64	62	57	64	58	63	74	3,A,i,b
615138	Birchfields Road, Manchester		64	62	58	65	58	63	74	3,A,i,b
615139	Birchfields Road, Manchester		64	62	58	64	58	63	75	3,A,i,b
615140	Birchfields Road, Manchester		64	62	58	64	58	63	75	3,A,i,b
615141	Birchfields Primary School (Primary School), Lytham Road, Manchester		58	57	52	58	52	53	79	5,A,i,b
615142	Kingsway Avenue, Manchester		55	55	50	55	50	53	80	4,A,i,b
615143	Kingsway Avenue, Manchester		66	66	61	66	61	64	91	4,A,i,b

Assessment location		Measurement location	Baseline sound levels (dB)							Data source coding
Reference	Area represented		For construction sound assessment (2025)			For operational sound assessment (2038)				
			Daytime L_{pAeq}	Evening / weekend L_{pAeq}	Night-time L_{pAeq}	Daytime $L_{pAeq,16hour}$	Night-time $L_{pAeq,8hour}$	Arithmetic average $L_{pAFmax,5min}$	Highest night-time $L_{pAFmax,5min}$	
615144	Lytham Road, Manchester		59	59	53	59	53	56	83	4,A,i,b
615145	Birchfields Road, Manchester		66	64	60	66	60	65	71	3,A,i,b
615146	Lytham Road, Manchester		66	66	61	66	61	64	91	4,A,i,b
615148	Lindsay Avenue, Manchester		57	57	52	57	52	55	82	4,A,i,b
615150	Lindsay Avenue, Manchester		68	68	62	68	62	65	92	4,A,i,b
615151	Birchfields Road, Manchester		67	65	61	67	61	66	71	3,A,i,b
615152	Lindsay Avenue, Manchester		56	56	50	56	50	53	80	4,A,i,b
615154	Skelton Grove, Manchester	ML712791	50	49	44	50	44	54	77	1,A,i,a
615162	Rostron Avenue, Manchester		52	52	47	52	47	50	77	4,A,i,b
615165	Rostron Avenue, Manchester	ML712775	55	50	39	54	39	48	72	1,A,i,a
615167	Bennett Street, Manchester		56	54	50	55	50	51	77	5,A,i,b
615168	Whixhall Avenue, Manchester	ML712775	55	50	39	54	39	48	72	1,A,i,a
615169	Bennett Street, Manchester	ML712775	55	50	39	54	39	48	72	1,A,i,a
615170	St. Benedicts Avenue, Manchester	ML712775	55	50	39	54	39	48	72	1,A,i,a
615171	Hayfield Close, Manchester		47	47	43	47	43	45	72	5,A,i,b
615172	Wigley Street, Manchester		50	50	45	50	45	48	75	5,A,i,b
615173	Anthony Close, Manchester		48	47	43	48	43	46	73	5,A,i,b
615174	Anthony Close, Manchester		47	47	43	47	43	46	73	5,A,i,b
615175	Anthony Close, Manchester		49	49	46	49	46	48	75	4,A,i,b
615176	Wigley Street, Manchester		51	51	48	51	48	51	78	4,A,i,b

Assessment location		Measurement location	Baseline sound levels (dB)							Data source coding
Reference	Area represented		For construction sound assessment (2025)			For operational sound assessment (2038)				
			Daytime L_{pAeq}	Evening / weekend L_{pAeq}	Night-time L_{pAeq}	Daytime $L_{pAeq,16hour}$	Night-time $L_{pAeq,8hour}$	Arithmetic average $L_{pAFmax,5min}$	Highest night-time $L_{pAFmax,5min}$	
615177	Anthony Close, Manchester		48	48	44	48	44	48	75	5,A,i,b
615178	Anthony Close, Manchester		51	51	48	51	48	51	78	4,A,i,b
615179	Anthony Close, Manchester		55	54	51	55	51	54	81	4,A,i,b
615180	Anthony Close, Manchester		54	53	50	54	50	53	80	4,A,i,b
615181	Anthony Close, Manchester		58	58	55	58	55	58	85	4,A,i,b
615182	Anthony Close, Manchester		60	60	57	60	57	60	87	4,A,i,b
615183	Anthony Close, Manchester		45	45	41	45	42	57	84	5,A,i,b
615184	Anthony Close, Manchester		60	60	57	60	57	60	87	4,A,i,b
615185	Universal Square (Education), Devonshire Street, Manchester and committed development (Map Book ref.: MA07/463)		72	72	67	72	67	70	97	4,A,i,b
615201	Falconwood Way, Manchester		64	61	57	63	57	62	67	3,A,i,b
615202	Ashton Old Road, Manchester		66	64	60	66	60	65	71	3,A,i,b
615203	Ashton Old Road, Manchester		66	64	59	66	60	65	70	3,A,i,b
615204	Ashton Old Road, Manchester	ML712777	65	63	59	65	59	64	69	3,A,i,b
615207	Ashton Old Road, Manchester		64	61	57	63	57	62	67	3,A,i,b
615209	Wren Way, Manchester		61	59	55	61	55	60	66	3,A,i,b
615211	Wren Way, Manchester		60	58	53	60	54	59	65	3,A,i,b
615212	Wren Way, Manchester		60	57	53	59	53	58	66	3,A,i,b
615214	Wren Way, Manchester		58	56	51	58	52	57	65	3,A,i,b

Assessment location		Measurement location	Baseline sound levels (dB)							Data source coding
Reference	Area represented		For construction sound assessment (2025)			For operational sound assessment (2038)				
			Daytime L_{pAeq}	Evening / weekend L_{pAeq}	Night-time L_{pAeq}	Daytime $L_{pAeq,16hour}$	Night-time $L_{pAeq,8hour}$	Arithmetic average $L_{pAFmax,5min}$	Highest night-time $L_{pAFmax,5min}$	
615215	Happy Kids Preschool Nursery, Heybury Close, Manchester		46	44	39	46	40	44	59	3,A,i,b
615217	Hartwell Close, Manchester		48	46	42	48	42	46	62	3,A,i,b
615219	Bell Crescent, Manchester		53	51	47	53	47	52	61	3,A,i,b
615220	Rylance Street, Manchester		54	51	47	54	47	52	63	3,A,i,b
615221	Wynne Close, Manchester		49	47	43	49	43	48	60	3,A,i,b
615222	Paxton Place, Manchester		57	55	51	57	51	55	70	3,A,i,b
615223	Paxton Place, Manchester		53	50	46	52	46	51	65	3,A,i,b
615225	Lloyd Wright Avenue, Manchester		47	45	41	47	41	45	63	5,A,i,b
615226	Lloyd Wright Avenue, Manchester		47	45	41	47	41	45	63	5,A,i,b
615227	Holly Street, Manchester		54	52	48	54	48	52	70	3,A,i,b
615229	Paxton Place, Manchester		51	48	44	50	45	49	65	3,A,i,b
615231	Aldridge Road, Manchester		48	46	42	48	42	47	63	3,A,i,b
615232	Lloyd Wright Avenue, Manchester		47	45	41	47	41	45	62	5,A,i,b
615236	Viaduct Street, Manchester		50	48	44	51	45	49	68	5,A,i,b
615237	Holly Street, Manchester		51	49	45	50	45	49	70	5,A,i,b
615238	Paxton Place, Manchester	ML712779	48	52	40	50	40	50	75	1,A,i,a
615240	Viaduct Street, Manchester		47	46	41	47	42	45	67	5,A,i,b
615243	Olympic Street, Manchester		50	48	45	50	45	48	71	5,A,i,b
615245	Stadium Drive, Manchester	ML712779	48	52	40	50	40	50	75	1,A,i,a
615249	Viaduct Street, Manchester		47	45	41	47	41	45	67	5,A,i,b

Assessment location		Measurement location	Baseline sound levels (dB)							Data source coding
Reference	Area represented		For construction sound assessment (2025)			For operational sound assessment (2038)				
			Daytime L_{pAeq}	Evening / weekend L_{pAeq}	Night-time L_{pAeq}	Daytime $L_{pAeq,16hour}$	Night-time $L_{pAeq,8hour}$	Arithmetic average $L_{pAFmax,5min}$	Highest night-time $L_{pAFmax,5min}$	
615250	Lloyd Wright Avenue, Manchester		43	41	37	43	37	41	63	5,A,i,b
615254	Stadium Drive, Manchester	ML712779	48	52	40	50	40	50	75	1,A,i,a
615255	Holly Street, Manchester		47	46	44	47	44	54	81	5,A,i,b
615257	Viaduct Street, Manchester		46	44	40	46	41	43	66	5,A,i,b
615259	Markham Close, Manchester		46	45	41	46	41	44	66	5,A,i,b
615260	Morna Walk, Manchester		49	47	43	49	43	47	68	5,A,i,b
615261	Commonwealth Avenue, Manchester	ML712779	48	52	40	50	40	50	75	1,A,i,a
615262	Helsby Walk, Manchester		46	44	40	46	40	43	66	5,A,i,b
615269	Morna Walk, Manchester		49	47	43	49	43	47	67	5,A,i,b
615270	Commonwealth Avenue, Manchester		45	44	42	45	42	52	79	5,A,i,b
615271	Aden Close, Manchester		47	45	41	47	41	45	62	3,A,i,b
615274	Alderman Square, Manchester		45	43	39	45	39	42	66	5,A,i,b
615275	Spire Walk, Manchester		45	44	39	45	40	43	65	5,A,i,b
615276	Viaduct Street, Manchester		45	44	40	45	41	43	68	5,A,i,b
615283	Aden Close, Manchester		46	44	40	46	40	44	62	5,A,i,b
615368	Calderbank Medical Chambers (Clinic), Wilmslow Road, Manchester		66	63	59	66	59	64	69	3,A,i,b
615401	Palatine Road, Manchester		49	47	43	50	44	49	54	3,A,i,b
616001	Anthony Close, Manchester		59	59	56	59	56	59	86	4,A,i,b

Assessment location		Measurement location	Baseline sound levels (dB)							Data source coding
Reference	Area represented		For construction sound assessment (2025)			For operational sound assessment (2038)				
			Daytime L_{pAeq}	Evening / weekend L_{pAeq}	Night-time L_{pAeq}	Daytime $L_{pAeq,16hour}$	Night-time $L_{pAeq,8hour}$	Arithmetic average $L_{pAFmax,5min}$	Highest night-time $L_{pAFmax,5min}$	
616006	The Robert Parfett Building, The Christie Hospital NHS Foundation Trust, Kinnaird Road, Manchester		<40	36	32	<40	32	36	54	5,C,i,b
616088	Peggy Lane, Manchester		63	60	56	63	57	62	67	3,A,i,b
616090	Holme Road, Manchester		46	44	39	47	40	45	50	3,A,i,b
616091	Holme Road, Manchester		46	43	39	46	40	45	51	3,A,i,b
616254	Holme Road, Manchester		48	46	42	49	42	47	52	3,A,i,b
616286	Hayfield Close, Manchester		46	45	41	46	41	43	70	5,A,i,b
616297	Palatine Road, Manchester		56	54	49	57	50	55	60	3,A,i,b
616304	Winchester Park, Manchester		46	43	39	46	40	45	50	3,A,i,b
616307	Adamson Gardens, Manchester		53	51	46	54	47	52	57	3,A,i,b
616308	Birchfields Primary School (Primary School), Playing Fields, Lytham Road, Manchester		56	55	50	56	50	52	78	5,A,i,b
616502	Moseley Road (Training Centre), Manchester		55	53	49	55	49	53	71	5,A,i,b
616703	Rectory Cottage (Accommodation), Wythenshawe		60	58	53	60	54	59	64	3,A,i,b
616705	Boundary Veterinary (Offices), Wilmslow Road, Manchester		49	47	42	49	43	48	53	3,A,i,b
616733	Bennett Street (Offices), Manchester		46	45	40	46	40	41	68	5,A,i,b
616734	Matthew Street Units (Offices), Manchester		45	43	39	44	39	40	67	5,A,i,b

Assessment location		Measurement location	Baseline sound levels (dB)							Data source coding
Reference	Area represented		For construction sound assessment (2025)			For operational sound assessment (2038)				
			Daytime L_{pAeq}	Evening / weekend L_{pAeq}	Night-time L_{pAeq}	Daytime $L_{pAeq,16hour}$	Night-time $L_{pAeq,8hour}$	Arithmetic average $L_{pAFmax,5min}$	Highest night-time $L_{pAFmax,5min}$	
616735	Vaughan Street (Offices), Manchester		44	44	40	44	40	43	70	5,A,i,b
616736	Vaughan Street (Offices), Manchester		47	47	43	47	43	46	73	5,A,i,b
616740	Parkville Road, Manchester		<40	37	33	<40	33	38	53	3,C,i,b
616741	Kids Around the Clock (Nursery), Brookfield Gardens, Manchester		52	49	45	52	46	51	60	3,A,i,b
616824	Holme Road, Manchester	ML712796	53	51	47	53	47	53	70	1,A,i,a
616825	Lancaster Road, Manchester	ML712796	53	51	47	53	47	53	70	1,A,i,a
616826	Granville Gardens, Manchester		45	43	39	45	39	44	49	3,A,i,b
616827	Whitehaven Gardens, Manchester		46	43	39	46	40	45	50	3,A,i,b
616828	Deneford Road, Manchester		45	43	39	45	39	44	51	3,A,i,b
616829	Ford Lane, Manchester		48	46	41	48	42	47	52	3,A,i,b
616830	Ford Lane, Manchester		47	45	41	47	41	46	54	3,A,i,b
616831	Dene Road, Manchester		45	43	38	45	39	44	51	3,A,i,b
616832	Holme Road, Manchester		45	42	38	45	39	44	49	3,A,i,b
616833	Victoria Avenue, Manchester		45	42	38	45	39	44	52	3,A,i,b
616834	Spath Road, Manchester	ML712796	53	51	47	53	47	53	70	1,A,i,a
616835	Didsbury Sport Ground		48	46	42	48	42	47	52	3,A,i,b
616836	Ford Lane, Manchester		54	52	47	54	48	53	58	3,A,i,b
616837	Caravans on Ford Lane, Manchester		67	65	61	68	61	66	71	3,A,i,b
616838	Copper Beech Close, Manchester		61	59	54	61	55	60	65	3,A,i,b

Assessment location		Measurement location	Baseline sound levels (dB)							Data source coding
Reference	Area represented		For construction sound assessment (2025)			For operational sound assessment (2038)				
			Daytime L_{pAeq}	Evening / weekend L_{pAeq}	Night-time L_{pAeq}	Daytime $L_{pAeq,16hour}$	Night-time $L_{pAeq,8hour}$	Arithmetic average $L_{pAFmax,5min}$	Highest night-time $L_{pAFmax,5min}$	
616839	Hollyway, Manchester		60	58	53	60	54	59	64	3,A,i,b
616840	West View Road, Manchester		68	66	61	68	62	67	72	3,A,i,b
616841	Bucklow Drive, Manchester		63	61	56	63	57	62	67	3,A,i,b
616842	Bucklow Drive, Manchester		51	49	45	52	45	50	55	3,A,i,b
616843	Bucklow Drive, Manchester		52	49	45	52	46	51	56	3,A,i,b
616844	Bucklow Drive, Manchester		52	49	45	52	46	51	56	3,A,i,b
616845	Bronington Close, Manchester		58	55	51	58	52	57	62	3,A,i,b
616846	West View Road, Manchester		54	51	47	54	48	53	58	3,A,i,b
616847	Ford Lane (West), Manchester		58	55	51	58	52	57	62	3,A,i,b
616848	Ollerton Close, Manchester		55	52	48	55	49	54	59	3,A,i,b
616849	Orchard Road, Manchester		68	65	61	68	62	67	72	3,A,i,b
616850	Peggy Lane, Manchester		58	55	51	58	52	57	62	3,A,i,b
616851	Mill Lane, Manchester		58	55	51	58	52	57	62	3,A,i,b
616852	St Wilfrid's Church, Ford Lane, Wythenshawe		53	51	47	54	48	53	58	3,A,i,b
616853	Holme Road, Manchester		48	46	42	49	42	47	52	3,A,i,b
616854	Bagnal Court, Manchester		60	58	54	61	54	59	64	3,A,i,b
616855	West View Court, West View Road, Manchester		68	66	62	69	63	68	73	3,A,i,b
616856	West View Road, Manchester		55	53	49	56	50	55	60	3,A,i,b
616857	Rectory Cottage (Accommodation), Wythenshawe		60	58	54	61	54	59	64	3,A,i,b

Assessment location		Measurement location	Baseline sound levels (dB)							Data source coding
Reference	Area represented		For construction sound assessment (2025)			For operational sound assessment (2038)				
			Daytime L_{pAeq}	Evening / weekend L_{pAeq}	Night-time L_{pAeq}	Daytime $L_{pAeq,16hour}$	Night-time $L_{pAeq,8hour}$	Arithmetic average $L_{pAFmax,5min}$	Highest night-time $L_{pAFmax,5min}$	
616858	Roundwood Road, Manchester		52	49	45	52	46	51	65	3,A,i,b
616859	Netherwood Road, Manchester		49	47	42	49	43	48	61	3,A,i,b
616861	MEA Central (Secondary School), Lytham Road, Manchester		61	61	55	61	56	57	84	5,A,i,b
616863	Palatine Road, Manchester		49	47	42	49	43	48	53	3,A,i,b
616864	Winchester Park, Manchester		46	44	39	46	40	45	50	3,A,i,b
616865	Adamson Gardens, Manchester		48	45	41	48	42	47	52	3,A,i,b
616902	Roundwood Road, Manchester (Education) and committed development (Map Book ref.: MA07/363)		54	51	47	54	48	53	65	3,A,i,b
616908	Netherwood Road, Manchester and committed development (Map Book ref.: MA07/402)		59	57	52	59	53	58	65	3,A,i,b

Table 2: Data source coding key

Code	Data source type
1	Long-term measurement location (typically seven days).
2	Short-term (typically unattended 24 hours or attended measurements of several hours).
3	Specific road traffic validated prediction.
4	Specific rail traffic validated prediction.
5	Specific combined road and rail traffic validated prediction.
6	Levels adopted from nearby assessment location.
7	Predictions from other sources (e.g. Defra noise maps).
Code	**Corrections applied**
A	Data from above source applied directly.
B	Correction applied based upon location of assessment location.
C	Minimum level cut-off applied.
Code	**Distance from measurement**
i	Data applied from a measurement / prediction at or very close to the assessment location.
ii	Data applied from a local measurement location at a greater distance but noted to have equivalent acoustic climate.
iii	Data applied from a distant measurement location where sound levels would be expected to be similar.
Code	**Uncertainty**
a	Data are considered highly representative of the prevailing sound climate.
b	Data are considered representative of the prevailing sound climate, but uncertainties and/or variations in measured levels indicate that there may be a higher degree of uncertainty than for (a).
c	Data are considered to be an estimate of the sound climate due to assumptions made.

4 Construction

4.1 Evaluation of impacts and effects

4.1.1 This appendix provides a quantitative assessment of construction noise and vibration impacts/effects and a qualitative assessment of likely significant effects, based on the impacts/effects identified and other local context information consistent with the scope and methodology defined for the Proposed Scheme.

4.1.2 Indirect effects arising from temporary changes in traffic patterns on the existing road network as a consequence of constructing the Proposed Scheme are reported where they are likely to occur within the study area as defined in Volume 5, Appendix SV-001-00000.

4.1.3 In undertaking the assessment of sound, noise and vibration, consistent with the Environmental Impact Assessment Directive[8] and planning practice on noise[9] a differentiation between impacts, effects, adverse effects and significant effects is made. Further information is provided in Volume 5, Appendix SV-001-00000.

4.1.4 The assessment of impacts and effects has been undertaken at assessment locations that are representative of a number of dwellings or other sensitive receptors. The construction assessment locations employed in this assessment are presented on Volume 5, Sound, noise and vibration Map Book: Map Series SV-03.

4.1.5 Baseline sound level data have been collected at locations representative of the airborne sound-sensitive receptors and presented in Table 1.

4.2 Effects during construction

Introduction

4.2.1 The assessment is reported first for ground-borne sound and vibration and then for airborne sound. Under each of these headings, the results of the identification of impacts, effects and significant effects are presented. The significant effects and the evidence used to support these conclusions are presented in Volume 2, Community Area report: Davenport Green to Ardwick (MA07), Section 13.

[8] *Directive 85/337/EEC, as amended by 97/11/EC, 2003/35/EC, 2011/92/EC and 2014/52/EU ('the EIA Directive') of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment.* Strasbourg, European Parliament and European Council.

[9] Ministry of Housing, Communities & Local Government (2019), *Planning Practice Guidance – Noise*. Available online at: https://www.gov.uk/guidance/noise--2.

Avoidance and mitigation measures

4.2.2 These are set out in Volume 2, Community Area report: Davenport Green to Ardwick (MA07), Section 13.

Identification of impacts and effects

4.2.3 Assessment locations defined for the quantitative assessment of impacts are shown on Volume 5, Sound, noise and vibration Map Book: Map Series SV-03.

4.2.4 For each assessment location, the assessment results are presented in Table 4. Explanation of the information in Table 4 to Table 6 is provided in Volume 5: Appendix SV-001-00000, with the following additional notes in Table 3.

Table 3: Explanatory notes for assessment results – direct construction effects

Symbol	Explanation
	Where the significant effect column is highlighted in pink, then a significant effect is identified at the referenced residential community area.
	For residential receptors yellow denotes a minor ground-borne vibration impact.
	For residential receptors orange denotes a moderate ground-borne vibration impact.
	For residential receptors red denotes a major ground-borne vibration impact.
*	For residential receptors this indicates a potentially significant effect where the quantitative impact methodology has identified an impact at this receptor which, based upon further qualitative receptor information, (see assessment text) does not give rise to a significant effect. For non-residential receptors this indicates the predicted noise levels are above screening criteria which, based upon further qualitative receptor information, (see assessment text) does not give rise to a significant effect.
~	When considered under the significance criteria set out in Volume 5: Appendix SV-001-00000, Annex A, Section 1.3, these adverse effects are not considered to be significant on a community basis.
A	For residential Assessment Locations (AL) – Construction sound or vibration levels from the Proposed Scheme exceed Lowest Observed Adverse Effect Level (LOAEL): the significance criteria set out in Volume 5: Appendix SV-001-00000, Annex A, Section 1.3 are considered when establishing significant effects. For non-residential AL and external amenity spaces – Construction sound or vibration levels from the Proposed Scheme exceed the screening criteria in the SMR Section 18.
S	Sound levels from the Proposed Scheme exceed Significant Observed Adverse Effect Level (SOAEL): noise insulation (or temporary rehousing at higher noise levels) therefore provided.
NA	Sound or vibration levels from the Proposed Scheme do not exceed LOAEL, therefore generally no adverse effect.
R	Type of receptor – residential.
A1 – A4	Type of receptor (airborne sound) – (A1) large and small auditoria; concert halls, sound recording and broadcast studios and theatres, (A2) places of meeting for religious worship, courts, cinemas, lecture theatres, museums and small auditoria or halls, (A3) schools; colleges; hospitals, hotels and libraries, (A4) offices and amenity spaces.

Symbol	Explanation
V1 – V4	Type of receptor (ground-borne vibration) – (V1) vibration sensitive research and manufacturing; hospitals with vibration sensitive equipment/operations; universities with vibration sensitive research equipment/operations, (V2) hotels, hospital wards and education dormitories, (V3) offices, schools and places of worship, (V4) workshops.
T	Receptor design – typical.
SP	Receptor design – special.
+	The use and sensitivity of this non-residential receptor or land use is very sensitive to noise and has been included in the detailed assessment (presented in Volume 2) where there is a change less than 3dB. In each case specific information is presented in an associated footnote.
$	The impact methodology for non-residential receptors includes a screening criterion for A2 building use of 50dB$L_{pAeq,07:00 - 23:00}$, A3 building use of 50dB$L_{pAeq,07:00 - 23:00}$, and 45dB$L_{pAeq,23:00 - 07:00}$ and for A4 building. use 55dB$L_{pAeq,07:00 - 23:00}$ (except for A4 buildings containing lower sensitivity offices, in which case the relevant A and B categories from the BS5228 ABC method will be used to assess the noise impact). At the receptor denoted, the screening criteria is met but a change of 3dB or greater has not been identified and therefore no impact is identified. Further information is provided in Volume 5: Appendix SV-001-00000.
H	Existing environment – high existing airborne ambient noise levels, day >75dB, evening >65dB or night >55dBL_{pAeq} at the façade.
L	Existing environment – low existing airborne ambient noise levels, day and evening ≤45dB, or night ≤35dBL_{pAeq} at the façade.
D,E,N	Impact duration (months) – duration of impact during the day (D), evening (E) or night (N).
O, CT, V	Combined Impact: If noise or vibration impacts from other construction activities occur at this location: onsite activities (O), off-site construction traffic activities (CT), or construction vibration (V).
NI	Mitigation effect – identified as likely to qualify for noise insulation under the draft Code of Construction Practice (CoCP) Volume 5: Appendix CT-002-00000.
TR	Mitigation effect – identified as likely to qualify for temporary rehousing under the draft CoCP.

Ground-borne sound and vibration

4.2.5 Activities associated with the construction phases of the Proposed Scheme will generate ground-borne sound and vibration. The assessment of the likely impacts and significant effects as a result of the construction noise has considered the effects on:

- residential receptors, both as individual dwellings and communities; and
- non-residential receptors.

4.2.6 The Christie Foundation NHS Trust (Hospital), Wilmslow Road, Manchester and committed development CD ref.: 123748/FO/2019 (assessment location ref: 615112) is located approximately 90m from the route of the Proposed Scheme. Following consultation with representatives of the hospital it has been identified that vibration sensitive equipment/operations are undertaken on this site and therefore, in accordance with the spatial scope defined in the SMR, a specific vibration risk assessment has been completed. More detailed assessment is presented in Annex A.

4.2.7 The results, impact criteria and significance criteria for the assessment of the Proposed Scheme at residential and non-residential receptors are presented in Table 4. Explanation of the information within Table 4 is provided in Volume 5, Appendix SV-001-00000, with the additional notes presented in Table 3.

Table 4: Assessment of construction induced ground-borne vibration at residential and non-residential receptors

Assessment location		Impact criteria				Significance criteria							Significant effect
Reference	Area represented	Peak particle velocity (PPV) [mm/s] on foundation	Typical/highest monthly indoor vibration dose value (VDV) [m/s$^{1.75}$]		Construction activity resulting in highest forecast vibration	Type of effect	Number of properties represented	Type of receptor	Receptor design	Unique feature	Combined impact	Impact duration [m]	
			Day 07:00 – 23:00	Night 23:00 – 07:00									
615036	Greenwood Road, Manchester	0.1	0.08/0.12	-/-	Site set up (vibratory roller)	NA	24	R	T	-	-		
615041	Open University, Wythenshawe, Manchester	0.3	0.12/0.24	-/-	Site set up (vibratory roller)	NA	1	V3	T	-	-		
615042	Altrincham Road, Manchester	0.2	0.04/0.16	-/-	Site set up (vibratory roller)	NA	16	R	T	-	-		
615043	The Royals (Offices), Wythenshawe, Manchester	0.1	0.08/0.12	-/-	Site set up (vibratory roller)	NA	1	V3	T	-	-		
615064	Palatine Road, Manchester	0.4	0.04/0.23	-/-	Site set up (vibratory roller)	A	1	R	T	-	-	D3	~
615086	Wilmslow Road, Manchester	0.3	0.08/0.25	-/-	Site set up (vibratory roller)	A	14	R	T	-	-	D3	~
615087	Ferndene Road, Manchester	0.4	0.12/0.30	-/-	Site set up (vibratory roller)	A	10	R	T	-	-	D3	MA07-C-C1
615088	Wilmslow Road, Manchester	0.2	0.08/0.20	-/-	Site set up (vibratory roller)	NA	7	R	T	-	-		
615089	Lynway Drive, Manchester	0.3	0.08/0.23	-/-	Site set up (vibratory roller)	A	10	R	T	-	O	D3	MA07-C-C1

Assessment location		Impact criteria				Significance criteria							Significant effect
Reference	Area represented	Peak particle velocity (PPV) [mm/s] on foundation	Typical/highest monthly indoor vibration dose value (VDV) [m/s$^{1.75}$]		Construction activity resulting in highest forecast vibration	Type of effect	Number of properties represented	Type of receptor	Receptor design	Unique feature	Combined impact	Impact duration [m]	
			Day 07:00 – 23:00	Night 23:00 – 07:00									
615090	Wilmslow Road, Manchester	1.1	0.12/<0.8[10]	-/-	Site set up (vibratory roller)	A	4	R	T	-	-	D3	MA07-C-C1
615092	The Circuit, Manchester	0.2	0.04/0.12	-/-	Site set up (vibratory roller)	NA	4	R	T	-	-		
615093	Ferndene Gardens, Manchester	1.4	0.32/0.71	-/-	Site set up (vibratory roller)	A	6	R	T	-	O	D3	MA07-C-C1
615094	Wilmslow Road, Manchester	0.5	0.12/0.40	-/-	Site set up (vibratory roller)	A	4	R	T	-	O	D3	MA07-C-C1
615095	Lynway Drive, Manchester	2	0.28/<0.8[10]	-/-	Site set up (vibratory roller)	A	8	R	T	-	O	D3	MA07-C-C1
615096	Lynway Drive, Manchester	0.4	0.12/0.30	-/-	Site set up (vibratory roller)	A	6	R	T	-	O	D3	MA07-C-C1
615097	Wensley Drive, Manchester	0.2	0.08/0.20	-/-	Site set up (vibratory roller)	NA	10	R	T	-	-		
615098	Parkville Road, Manchester	0.2	0.08/0.16	-/-	Site set up (vibratory roller)	NA	4	R	T	-	-		
615101	Parkville Road, Manchester	1.3	0.16/<0.8[10]	-/-	Site set up (vibratory roller)	A	6	R	T	-	O	D3	MA07-C-C1
615102	Wilmslow Road, Manchester	0.6	0.20/0.42	-/-	Site set up (vibratory roller)	A	7	R	T	-	O	D3	MA07-C-C1

[10] Construction methods will be selected to ensure that on a monthly basis the significant adverse effect level is not exceeded.

Assessment location		Impact criteria				Significance criteria							Significant effect
Reference	Area represented	Peak particle velocity (PPV) [mm/s] on foundation	Typical/highest monthly indoor vibration dose value (VDV) [m/s$^{1.75}$]		Construction activity resulting in highest forecast vibration	Type of effect	Number of properties represented	Type of receptor	Receptor design	Unique feature	Combined impact	Impact duration [m]	
			Day 07:00 – 23:00	Night 23:00 – 07:00									
615103	Parkville Road, Manchester	1.4	0.20/<0.8[10]	-/-	Site set up (vibratory roller)	A	4	R	T	-	O	D3	MA07-C-C1
615104	Parkville Road, Manchester	0.3	0.08/0.20	-/-	Site set up (vibratory roller)	NA	10	R	T	-	-		
615105	Alpino Cars (Office), Wilmslow Road, Manchester	0.7	0.06/0.30	-/-	Site set up (vibratory roller)	NA	1	V3	T	-	-		
615107	Rathen Road, Manchester	0.1	0.04/0.12	-/-	Site set up (vibratory roller)	NA	22	R	T	-	-		
615108	Oak Road, Manchester	0.3	0.08/0.22	-/-	Site set up (vibratory roller)	A	7	R	T	-	-	D3	MA07-C-C1
615109	Wilmslow Road, Manchester	1.1	0.16/0.65	-/-	Site set up (vibratory roller)	A	21	R	T	-	O	D3	MA07-C-C1
615110	Oak Road, Manchester	0.2	0.04/0.12	-/-	Site set up (vibratory roller)	NA	13	R	T	-	-		
615112	The Christie Foundation NHS Trust (Hospital), Wilmslow Road, Manchester and committed development (Map Book ref.: MA07/445)	0.25	-/-	-/-	Bored tunnel works (TBM)	A	1	V1	T	-	-	D>1	MA07-C-N4
615130	Birchfields Road, Manchester	0.2	0.04/0.12	-/-	Site set up (vibratory roller)	NA	4	R	T	-	-		

Assessment location		Impact criteria				Significance criteria							Significant effect
Reference	Area represented	Peak particle velocity (PPV) [mm/s] on foundation	Typical/highest monthly indoor vibration dose value (VDV) [m/s$^{1.75}$]		Construction activity resulting in highest forecast vibration	Type of effect	Number of properties represented	Type of receptor	Receptor design	Unique feature	Combined impact	Impact duration [m]	
			Day 07:00 – 23:00	Night 23:00 – 07:00									
615131	Kingsway, Manchester	0.2	0.08/0.17	-/-	Site set up (vibratory roller)	NA	12	R	T	-	-		
615132	Birchfields Road, Manchester	0.3	0.08/0.22	-/-	Site set up (vibratory roller)	A	4	R	T	-	O, CT	D3	MA07-C-C2
615134	Birchfields Road, Manchester	0.7	0.08/0.41	-/-	Site set up (vibratory roller)	A	6	R	T	-	O, CT	D3	MA07-C-C2
615135	Peaceville Road, Manchester	0.4	0.08/0.26	-/-	Site set up (vibratory roller)	A	16	R	T	-	-	D3	~
615137	Birchfields Road, Manchester	0.7	0.08/0.42	-/-	Site set up (vibratory roller)	A	3	R	T	-	O, CT	D3	MA07-C-C2
615138	Birchfields Road, Manchester	0.7	0.08/0.45	-/-	Site set up (vibratory roller)	A	3	R	T	-	O, CT	D3	MA07-C-C2
615139	Birchfields Road, Manchester	0.6	0.08/0.37	-/-	Site set up (vibratory roller)	A	2	R	T	-	O, CT	D3	MA07-C-C2
615140	Birchfields Road, Manchester	0.2	0.04/0.18	-/-	Site set up (vibratory roller)	NA	9	R	T	-	-		
615141	Birchfields Primary School (Primary School), Lytham Road, Manchester	0.2	0.08/0.20	-/-	Site set up (vibratory roller)	NA	1	V3	T	-	-		
615222	Paxton Place, Manchester	0.2	-/0.16	-/-	Site set up (vibratory roller)	NA	4	R	T	-	-		
615227	Holly Street, Manchester	0.2	-/0.12	-/-	Site set up (vibratory roller)	NA	6	R	T	-	-		

Assessment location		Impact criteria				Significance criteria							Significant effect
Reference	Area represented	Peak particle velocity (PPV) [mm/s] on foundation	Typical/highest monthly indoor vibration dose value (VDV) [m/s$^{1.75}$]		Construction activity resulting in highest forecast vibration	Type of effect	Number of properties represented	Type of receptor	Receptor design	Unique feature	Combined impact	Impact duration [m]	
			Day 07:00 – 23:00	Night 23:00 – 07:00									
616290	Wilmslow Road, Manchester	0.2	0.02/0.06	-/-	Site set up (vibratory roller)	NA	7	R	T	-	-		
616291	Wilmslow Road, Manchester	0.3	0.04/0.12	-/-	Site set up (vibratory roller)	NA	13	R	T	-	-		
616295	Birchfields Road, Manchester	0.1	0.02/0.06	-/-	Site set up (vibratory roller)	NA	6	R	T	-	-		
616301	Wilmslow Road, Manchester	0.3	0.04/0.14	-/-	Site set up (vibratory roller)	NA	4	R	T	-	-		
616308	Birchfields Primary School (Primary School), Playing Fields, Lytham Road, Manchester	0.8	0.08/0.24	-/-	Site set up (vibratory roller)	NA	1	V3	T	-	-		
616705	Boundary Veterinary (Offices), Wilmslow Road, Manchester	0.2	0.04/0.08	-/-	Site set up (vibratory roller)	NA	1	V3	T	-	-		
616740	Parkville Road, Manchester	0.2	0.04/0.12	-/-	Site set up (vibratory roller)	NA	13	R	T	-	-		
616893	Siemens Ardwick Depot, Manchester	0.8	-/0.18	-/-	Site set up (vibratory roller)	S	1	V1	T	-	-		

Airborne sound: direct impacts and effects

4.2.8 Activities associated with the construction phases of the Proposed Scheme will generate airborne noise. The assessment of the likely impacts and significant effects as a result of the construction noise has considered the effects on:

- residential receptors, both as individual dwellings and communities; and
- non-residential receptors, including quiet areas.

4.2.9 For each type of receptor, the typical and highest monthly $L_{Aeq,T}$ noise levels from construction activities have been calculated at the façade of all assessment locations. This is subject to the screening distances identified and based upon supplied plant information from engineers.

4.2.10 The results, impact criteria and significance criteria for the assessment of the Proposed Scheme at residential and non-residential receptors are presented in Table 5 and Table 6 respectively. Explanation of the information within Table 5 and Table 6 is provided in Volume 5, Appendix SV-001-00000, with the additional notes presented in Table 3.

Table 5: Assessment of construction noise at residential receptors

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
615002	Bleasdale Road, Manchester	52/56[B]	45/47[C]	45/47[C]	Day: Retaining walls construction Evening: Bored tunnelling support Night: Bored tunnelling support	NA	23	R	T	H	-	-	-	-	
615004	Rowarth Road, Manchester	49/54[A]	43/45[C]	43/45[C]	Day: Bored tunnelling support Evening: Bored tunnelling support Night: Bored tunnelling support	NA	25	R	T	H	-	-	-	-	
615005	Rowarth Road, Manchester	51/56[A]	45/47[A]	45/47[C]	Day: Bored tunnelling support Evening: Bored tunnelling support Night: Bored tunnelling support	NA	8	R	T	-	-	-	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
615006	Rowarth Road, Manchester	51/57[A]	46/48[A]	46/48[B]	Day: Bored tunnelling support Evening: Bored tunnelling support Night: Bored tunnelling support	NA	10	R	T	-	-	-	-	-	
615007	Burbage Road, Manchester	49/54[A]	43/45[A]	43/45[B]	Day: Bored tunnelling support Evening: Bored tunnelling support Night: Bored tunnelling support	NA	54	R	T	-	-	-	-	-	
615008	Rowarth Road, Manchester	51/57[A]	46/48[A]	46/48[B]	Day: Bored tunnelling support Evening: Bored tunnelling support Night: Bored tunnelling support	NA	9	R	T	-	-	-	-	-	
615010	Shepton Drive, Manchester	49/54[A]	43/45[A]	43/45[B]	Day: Bored tunnelling support Evening: Bored tunnelling support Night: Bored tunnelling support	NA	16	R	T	-	-	-	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
615011	Rowarth Road, Manchester	50/55[A]	44/46[A]	44/46[B]	Day: Bored tunnelling support Evening: Bored tunnelling support Night: Bored tunnelling support	NA	14	R	T	-	-	-	-	-	
615012	Rowarth Road, Manchester	50/54[A]	44/46[A]	44/46[B]	Day: Bored tunnelling support Evening: Bored tunnelling support Night: Bored tunnelling support	NA	25	R	T	-	-	-	-	-	
615013	Greenbrow Road, Manchester	48/52[A]	41/44[A]	41/44[B]	Day: Bored tunnelling support Evening: Bored tunnelling support Night: Bored tunnelling support	NA	35	R	T	-	-	-	-	-	
615014	Greenbrow Road, Manchester	49/53[A]	43/45[A]	43/45[B]	Day: Bored tunnelling support Evening: Bored tunnelling support Night: Bored tunnelling support	NA	14	R	T	-	-	-	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
615015	Rushall Walk, Manchester	52/55[A]	44/46[A]	44/46[B]	Day: General site works Evening: Bored tunnelling support Night: Bored tunnelling support	NA	5	R	T	-	-	-	-	-	
615016	Galway Walk, Manchester	55/58[A]	47/49[A]	47/49[B]	Day: General site works Evening: Bored tunnelling support Night: Bored tunnelling support	NA	4	R	T	-	-	-	-	-	
615018	Crowland Road, Manchester	52/55[A]	43/46[A]	43/46[B]	Day: General site works Evening: Bored tunnelling support Night: Bored tunnelling support	NA	24	R	T	-	-	-	-	-	
615019	Oldwood Road, Manchester	47/51[A]	41/43[B]	41/43[C]	Day: Bored tunnelling support Evening: Bored tunnelling support Night: Bored tunnelling support	NA	13	R	T	-	-	-	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
615020	Crowland Road, Manchester	56/59[A]	49/51[A]	49/51[B]	Day: General site works Evening: Bored tunnelling support Night: Bored tunnelling support	A	4	R	T	-	-	N27	-	-	~
615021	Greenbrow Road, Manchester	46/51[A]	40/42[B]	40/42[C]	Day: Bored tunnelling support Evening: Bored tunnelling support Night: Bored tunnelling support	NA	13	R	T	-	-	-	-	-	
615024	Kinsale Walk, Manchester	55/59[A]	48/50[A]	48/50[B]	Day: General site works Evening: Bored tunnelling support Night: Bored tunnelling support	NA	36	R	T	-	-	-	-	-	
615025	Rowfield Drive, Manchester	51/55[A]	44/46[A]	44/46[B]	Day: General site works Evening: Bored tunnelling support Night: Bored tunnelling support	NA	14	R	T	-	-	-	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
615026	Wensleydale Close, Manchester	48/52[A]	41/43[B]	41/43[C]	Day: Bored tunnelling support Evening: Bored tunnelling support Night: Bored tunnelling support	NA	44	R	T	-	-	-	-	-	
615027	Newall Road, Manchester	51/55[A]	44/46[A]	44/46[C]	Day: General site works Evening: Bored tunnelling support Night: Bored tunnelling support	NA	24	R	T	-	-	-	-	-	
615029	Partridge Avenue, Manchester	52/56[B]	39/39[C]	39/39[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	7	R	T	H	-	-	-	-	
615030	Greenwood Road, Wythenshawe	62/66[C]	48/48[C]	48/48[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	124	R	T	H	-	-	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
615031	Royalthorn Avenue, Manchester	55/58[A]	44/44[B]	44/44[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	144	R	T	-	-	-	-	-	
615032	Royalthorn Avenue, Wythenshawe	66/70[C]	53/53[C]	53/53[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	46	R	T	H	-	-	-	-	
615033	Saxfield Drive, Manchester	50/53[A]	39/39[B]	39/39[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	17	R	T	H	-	-	-	-	
615034	Saxfield Drive, Manchester	52/55[B]	41/41[C]	41/41[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	8	R	T	H	-	-	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
615035	Boothfield Avenue, Manchester	60/63[A]	46/46[B]	46/46[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	80	R	T	-	-	-	-	-	
615036	Greenwood Road, Manchester	66/71[C]	51/51[C]	51/51[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	24	R	T	H	-	-	-	-	
615038	Spinney Road, Manchester	53/57[B]	40/40[C]	40/40[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	15	R	T	H	-	-	-	-	
615039	Sandacre Road, Manchester	51/54[A]	37/37[C]	37/37[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	15	R	T	H	-	-	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
615040	Spinney Road, Manchester	53/56[B]	41/41[C]	41/41[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	5	R	T	H	-	-	-	-	
615042	Altrincham Road, Manchester	61/66[C]	47/47[C]	47/47[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	16	R	T	H	-	-	-	-	
615044	Altrincham Road, Manchester	59/64[B]	36/36[C]	36/36[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	4	R	T	H	-	-	-	-	
615045	Roundwood Road, Manchester	52/57[A]	39/39[B]	39/39[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	12	R	T	-	-	-	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
615047	Parkwood Road, Manchester	48/51[C]	38/38[C]	38/38[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	12	R	T	H	-	-	-	-	
615048	Netherwood Road, Manchester	53/56[A]	39/39[C]	39/39[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	16	R	T	H	-	-	-	-	
615049	Elwyn Avenue, Manchester	46/51[A]	34/34[B]	34/34[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	21	R	T	-	-	-	-	-	
615061	Ford Lane, Northenden	52/56[A]	39/40[A]	39/40[B]	Day: Vent shaft construction Evening: Vent shaft construction Night: Vent shaft construction	NA	5	R	T	-	-	-	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
615062	Palatine Road, Manchester	52/56[C]	39/41[C]	39/41[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	20	R	T	H	-	-	-	-	
615064	Palatine Road, Manchester	67/70[B]	53/55[C]	53/55[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	1	R	T	H	-	-	-	-	
615065	Harefield Drive, Manchester	51/60[A]	36/38[A]	36/38[B]	Day: Vent shaft construction Evening: Vent shaft construction Night: Vent shaft construction	NA	16	R	T	-	-	-	-	-	
615066	Westmorland Road, Manchester	46/49[A]	34/35[A]	34/35[B]	Day: Vent shaft construction Evening: Vent shaft construction Night: Vent shaft construction	NA	51	R	T	-	-	-	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
615067	Dene Park, Manchester	52/59[A]	38/39[B]	38/39[C]	Day: Vent shaft construction Evening: Vent shaft construction Night: Vent shaft construction	NA	28	R	T	-	-	-	-	-	
615068	Palatine Road, Manchester	58/61[A]	44/46[B]	44/46[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	30	R	T	-	-	-	-	-	
615069	Palatine Road, Manchester	61/64[B]	47/49[C]	47/49[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	75	R	T	H	-	-	-	-	
615071	Winchester Park, Manchester	52/55[A]	38/40[A]	38/40[B]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	5	R	T	-	-	-	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
615075	Palatine Road, Manchester	48/50[B]	37/38[C]	37/38[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	61	R	T	H	-	-	-	-	
615076	Winchester Park, Manchester	42/45[A]	31/32[A]	31/32[A]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	17	R	T	-	-	-	-	-	
615077	Adamson Gardens, Manchester	51/55[A]	38/39[A]	38/39[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	59	R	T	-	-	-	-	-	
615078	Mersey Road, Manchester	43/45[B]	32/33[C]	32/33[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	48	R	T	H	-	-	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
615080	Wilmslow Road, Manchester	49/52[A]	38/38[B]	38/38[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	74	R	T	-	-	-	-	-	
615081	Old Broadway, Manchester	48/51[A]	37/37[A]	37/37[A]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	85	R	T	-	-	-	-	-	
615083	Mayville Drive, Manchester	51/54[A]	40/40[A]	40/40[B]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	43	R	T	-	-	-	-	-	
615084	Sandileigh Avenue, Manchester	49/53[A]	39/39[A]	39/39[A]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	44	R	T	-	-	-	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
615085	Mardale Avenue, Manchester	52/56[A]	42/42[A]	42/42[A]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	61	R	T	-	-	-	-	-	
615086	Wilmslow Road, Manchester	55/59[A]	44/44[B]	44/44[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	14	R	T	-	-	-	-	-	
615087	Ferndene Road, Manchester	58/63[A]	47/47[A]	47/47[B]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	10	R	T	-	-	-	-	-	
615088	Wilmslow Road, Manchester	62/67[C]	50/50[C]	50/50[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	7	R	T	H	-	-	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
615089	Lynway Drive, Manchester	57/60[A]	46/46[A]	46/46[A]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	A	10	R	T	-	-	N48	V	-	MA07-C-C1
615090	Wilmslow Road, Manchester	68/73[C]	55/55[C]	55/55[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	4	R	T	H	-	-		-	
615091	The Circuit, Manchester	53/56[A]	42/42[A]	42/42[A]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	13	R	T	-	-	-	-	-	
615092	The Circuit, Manchester	57/60[A]	46/46[A]	46/46[A]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	A	4	R	T	-	-	N46	-	-	MA07-C-C1

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
615093	Ferndene Gardens, Manchester	63/67[A]	53/53[B]	53/53[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	A	6	R	T	-	-	D4	V	-	MA07-C-C1
615094	Wilmslow Road, Manchester	66/72[B]	54/54[C]	54/54[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	A	4	R	T	H	-	D5	V	-	MA07-C-C1
615095	Lynway Drive, Manchester	63/67[A]	52/52[A]	52/52[B]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	A	8	R	T	-	-	D3 N48	V	-	MA07-C-C1
615096	Lynway Drive, Manchester	58/62[A]	48/48[A]	48/48[A]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	A	6	R	T	-	-	N48	V	-	MA07-C-C1

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
615097	Wensley Drive, Manchester	63/68[A]	52/52[B]	52/52[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	A	10	R	T	-	-	D5	-	-	MA07-C-C1
615098	Parkville Road, Manchester	56/60[A]	46/46[A]	46/46[A]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	A	4	R	T	-	-	N46	-	-	MA07-C-C1
615099	Wolseley Place, Manchester	53/57[A]	42/42[A]	42/42[A]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	171	R	T	-	-	-	-	-	
615100	Parkville Road, Manchester	52/56[A]	42/42[A]	42/42[A]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	151	R	T	-	-	-	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
615101	Parkville Road, Manchester	62/65[A]	51/51[A]	51/51[B]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	A	6	R	T	-	-	N46	V	-	MA07-C-C1
615102	Wilmslow Road, Manchester	69/74[B]	57/57[C]	57/57[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	A	7	R	T	H	-	D5	V	-	MA07-C-C1
615103	Parkville Road, Manchester	63/66[A]	52/52[A]	52/52[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	A	4	R	T	-	-	D2	V	-	MA07-C-C1
615104	Parkville Road, Manchester	58/62[A]	47/47[A]	47/47[A]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	A	10	R	T	-	-	N48	-	-	MA07-C-C1

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
615106	Wensley Drive, Manchester	55/59[A]	44/44[A]	44/44[A]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	51	R	T	-	-	-	-	-	
615107	Rathen Road, Manchester	56/61[A]	46/46[A]	46/46[A]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	A	22	R	T	-	-	N46	-	-	MA07-C-C1
615108	Oak Road, Manchester	66/70[B]	54/54[C]	54/54[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	A	7	R	T	H	-	-	-	-	
615109	Wilmslow Road, Manchester	66/70[A]	55/55[A]	55/55[A]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	A	21	R	T	-	-	D34 N48	V	-	MA07-C-C1

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
615110	Oak Road, Manchester	61/66[A]	50/50[A]	50/50[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	A	13	R	T	-	-	D1	-	-	MA07-C-C1
615111	Rathen Road, Manchester	52/55[A]	41/41[A]	41/41[B]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	47	R	T	-	-	-	-	-	
615114	Cotton Lane, Manchester	46/50[A]	36/36[A]	36/36[A]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	22	R	T	-	-	-	-	-	
615116	Palatine Road, Manchester	48/51[A]	37/37[A]	37/37[A]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	25	R	T	-	-	-	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
615118	Cotton Lane, Manchester	45/49[A]	35/35[A]	35/35[B]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	7	R	T	-	-	-	-	-	
615121	Braemar Road, Manchester	53/57[A]	42/42[C]	42/42[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	112	R	T	H	-	-	-	-	
615122	Fortuna Grove, Manchester	49/52[A]	36/36[B]	36/36[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	49	R	T	-	-	-	-	-	
615124	Moseley Road, Fallowfield	52/56[C]	42/42[C]	42/42[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	47	R	T	H	-	-	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
615125	Kingsway, Manchester	54/58[C]	38/38[C]	38/38[C]	Day: Vent Shaft Construction Evening: Vent shaft construction Night: Vent shaft construction	NA	19	R	T	H	-	-	-	-	
615126	Monica Grove, Manchester	53/58[B]	39/39[C]	39/39[C]	Day: Vent Shaft Construction Evening: Vent shaft construction Night: Vent shaft construction	NA	15	R	T	H	-	-	-	-	
615127	Moseley Road, Manchester and committed development (Map Book ref.: MA07/161)	56/61[C]	42/42[C]	42/42[C]	Day: Vent Shaft Construction Evening: Vent shaft construction Night: Vent shaft construction	NA	24	R	T	H	-	-	-	-	
615128	Moseley Road, Levenshulme	47/50[B]	36/36[C]	36/36[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	36	R	T	H	-	-	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
615129	Birchfields Road, Manchester	59/64[B]	47/47[C]	47/47[C]	Day: Vent Shaft Construction Evening: Vent shaft construction Night: Vent shaft construction	NA	4	R	T	H	-	-	-	-	
615130	Birchfields Road, Manchester	60/66[B]	50/50[C]	50/50[C]	Day: Vent Shaft Construction Evening: Vent shaft construction Night: Vent shaft construction	NA	4	R	T	H	-	-	-	-	
615131	Kingsway, Manchester	62/66[C]	47/47[C]	47/47[C]	Day: Vent Shaft Construction Evening: Vent shaft construction Night: Vent shaft construction	NA	12	R	T	H	-	-	-	-	
615132	Birchfields Road, Manchester	63/69[B]	52/52[C]	52/52[C]	Day: Vent Shaft Construction Evening: Vent shaft construction Night: Vent shaft construction	NA	4	R	T	H	-	-	CT, V	-	MA07-C-C2

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
615133	Kingsway, Manchester	53/57[B]	40/40[C]	40/40[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	113	R	T	H	-	-	-	-	
615134	Birchfields Road, Manchester	67/73[B]	56/56[C]	56/56[C]	Day: Vent Shaft Construction Evening: Vent shaft construction Night: Vent shaft construction	NA	6	R	T	H	-	D5	CT, V	-	MA07-C-C2
615135	Peaceville Road, Manchester	65/70[C]	48/48[C]	48/48[C]	Day: Vent Shaft Construction Evening: Vent shaft construction Night: Vent shaft construction	NA	16	R	T	H	-	-	-	-	
615136	Kingsway, Manchester	56/60[A]	42/42[C]	42/42[C]	Day: Vent Shaft Construction Evening: Vent shaft construction Night: Vent shaft construction	NA	21	R	T	H	-	-	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
615137	Birchfields Road, Manchester	68/73[B]	57/57[C]	57/57[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	A	3	R	T	H	-	D7	CT, V	-	MA07-C-C2
615138	Birchfields Road, Manchester	68/73[B]	57/57[C]	57/57[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	3	R	T	H	-	D7	CT, V	-	MA07-C-C2
615139	Birchfields Road, Manchester	66/71[B]	55/55[C]	55/55[C]	Day: Vent Shaft Construction Evening: Vent shaft construction Night: Vent shaft construction	NA	2	R	T	H	-	D1	CT, V	-	MA07-C-C2
615140	Birchfields Road, Manchester	63/68[B]	51/51[C]	51/51[C]	Day: Vent Shaft Construction Evening: Vent shaft construction Night: Vent shaft construction	NA	9	R	T	H	-	-	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
615142	Kingsway Avenue, Manchester	56/61[A]	42/42[C]	42/42[C]	Day: Vent Shaft Construction Evening: Vent shaft construction Night: Vent shaft construction	NA	16	R	T	H	-	-	-	-	
615143	Kingsway Avenue, Manchester	58/63[C]	44/44[C]	44/44[C]	Day: Vent Shaft Construction Evening: Vent shaft construction Night: Vent shaft construction	NA	11	R	T	H	-	-	-	-	
615144	Lytham Road, Manchester	54/59[A]	42/42[C]	42/42[C]	Day: Vent Shaft Construction Evening: Vent shaft construction Night: Vent shaft construction	NA	40	R	T	H	-	-	-	-	
615145	Birchfields Road, Manchester	56/62[C]	45/45[C]	45/45[C]	Day: Vent Shaft Construction Evening: Vent shaft construction Night: Vent shaft construction	NA	26	R	T	H	-	-	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
615146	Lytham Road, Manchester	56/61[C]	43/43[C]	43/43[C]	Day: Vent Shaft Construction Evening: Vent shaft construction Night: Vent shaft construction	NA	6	R	T	H	-	-	-	-	
615148	Lindsay Avenue, Manchester	48/51[A]	36/36[C]	36/36[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	29	R	T	H	-	-	-	-	
615150	Lindsay Avenue, Manchester	53/58[C]	40/40[C]	40/40[C]	Day: Vent Shaft Construction Evening: Vent shaft construction Night: Vent shaft construction	NA	7	R	T	H	-	-	-	-	
615151	Birchfields Road, Manchester	51/56[C]	40/40[C]	40/40[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	20	R	T	H	-	-	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
615152	Lindsay Avenue, Manchester	46/49[A]	35/35[C]	35/35[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	21	R	T	H	-	-	-	-	
615154	Skelton Grove, Manchester	50/53[A]	37/37[A]	37/37[B]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	106	R	T	-	-	-	-	-	
615171	Hayfield Close, Manchester	50/53[A]	38/40[A]	38/40[B]	Day: Bored tunnelling support Evening: Bored tunnelling support Night: Bored tunnelling support	NA	37	R	T	-	-	-	-	-	
615172	Wigley Street, Manchester	50/54[A]	38/41[B]	38/41[C]	Day: Bored tunnelling support Evening: Bored tunnelling support Night: Bored tunnelling support	NA	7	R	T	-	-	-	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
615173	Anthony Close, Manchester	51/55[A]	39/42[A]	39/42[B]	Day: Bored tunnelling support Evening: Bored tunnelling support Night: Bored tunnelling support	NA	10	R	T	-	-	-	-	-	
615174	Anthony Close, Manchester	51/55[A]	40/43[A]	40/43[B]	Day: Bored tunnelling support Evening: Bored tunnelling support Night: Bored tunnelling support	NA	20	R	T	-	-	-	-	-	
615175	Anthony Close, Manchester	52/55[A]	40/42[A]	40/42[C]	Day: Bored tunnelling support Evening: Bored tunnelling support Night: Bored tunnelling support	NA	9	R	T	-	-	-	-	-	
615176	Wigley Street, Manchester	52/56[A]	39/42[B]	39/42[C]	Day: General site works Evening: Bored tunnelling support Night: Bored tunnelling support	NA	6	R	T	-	-	-	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
615177	Anthony Close, Manchester	52/55[A]	41/43[A]	41/43[B]	Day: Demolitions Evening: Bored tunnelling support Night: Bored tunnelling support	NA	23	R	T	-	-	-	-	-	
615178	Anthony Close, Manchester	51/55[A]	40/42[B]	40/42[C]	Day: Bored tunnelling support Evening: Bored tunnelling support Night: Bored tunnelling support	NA	7	R	T	-	-	-	-	-	
615179	Anthony Close, Manchester	49/53[A]	40/42[B]	40/42[C]	Day: Demolitions Evening: Bored tunnelling support Night: Bored tunnelling support	NA	12	R	T	H	-	-	-	-	
615180	Anthony Close, Manchester	51/55[A]	39/42[B]	39/42[C]	Day: General site works Evening: Bored tunnelling support Night: Bored tunnelling support	NA	5	R	T	H	-	-	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
615181	Anthony Close, Manchester	53/58[A]	43/46[C]	43/46[C]	Day: Bored tunnelling support Evening: Bored tunnelling support Night: Bored tunnelling support	NA	8	R	T	H	-	-	-	-	
615182	Anthony Close, Manchester	55/60[B]	45/47[C]	45/47[C]	Day: Bored tunnelling support Evening: Bored tunnelling support Night: Bored tunnelling support	NA	4	R	T	H	-	-	-	-	
615183	Anthony Close, Manchester	43/47[A]	33/35[A]	33/35[B]	Day: Bored tunnelling support Evening: Bored tunnelling support Night: Bored tunnelling support	NA	4	R	T	-	-	-	-	-	
615184	Anthony Close, Manchester	52/56[B]	41/44[C]	41/44[C]	Day: Bored tunnelling support Evening: Bored tunnelling support Night: Bored tunnelling support	NA	6	R	T	H	-	-	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
615201	Falconwood Way, Manchester	50/54[B]	37/40[C]	37/40[C]	Day: Highway works Evening: Bored tunnelling support Night: Bored tunnelling support	NA	27	R	T	H	-	-	-	-	
615202	Ashton Old Road, Manchester	58/63[C]	43/47[C]	43/47[C]	Day: Highway works Evening: Bored tunnelling support Night: Bored tunnelling support	NA	53	R	T	H	-	-	-	-	
615203	Ashton Old Road, Manchester	53/57[C]	34/36[C]	34/36[C]	Day: Demolitions Evening: Bored tunnelling support Night: Bored tunnelling support	NA	16	R	T	H	-	-	-	-	
615204	Ashton Old Road, Manchester	55/59[C]	43/47[C]	43/47[C]	Day: Highway works Evening: Bored tunnelling support Night: Bored tunnelling support	NA	30	R	T	H	-	-	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
615207	Ashton Old Road, Manchester	54/58[B]	45/49[C]	45/49[C]	Day: Demolitions Evening: Bored tunnelling support Night: Bored tunnelling support	NA	30	R	T	H	-	-	-	-	
615209	Wren Way, Manchester	60/64[B]	45/49[C]	45/49[C]	Day: Demolitions Evening: Bored tunnelling support Night: Bored tunnelling support	NA	5	R	T	H	-	-	-	-	
615211	Wren Way, Manchester	58/62[B]	41/45[C]	41/45[C]	Day: Demolitions Evening: Bored tunnelling support Night: Bored tunnelling support	NA	5	R	T	H	-	-	-	-	
615212	Wren Way, Manchester	60/64[B]	47/51[C]	47/51[C]	Day: Demolitions Evening: Bored tunnelling support Night: Bored tunnelling support	NA	5	R	T	H	-	-	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
615214	Wren Way, Manchester	59/62[A]	47/51[C]	47/51[C]	Day: General site works Evening: Bored tunnelling support Night: Bored tunnelling support	NA	3	R	T	H	-	-	-	-	
615217	Hartwell Close, Manchester	48/53[A]	33/36[A]	33/36[B]	Day: Highway works Evening: Bored tunnelling support Night: Bored tunnelling support	NA	42	R	T	-	-	-	-	-	
615219	Bell Crescent, Manchester	51/54[A]	-/-[B]	-/-[C]	Day: Demolitions	NA	15	R	T	-	-	-	-	-	
615220	Rylance Street, Manchester	55/58[A]	40/43[B]	40/43[C]	Day: General site works Evening: Bored tunnelling support Night: Bored tunnelling support	NA	6	R	T	-	-	-	-	-	
615221	Wynne Close, Manchester	51/54[A]	40/43[A]	40/43[B]	Day: Demolitions Evening: Bored tunnelling support Night: Bored tunnelling support	NA	29	R	T	-	-	-	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
615222	Paxton Place, Manchester	64/69[A]	47/51[C]	47/51[C]	Day: Demolitions Evening: Bored tunnelling support Night: Bored tunnelling support	A	4	R	T	H	-	D22[11]	-	-	MA07-C-C3
615223	Paxton Place, Manchester	58/63[A]	45/49[B]	45/49[C]	Day: Demolitions Evening: Bored tunnelling support Night: Bored tunnelling support	NA	11	R	T	-	-	-	-	-	
615225	Lloyd Wright Avenue, Manchester	55/59[A]	45/49[A]	45/49[B]	Day: Bored tunnelling support Evening: Bored tunnelling support Night: Bored tunnelling support	NA	16	R	T	-	-	-	-	-	
615226	Lloyd Wright Avenue, Manchester	54/57[A]	37/40[A]	37/40[B]	Day: Demolitions Evening: Bored tunnelling support Night: Bored tunnelling support	NA	19	R	T	-	-	-	-	-	

[11] This is for four dwellings, the remaining dwellings in this community are up to six months.

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
615227	Holly Street, Manchester	62/67[A]	47/51[B]	47/51[C]	Day: Demolitions Evening: Bored tunnelling support Night: Bored tunnelling support	A	6	R	T	-	-	D5	-	-	MA07-C-C3
615229	Paxton Place, Manchester	60/64[A]	45/49[A]	45/49[B]	Day: General site works Evening: Bored tunnelling support Night: Bored tunnelling support	NA	9	R	T	-	-	-	-	-	
615231	Aldridge Road, Manchester	55/58[A]	40/44[A]	40/44[B]	Day: Demolitions Evening: Bored tunnelling support Night: Bored tunnelling support	NA	21	R	T	-	-	-	-	-	
615232	Lloyd Wright Avenue, Manchester	52/55[A]	37/40[A]	37/40[B]	Day: General site works Evening: Bored tunnelling support Night: Bored tunnelling support	NA	14	R	T	-	-	-	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
615236	Viaduct Street, Manchester	62/65[A]	45/49[A]	45/49[B]	Day: General site works Evening: Bored tunnelling support Night: Bored tunnelling support	NA	5	R	T	-	-	-	-	-	
615237	Holly Street, Manchester	62/66[A]	46/50[A]	46/50[C]	Day: Demolitions Evening: Bored tunnelling support Night: Bored tunnelling support	A	6	R	T	-	-	D3	-	-	MA07-C-C3
615238	Paxton Place, Manchester	51/54[A]	38/41[B]	38/41[B]	Day: Demolitions Evening: Bored tunnelling support Night: Bored tunnelling support	NA	14	R	T	-	-	-	-	-	
615240	Viaduct Street, Manchester	59/62[A]	36/39[A]	36/39[B]	Day: General site works Evening: Bored tunnelling support Night: Bored tunnelling support	NA	5	R	T	-	-	-	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
615243	Olympic Street, Manchester	62/66[A]	46/50[A]	46/50[C]	Day: Demolitions Evening: Bored tunnelling support Night: Bored tunnelling support	A	25[12]	R	T	-	-	D6	-	-	MA07-C-C3
615245	Stadium Drive, Manchester	52/55[A]	38/41[B]	38/41[B]	Day: General site works Evening: Bored tunnelling support Night: Bored tunnelling support	NA	20	R	T	-	-	-	-	-	
615249	Viaduct Street, Manchester	59/62[A]	34/37[A]	34/37[B]	Day: Demolitions Evening: Bored tunnelling support Night: Bored tunnelling support	NA	4	R	T	-	-	-	-	-	
615250	Lloyd Wright Avenue, Manchester	52/55[A]	36/38[A]	36/38[A]	Day: Demolitions Evening: Bored tunnelling support Night: Bored tunnelling support	NA	27	R	T	-	-	-	-	-	

[12] Only four are classed as a significant effect.

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
615254	Stadium Drive, Manchester	55/58[A]	40/43[B]	40/43[B]	Day: Demolitions Evening: Bored tunnelling support Night: Bored tunnelling support	NA	23	R	T	-	-	-	-	-	
615255	Holly Street, Manchester	59/62[A]	34/37[A]	34/37[B]	Day: Demolitions Evening: Bored tunnelling support Night: Bored tunnelling support	NA	21	R	T	-	-	-	-	-	
615257	Viaduct Street, Manchester	59/63[A]	41/45[A]	41/45[B]	Day: Retaining walls construction Evening: Bored tunnelling support Night: Bored tunnelling support	NA	18	R	T	-	-	-	-	-	
615259	Markham Close, Manchester	60/63[A]	38/40[A]	38/40[B]	Day: Demolitions Evening: Bored tunnelling support Night: Bored tunnelling support	NA	5	R	T	-	-	-	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
615260	Morna Walk, Manchester	61/65[A]	39/43[A]	39/43[B]	Day: Demolitions Evening: Bored tunnelling support Night: Bored tunnelling support	NA	5	R	T	-	-	-	-	-	
615261	Commonwealth Avenue, Manchester	52/55[A]	35/38[B]	35/38[B]	Day: Demolitions Evening: Bored tunnelling support Night: Bored tunnelling support	NA	28	R	T	-	-	-	-	-	
615262	Helsby Walk, Manchester	59/62[A]	35/38[A]	35/38[B]	Day: Demolitions Evening: Bored tunnelling support Night: Bored tunnelling support	NA	11	R	T	-	-	-	-	-	
615269	Morna Walk, Manchester	61/65[A]	38/41[A]	38/41[B]	Day: Demolitions Evening: Bored tunnelling support Night: Bored tunnelling support	NA	5	R	T	-	-	-	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
615270	Commonwealth Avenue, Manchester	56/59[A]	39/42[A]	39/42[B]	Day: Retaining walls construction Evening: Bored tunnelling support Night: Bored tunnelling support	NA	17	R	T	-	-	-	-	-	
615271	Aden Close, Manchester	52/54[A]	-/31[A]	-/31[B]	Day: General site works Evening: Bored tunnelling support Night: Bored tunnelling support	NA	6	R	T	-	-	-	-	-	
615274	Alderman Square, Manchester	56/60[A]	32/34[A]	32/34[A]	Day: Retaining walls construction Evening: Bored tunnelling support Night: Bored tunnelling support	NA	20	R	T	-	-	-	-	-	
615275	Spire Walk, Manchester	56/59[A]	37/40[A]	37/40[A]	Day: Highway works Evening: Bored tunnelling support Night: Bored tunnelling support	NA	11	R	T	-	-	-	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
615401	Palatine Road, Manchester	47/53[A]	35/36[A]	35/36[B]	Day: Vent shaft construction Evening: Vent shaft construction Night: Vent shaft construction	NA	10	R	T	-	-	-	-	-	
616001	Anthony Close, Manchester	56/61[A]	45/47[C]	45/47[C]	Day: Bored tunnelling support Evening: Bored tunnelling support Night: Bored tunnelling support	NA	565	R	T	H	-	-	-	-	
616088	Peggy Lane, Manchester	56/59[B]	42/44[C]	42/44[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	53	R	T	H	-	-	-	-	
616090	Holme Road, Manchester	42/45[A]	32/33[A]	32/33[A]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	12	R	T	-	-	-	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
616091	Holme Road, Manchester	43/46[A]	32/33[A]	32/33[A]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	13	R	T	-	-	-	-	-	
616254	Holme Road, Manchester	45/48[A]	33/35[A]	33/35[B]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	12	R	T	-	-	-	-	-	
616297	Palatine Road, Manchester	56/60[A]	43/45[B]	43/45[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	30	R	T	-	-	-	-	-	
616304	Winchester Park, Manchester	39/41[A]	-/-[A]	-/-[A]	Day: General site works	NA	17	R	T	-	-	-	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
616307	Adamson Gardens, Manchester	53/56[A]	39/41[B]	39/41[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	17	R	T	-	-	-	-	-	
616740	Parkville Road, Manchester	55/58[A]	44/44[A]	44/44[A]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	13	R	T	-	-	-	-	-	
616824	Holme Road, Manchester	42/46[A]	31/31[B]	31/31[C]	Day: Vent shaft construction Evening: Vent shaft construction Night: Vent shaft construction	NA	13	R	T	-	-	-	-	-	
616825	Lancaster Road, Manchester	44/46[A]	33/34[B]	33/34[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	9	R	T	-	-	-	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
616826	Granville Gardens, Manchester	45/47[A]	33/34[A]	33/34[A]	Day: Vent shaft construction Evening: Vent shaft construction Night: Vent shaft construction	NA	12	R	T	-	-	-	-	-	
616827	Whitehaven Gardens, Manchester	44/48[A]	33/34[A]	33/34[A]	Day: Vent shaft construction Evening: Vent shaft construction Night: Vent shaft construction	NA	25	R	T	-	-	-	-	-	
616828	Deneford Road, Manchester	43/46[A]	32/33[A]	32/33[A]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	18	R	T	-	-	-	-	-	
616829	Ford Lane, Manchester	49/56[A]	36/37[A]	36/37[B]	Day: Vent shaft construction Evening: Vent shaft construction Night: Vent shaft construction	NA	42	R	T	-	-	-	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
616830	Ford Lane, Manchester	41/50[A]	-/-[A]	-/-[B]	Day: Vent shaft construction	NA	30	R	T	-	-	-	-	-	
616831	Dene Road, Manchester	42/45[A]	31/32[A]	31/32[A]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	41	R	T	-	-	-	-	-	
616832	Holme Road, Manchester	42/44[A]	30/31[A]	30/31[A]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	12	R	T	-	-	-	-	-	
616833	Victoria Avenue, Manchester	40/42[A]	-/30[A]	-/30[A]	Day: Vent shaft construction Evening: Vent shaft construction Night: Vent shaft construction	NA	23	R	T	-	-	-	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
616834	Spath Road, Manchester	42/45[A]	31/32[B]	31/32[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	22	R	T	-	-	-	-	-	
616836	Ford Lane, Manchester	38/42[A]	-/-[B]	-/-[C]	Day: Vent shaft construction	NA	6	R	T	-	-	-	-	-	
616837	Caravans on Ford Lane, Manchester	46/49[C]	34/35[C]	34/35[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	11	R	T	H	-	-	-	-	
616838	Copper Beech Close, Manchester	47/50[B]	35/37[C]	35/37[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	10	R	T	H	-	-	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
616839	Hollyway, Manchester	48/51[B]	35/37[C]	35/37[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	40	R	T	H	-	-	-	-	
616840	West View Road, Manchester	49/53[C]	35/37[C]	35/37[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	16	R	T	H	-	-	-	-	
616841	Bucklow Drive, Manchester	48/51[B]	35/36[C]	35/36[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	34	R	T	H	-	-	-	-	
616842	Bucklow Drive, Manchester	38/41[A]	-/-[A]	-/-[C]	Day: General site works	NA	16	R	T	-	-	-	-	-	
616843	Bucklow Drive, Manchester	38/41[A]	-/-[A]	-/-[C]	Day: Highway works	NA	26	R	T	-	-	-	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
616844	Bucklow Drive, Manchester	43/46[A]	31/33[A]	31/33[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	10	R	T	-	-	-	-	-	
616845	Bronington Close, Manchester	45/48[A]	33/34[C]	33/34[C]	Day: Vent Shaft Construction Evening: Vent shaft construction Night: Vent shaft construction	NA	12	R	T	H	-	-	-	-	
616846	West View Road, Manchester	39/42[A]	-/-[B]	-/-[C]	Day: Highway works	NA	31	R	T	-	-	-	-	-	
616847	Ford Lane (West), Manchester	47/50[A]	36/37[C]	36/37[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	10	R	T	H	-	-	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
616848	Ollerton Close, Manchester	41/44[A]	-/30[B]	-/30[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	19	R	T	-	-	-	-	-	
616849	Orchard Road, Manchester	53/57[C]	40/41[C]	40/41[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	6	R	T	H	-	-	-	-	
616850	Peggy Lane, Manchester	49/52[A]	37/38[C]	37/38[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	5	R	T	H	-	-	-	-	
616851	Mill Lane, Manchester	38/41[A]	-/-[C]	-/-[C]	Day: Highway works	NA	8	R	T	H	-	-	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
616853	Holme Road, Manchester	45/48[A]	33/34[A]	33/34[B]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	12	R	T	-	-	-	-	-	
616854	Bagnal Court, Manchester	50/53[B]	36/37[C]	36/37[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	64	R	T	H	-	-	-	-	
616855	West View Court, West View Road, Manchester	49/53[C]	35/37[C]	35/37[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	75	R	T	H	-	-	-	-	
616856	West View Road, Manchester	40/44[A]	-/-[B]	-/-[C]	Day: General site works	NA	21	R	T	-	-	-	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
616858	Roundwood Road, Manchester	47/51[A]	30/32[A]	30/32[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	18	R	T	-	-	-	-	-	
616859	Netherwood Road, Manchester	47/50[A]	36/36[A]	36/36[B]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	10	R	T	-	-	-	-	-	
616863	Palatine Road, Manchester	48/53[A]	36/37[A]	36/37[B]	Day: Vent shaft construction Evening: Vent shaft construction Night: Vent shaft construction	NA	7	R	T	-	-	-	-	-	
616864	Winchester Park, Manchester	44/49[A]	32/33[A]	32/33[A]	Day: Vent shaft construction Evening: Vent shaft construction Night: Vent shaft construction	NA	8	R	T	-	-	-	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the facade [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Evening 19:00 – 23:00	Night 23:00 – 07:00											
616865	Adamson Gardens, Manchester	45/48[A]	34/35[A]	34/35[B]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	59	R	T	-	-	-	-	-	
616908	Netherwood Road, Manchester and committed development (Map Book ref.: MA07/402)	54/58[A]	39/39[C]	39/39[C]	Day: General site works Evening: Vent shaft construction Night: Vent shaft construction	NA	1	R	T	H	-	-	-	-	

Table 6: Assessment of construction noise at non-residential receptors

Assessment location		Impact criteria					Significance criteria								Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the façade		Change during month with highest noise level		Construction activity resulting in highest forecast noise levels	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Night 23:00 – 07:00	Day 07:00 – 19:00	Night 23:00 – 07:00										
615017	Clever Clowns Day Nursery, Greenbrow Road, Wythenshawe	44/49	38/40	1	-	Day: Bored tunnelling support Night: Bored tunnelling support	1	A3	T	-	-	-	-	-	
615023	Tree of Life Community Centre, Greenbrow Road, Wythenshawe	48/52	41/43	1	1	Day: Bored tunnelling support Night: Bored tunnelling support	1	A2	T	-	-	-	-	-	
615028	Greenbrow Road Social Club, Greenbrow Road, Wythenshawe	49/53	41/44	1	1	Day: General site works Night: Bored tunnelling support	1	A2	T	-	-	-	-	-	
615037	Enterprise Point (Offices), Altrincham Road, Manchester	58/61	44/44	1	-	Day: General site works Night: Vent shaft construction	1	A4	T	H	-	-	-	-	$

Assessment location		Impact criteria					Significance criteria								Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the façade		Change during month with highest noise level		Construction activity resulting in highest forecast noise levels	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Night 23:00 – 07:00	Day 07:00 – 19:00	Night 23:00 – 07:00										
615041	Open University, Wythenshawe, Manchester	71/74	57/57	7	1	Day: General site works Night: Vent shaft construction	1	A3	T	H	-	D45	-	-	MA07-C-N1
615043	The Royals (Offices), Wythenshawe, Manchester	68/71	53/53	5	1	Day: General site works Night: Vent shaft construction	1	A4	T	H	-	D12	-	-	MA07-C-N2
615046	The Church Of Jesus Christ Of Latter-Day Saints, Altrincham Road, Wythenshawe	57/61	45/45	2	-	Day: General site works Night: Vent shaft construction	1	A2	T	H	-	-	-	-	$
615056	St Wilfrid's Church, Ford Lane, Wythenshawe	35/39	-/-	-	-	Day: General site works	1	A2	T	-	-	-	-	-	
615070	Britannia Country House Hotel, Palatine Road, Manchester	55/58	43/44	1	-	Day: General site works Night: Vent shaft construction	1	A3	T	H	-	-	-	-	$

Assessment location		Impact criteria					Significance criteria								Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the façade		Change during month with highest noise level		Construction activity resulting in highest forecast noise levels	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Night 23:00 – 07:00	Day 07:00 – 19:00	Night 23:00 – 07:00										
615072	Didsbury Community Church, Dene Road, Didsbury	49/52	36/37	1	-	Day: General site works Night: Vent shaft construction	1	A2	T	-	-	-	-	-	
615074	Nazarene Theological College, Dene Road, Didsbury	48/52	36/37	1	-	Day: Vent shaft construction Night: Vent shaft construction	1	A3	T	-	-	-	-	-	
615082	Wilmslow Road (Offices), Manchester	54/59	42/42	1	-	Day: General site works Night: Vent shaft construction	1	A4	T	H	-	-	-	-	$
615105	Alpino Cars (Office), Wilmslow Road, Manchester	63/67	51/51	3	1	Day: General site works Night: Vent shaft construction	1	A4	T	H	-	-	-	-	$
615112	The Christie Foundation NHS Trust (Hospital), Wilmslow Road, Manchester and	62/66	48/48	4	-	Day: General site works Night: Vent	1	A3	T	H	-	-	-	-	$

Assessment location		Impact criteria					Significance criteria								Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the façade		Change during month with highest noise level		Construction activity resulting in highest forecast noise levels	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Night 23:00 – 07:00	Day 07:00 – 19:00	Night 23:00 – 07:00										
	committed development (Map Book ref.: MA07/445)					shaft construction									
615113	The Christie Clinic, Cotton Lane, Manchester	43/46	32/32	5	1	Day: General site works Night: Vent shaft construction	1	A3	T	-	-	-	-	-	
615115	Oglesby Building (Cancer Research Centre), Wilmslow Road, Manchester	48/52	37/37	5	1	Day: General site works Night: Vent shaft construction	1	A3	T	-	-	-	-	-	
615120	59 Kingsway (Office), Manchester	54/58	38/38	-	-	Day: Vent Shaft Construction Night: Vent shaft construction	1	A4	T	H	-	-	-	-	
615141	Birchfields Primary School (Primary School), Lytham Road, Manchester	65/71	53/53	11	3	Day: Vent Shaft Construction Night: Vent shaft construction	1	A3	T	H	-	D62	-	-	MA07-C-N3

Assessment location		Impact criteria					Significance criteria								Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the façade		Change during month with highest noise level		Construction activity resulting in highest forecast noise levels	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Night 23:00 – 07:00	Day 07:00 – 19:00	Night 23:00 – 07:00										
615185	Universal Square (Education), Devonshire Street, Manchester and committed development (Map Book ref.: MA07/463)	58/64	34/37	-	-	Day: Retaining walls construction Night: Bored tunnelling support	1	A4	T	H	-	-	-	-	$
615215	Happy Kids Preschool Nursery, Heybury Close, Manchester	47/50	31/34	4	1	Day: Highway works Night: Bored tunnelling support	1	A3	T	-	-	-	-	-	
615368	Calderbank Medical Chambers (Clinic), Wilmslow Road, Manchester	52/56	37/37	-	-	Day: General site works Night: Vent shaft construction	1	A3	T	H	-	-	-	-	$
616006	The Robert Parfett Building, The Christie Hospital NHS Foundation Trust, Kinnaird Road, Manchester	45/48	34/34	6	3	Day: General site works Night: Vent shaft construction	1	A3	T	-	-	-	-	-	

Assessment location		Impact criteria					Significance criteria								Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the façade		Change during month with highest noise level		Construction activity resulting in highest forecast noise levels	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Night 23:00 – 07:00	Day 07:00 – 19:00	Night 23:00 – 07:00										
616502	Moseley Road (Training Centre), Manchester	50/54	37/37	2	-	Day: General site works Night: Vent shaft construction	1	A3	T	-	-	-	-	-	$
616703	Rectory Cottage (Accommodation), Wythenshawe	48/51	36/37	-	-	Day: General site works Night: Vent shaft construction	1	A3	T	H	-	-	-	-	
616705	Boundary Veterinary (Offices), Wilmslow Road, Manchester	52/56	43/43	5	2	Day: General site works Night: Vent shaft construction	1	A4	T	-	-	-	-	-	
616733	Bennett Street (Offices), Manchester	42/45	30/32	1	-	Day: Demolitions Night: Bored tunnelling support	1	A4	T	-	-	-	-	-	
616734	Matthew Street Units (Offices), Manchester	40/43	-/30	1	-	Day: Highway works Night: Bored	1	A4	T	-	-	-	-	-	

Assessment location		Impact criteria					Significance criteria								Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the façade		Change during month with highest noise level		Construction activity resulting in highest forecast noise levels	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Night 23:00 – 07:00	Day 07:00 – 19:00	Night 23:00 – 07:00										
						tunnelling support									
616735	Vaughan Street (Offices), Manchester	43/46	32/34	3	1	Day: Demolitions Night: Bored tunnelling support	1	A4	T	-	-	-	-	-	
616736	Vaughan Street (Offices), Manchester	47/52	34/36	4	-	Day: General site works Night: Bored tunnelling support	1	A4	T	-	-	-	-	-	
616741	Kids Around the Clock (Nursery), Brookfield Gardens, Manchester	47/50	35/35	1	-	Day: General site works Night: Vent shaft construction	1	A3	T	-	-	-	-	-	
616835	Didsbury Sport Ground	51/60	36/37	10	1	Day: Vent shaft construction Night: Vent shaft construction	1	A4	T	-	-	D2	-	-	*

Assessment location		Impact criteria					Significance criteria								Significant effect
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the façade		Change during month with highest noise level		Construction activity resulting in highest forecast noise levels	Number of properties represented	Type of receptor	Receptor design	Existing environment	Unique feature	Impact duration (Months)	Combined impact	Mitigation effect	
		Day 07:00 – 19:00	Night 23:00 – 07:00	Day 07:00 – 19:00	Night 23:00 – 07:00										
616852	St Wilfrid's Church, Ford Lane, Wythenshawe	42/45	31/32	-	-	Day: General site works Night: Vent shaft construction	1	A2	T	-	-	-	-	-	
616857	Rectory Cottage (Accommodation), Wythenshawe	49/51	36/38	-	-	Day: General site works Night: Vent shaft construction	1	A3	T	H	-	-	-	-	
616861	MEA Central (Secondary School), Lytham Road, Manchester	57/61	44/44	2	-	Day: General site works Night: Vent shaft construction	1	A3	T	H	-	-	-	-	$
616902	Roundwood Road, Manchester (Education) and committed development (Map Book ref.: MA07/363)	49/54	30/32	2	-	Day: General site works Night: Vent shaft construction	1	A3	T	-	-	-	-	-	$

Airborne sound: indirect effects

4.2.11 Construction road traffic associated with the construction phases of the Proposed Scheme would generate airborne noise. Based upon traffic information for the Proposed Scheme, the change in traffic noise level at a reference distance of 10m from the edge of the nearside carriageway for a given road has been predicted. Data have been produced for a typical month during the construction period and for a worst-case month during the construction period. The results for potentially significant road links are presented in Table 8.

4.2.12 Explanation of the information within Table 8 is provided in Volume 5, Appendix SV- 001-00000, with the following additional notes in Table 7.

Table 7: Explanatory notes for assessment results – indirect construction effects

Colour	Explanation
	Where the significant effect column is highlighted, then a significant effect is identified on nearby communities.
	Yellow denotes a minor impact – a change is of ≥ 3dB – <5dB, or ≥ 1dB – <3dB where a high existing sound level is identified.
	Orange denotes a moderate impact – a change is of ≥5dB – <10dB, or ≥3dB – <5dB where a high existing sound level is identified.
	Red denotes a major impact – a change is of ≥10dB, or ≥5dB where a high existing sound level is identified.
~	When considered under the significance criteria set out in Volume 5: Appendix SV-001-00000, Annex A, Section 1.3, these adverse effects are not considered to be significant on a community basis.
*	For non-residential receptors this indicates the predicted noise levels are above screening criteria which, based upon further qualitative receptor information, (see footnote) does not give rise to a significant effect.
O, CT, V	Combined Impact: If noise or vibration impacts from other construction activities occur at this location: on-site activities (O), off-site construction traffic activities (CT), or construction vibration (V).
R, NR	Number of properties affected (approx.) – identified by type of receptor: R: total number of residential (total number of residential in community). NR: total number of non-residential.

Table 8: Assessment of construction traffic noise levels

Road name	Portion of road affected	Number of properties affected (approx.)	Daytime traffic sound levels $L_{Aeq,16hour}$ dB			Change compared to current traffic sound level (dB)		Combined impact	Significant effect
			Without the Proposed Scheme (2030)	Typical month during construction	Peak month during construction	Typical month during construction	Peak month during construction		
A34 Birchfields Road	Between Moseley Road and Lytham Road	R: 31 (31) NR: 0	65.8	66.4	67.4	0.6	1.6	O, V	MA07-C-C2
Kingsway	Between Mauldeth Road and Talbot Road	R: 45 (45) NR: 0	68.3	68.8	69.5	0.5	1.2		MA07-C-C4
Scarcroft Road	Between Kirkmanshulme Lane and the A57 Hyde Road	R: 65 (65) NR: 0	54.3	55.5	59.7	1.2	5.4		MA07-C-C5
A635 Manchester Road	Between Capital Road and Ashton Hill Lane	R: 152 NR: 0	67.6	68.4	68.6	0.8	1.0		MA07-C-C6

4.2.13 There are no non-residential properties that are likely to be affected by changes in traffic noise.

Airborne sound levels used in other assessments

4.2.14 The construction sound results contained in this document have been used by other disciplines, namely agriculture, historic environment, landscape and visual, communities and socio economics, in their assessments. This includes the information in Table 5 and Table 6. Locations of interest to these other disciplines which may not appear in Table 5 or Table 6 are presented in Table 9.

Table 9: Construction airborne sound levels for use in cross discipline assessments

Assessment location ID		Impact information					Discipline					
Reference	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] at the façade		Change during month with highest noise level		Construction activity resulting in highest forecast noise levels	Agriculture	Communities	Socio-economic	Ecology	Heritage	Landscape
		Day 07:00 – 19:00	Night 23:00 – 07:00	Day 07:00 – 19:00	Night 23:00 – 07:00							
No additional assessment locations to inform the agriculture, communities, socio-economic, ecology, historic environment and landscape and visual assessments are identified in this area												

Annex A

The Christie Foundation NHS Trust (Hospital), Wilmslow Road, Manchester and committed development (Map Book ref.: MA07/045) (assessment location ref: 615112) is located approximately 90m from the route of the Proposed Scheme. Following consultation with representatives of the hospital it has been identified that vibration sensitive equipment/operations are undertaken on this site and therefore, in accordance with the spatial scope defined in the SMR, a specific vibration risk assessment has been completed.

Through engagement with representatives of the hospital, vibration assessment criteria have been established for the hospital's most vibration sensitive equipment, which include MRI scanners, and imaging equipment. The agreed criteria expressed in terms of the vibration indicators peak particle velocity (PPV) or rms velocity, the type of equipment and the location are presented in Table A 1.

Table A 1: The Christie Hospital vibration criteria

Location	Type of equipment	Vibration criteria
Basement of the Paterson Building (Building no. 54)	MRI scanners and imaging equipment	Equipment manufacturer's vibration criteria (Bruker Biospec MRI)VC[13]-B[14]
Upper floors of the Paterson Building (Building no. 54)	Advanced imaging / histology	VC-A[15]
Building block numbers 19, 20 and 22.	CT and MRI scanners	Equipment manufacturers' vibration criteria (MRI Linac Koninklijke, MRI Koninklijke, Siemens 3T MR)

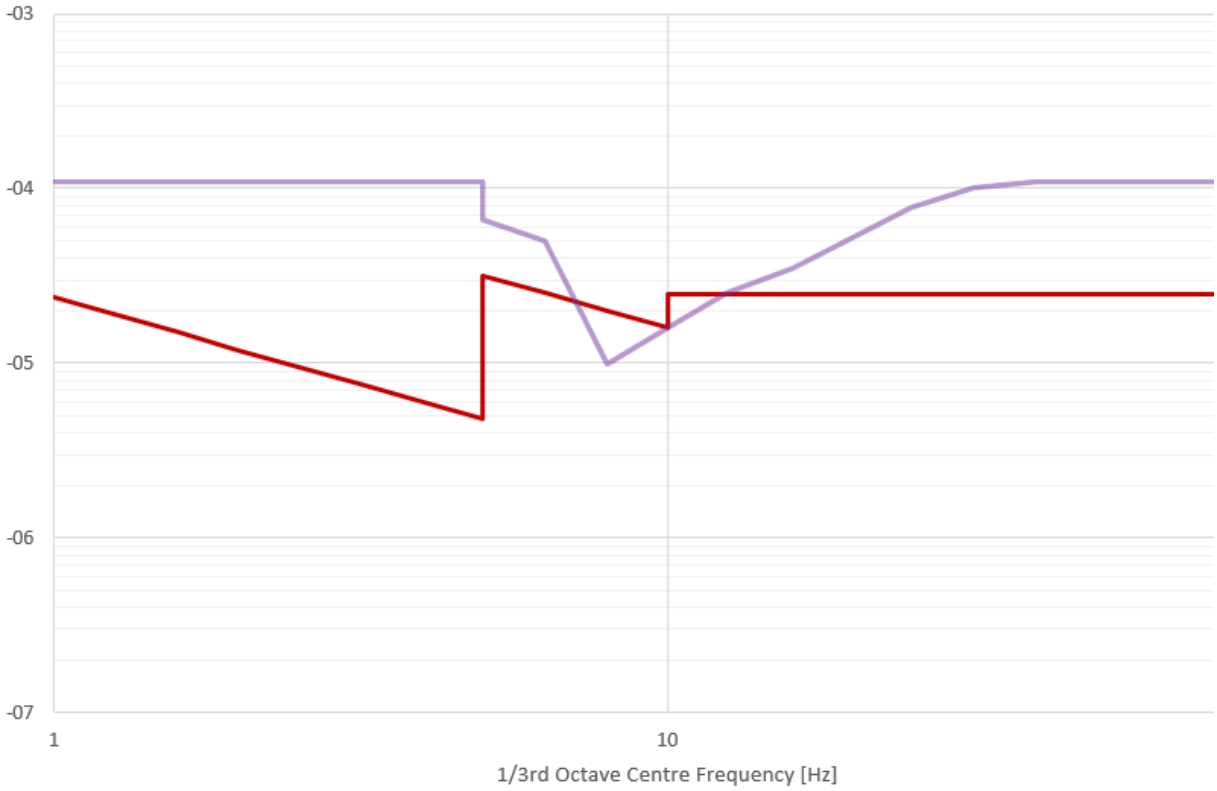
As part of the Proposed Scheme operational ground-borne vibration assessment the vibration at The Christie Hospital from trains passing through the tunnels have been predicted at the foundation of the relevant buildings. One of the outputs of the model is rms velocity spectrum and, where necessary, the agreed criteria have been converted into rms velocity in order to compare with the model output. The red and purple curves in Figure A 1 depict the defined criteria, for the Patterson Building and other buildings. Further detail is provided in Sound, noise and vibration methodology, assumptions and assessment (see Volume 5, Appendix SV-001-00000 Annex D1)

[13] Vibration criterion (VC) curves take the form of a set of one-third octave band velocity spectra. The vibration criteria have been accepted and adopted by many industries and that use vibration sensitive equipment, as the basis for designing facilities, mounts and vibration dampening systems to meet required vibration levels. The criteria apply to vibration as measured in the vertical and two horizontal directions.

[14] VC-A equates to a maximum velocity level, expressed as a PPV, of 25µm/s in the frequency range 1 – 80 Hz.

[15] VC-A equates to a maximum velocity level, expressed as a PPV, of 50µm/s in the frequency range 8 – 80 Hz.

Figure A 1: Assessment criteria for sensitive equipment in Patterson (Red) and other nearby Buildings (Purple)



Vibration at The Christie Hospital from the tunnel boring machine (TBM) have been predicted at the foundation of the closest building (no. 54) using the method defined in the Transport Research Laboratory (TRL) Report 429[16]. The correction factors specified in the TRL method have been adjusted to be more representative of a TBM rather than an upper bound for all tunnelling process (including blasting), for the given ground conditions. The correction factor (72) has been used in this assessment.

The method calculates a free-field PPV, i.e. the PPV value without considering the impact of the building foundation and structures. To compare with the above assessment criteria, the predicted PPV values are therefore expressed as a rms velocity spectra inside the building. The following assumptions have been applied:

- the conversion of PPV to overall rms values is undertaken by using a theoretical (but likely conservative) crest factor of √2 4 such that PPV=√2 4.rms, which is generally assumed for construction equipment and railway[17].

[16] Transport Research Laboratory (2000), *Report 429 Ground-borne Vibration from Mechanised Construction Works*.

[17] Federal Transit Administration (2018), *Report 0123 Transit Noise and Vibration Impact Assessment Manual.*

- transfer functions, defined in Nelson's Transportation Noise Reference book[18], are used to model the impact of:
  - pile foundation attenuation;
  - ground or suspended floor slab amplification; and
  - attenuation due to floor-to-floor attenuation.
- the worst-case predicted free-field PPV value is 0.181mm/s per tunnel drive. Once the building response is included for the various spectral assumptions, the worst-case predicted PPV value is 0.244mm/s per tunnel drive and would be experienced at the first floor of the Patterson building.

The predicted ground-borne vibration level due to the operation of the TBM, at the most onerous location at The Christie Hospital (the first-floor of the Patterson Building) and based on worst-case assumptions above, are reported in Table 4. The highest predicted levels at The Christie Hospital from the TBM are above the agreed criteria for the hospital's most sensitive equipment for a duration of 25 to 30 days. On a precautionary basis, it is considered that the vibration levels due to the operation of the TBM may affect the operation of vibration sensitive equipment at The Christie Hospital, and a likely significant effect has been identified. This is discussed further in Volume 2, Community Area report, Davenport Green to Ardwick (MA07), Section 13.

[18] Paul Nelson (1987), *Transportation Noise Reference Book*, Butterworth-Heinemann Ltd.

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