

**Intermodal Logistics Park North Ltd**

## **INTERMODAL LOGISTICS PARK NORTH (ILPN)**

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**Intermodal Logistics Park North (ILPN) Strategic Rail Freight Interchange (SRFI)**

Project reference TR510001

### **Preliminary Environmental Information Report (PEIR)**

#### **Appendix 9.4: Operational assessment data and results**

**October 2025**

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Planning Act 2008

The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017

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**This document forms a part of a Preliminary Environmental Information Report (PEIR) for the Intermodal Logistics Park North (ILPN) project.**

A PEIR presents environmental information to assist consultees to form an informed view of the likely significant environmental effects of a proposed development and provide feedback.

This PEIR has been prepared by the project promoter, Intermodal Logistics Park North Ltd. The Proposed Development is described in Chapter 3 of the PEIR and is the subject of a public consultation.

**Details of how to respond to the public consultation are provided at the end of Chapter 1 of the PEIR and on the project website:**

**<https://www.tritaxbigbox.co.uk/our-spaces/intermodal-logistics-park-north/>**

This feedback will be taken into account by Intermodal Logistics Park North Ltd in the preparation of its application for a Development Consent Order for the project.

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## Appendix 9.4 ♦ Operational assessment data and results

### HGV ACTIVITY

- 9.1 For the purposes of the assessment, the traffic consultant provided a 24-hour profile of the likely Heavy Goods Vehicle (HGV) movements from each unit and the Railport. From this profile, the peak hour of the day (07:00 – 23:00) and peak hour of the night (23:00 – 07:00) in terms of HGV activity was identified.
- 9.2 A summary of the two-way HGV flows for the peak hour of the day and the night is provided in Table 9.1 below.

**Table 9.1 Number of HGV movements (Two Way Flow)**

| Location on Main Site | Day                     | Night                   |
|-----------------------|-------------------------|-------------------------|
|                       | Peak Hour (13:00-14:00) | Peak Hour (06:00-07:00) |
| Unit 1                | 15                      | 9                       |
| Unit 2                | 35                      | 20                      |
| Unit 3                | 25                      | 15                      |
| Unit 4                | 13                      | 7                       |
| Unit 5                | 42                      | 24                      |
| Unit 6                | 19                      | 11                      |
| Unit 7                | 9                       | 5                       |
| Unit 8                | 138                     | 81                      |

| Location on Main Site | Day                     | Night                   |
|-----------------------|-------------------------|-------------------------|
|                       | Peak Hour (13:00-14:00) | Peak Hour (06:00-07:00) |
| Unit 9                | 100                     | 58                      |
| Unit 10               | 15                      | 9                       |
| Unit 11               | 16                      | 9                       |
| Unit 12               | 56                      | 33                      |
| Unit 13               | 96                      | 56                      |
| Unit 14               | 27                      | 16                      |
| Unit 15               | 15                      | 9                       |
| Unit 16               | 30                      | 17                      |
| Unit 17               | 19                      | 11                      |
| Railport              | 73                      | 117                     |
| <b>Total</b>          | <b>395</b>              | <b>245</b>              |

- 9.3 Based on experience of similar warehouse developments, it is assumed that during the 1-hour daytime assessment period, a HGV would arrive, reverse up to the warehouse unit's dock leveller mechanism, and be loaded or unloaded by a forklift truck for 30 minutes, then pull away. Therefore, of the two-way flow, half the vehicles would reverse, be loaded or unloaded, and then pull away. During the 15-minute night-time assessment period, it has been assumed that a quarter of the two-way flow would reverse, load or unload, and pull away.
- 9.4 From the two-way flows in Table 9.1 above, the numbers of reversing, loading/unloading, and pull-away manoeuvres have been derived for the day and night-time assessment periods. These are presented in Table 9.2 and Table 9.3 below.

- 9.5 For the Railport , it is assumed that a HGV would arrive at the gatehouse and then either reverse into a parking bay or be directed where to go within the Railport to be loaded or unloaded.
- 9.6 For the day time assessment period (1 hour) it is assumed that of the HGV flows for the hour:
- half of the arrivals would go to a parking bay and reverse and do not access the Railport port;
  - the other half of the arrivals pull away from the gatehouse and move into the Railport;
  - activity in the Railport is then covered by the departure sources, where it is assumed all would be loaded/unloaded, the loading/unloading element would be undertaken by reach stackers/telehandlers in the following section; and
  - it is assumed half of the total number of departures would use the primary (train to truck or truck to train loading) and half would use the secondary (stack to truck/truck to stack loading). It is assumed that for safety reasons there would be no reverse activity associated with this but there would be a pull away manoeuvre.
- 9.7 For the night-time assessment period (15 minutes), the same assumptions have been applied to the 2 way hourly HGV flow.

**Table 9.2 Number of sources allocated (Day)**

| Location on Main Site | Daytime period over a 1-hour assessment period |               |           |
|-----------------------|------------------------------------------------|---------------|-----------|
|                       | Reverse                                        | Load / Unload | Pull Away |
| Unit 1                | 8                                              | 8             | 8         |
| Unit 2                | 18                                             | 18            | 18        |
| Unit 3                | 13                                             | 13            | 13        |
| Unit 4                | 7                                              | 7             | 7         |
| Unit 5                | 21                                             | 21            | 21        |
| Unit 6                | 10                                             | 10            | 10        |
| Unit 7                | 5                                              | 5             | 5         |

| Location on Main Site | Daytime period over a 1-hour assessment period |               |           |
|-----------------------|------------------------------------------------|---------------|-----------|
|                       | Reverse                                        | Load / Unload | Pull Away |
| Unit 8                | 70                                             | 70            | 70        |
| Unit 9                | 50                                             | 50            | 50        |
| Unit 10               | 8                                              | 8             | 8         |
| Unit 11               | 8                                              | 8             | 8         |
| Unit 12               | 28                                             | 28            | 28        |
| Unit 13               | 48                                             | 48            | 48        |
| Unit 14               | 14                                             | 14            | 14        |
| Unit 15               | 8                                              | 8             | 8         |
| Unit 16               | 15                                             | 15            | 15        |
| Unit 17               | 10                                             | 10            | 10        |
| Railport              | 86                                             | -             | 86        |

**Table 9.3 Number of sources allocated (Night)**

| Location on Main Site | Night period over a 15 minute assessment period |               |           |
|-----------------------|-------------------------------------------------|---------------|-----------|
|                       | Reverse                                         | Load / Unload | Pull Away |
| Unit 1                | 2                                               | 2             | 2         |
| Unit 2                | 3                                               | 3             | 3         |
| Unit 3                | 2                                               | 2             | 2         |
| Unit 4                | 1                                               | 1             | 1         |
| Unit 5                | 4                                               | 4             | 4         |
| Unit 6                | 2                                               | 2             | 2         |
| Unit 7                | 1                                               | 1             | 1         |
| Unit 8                | 11                                              | 11            | 11        |
| Unit 9                | 8                                               | 8             | 8         |
| Unit 10               | 2                                               | 2             | 2         |
| Unit 11               | 2                                               | 2             | 2         |
| Unit 12               | 5                                               | 5             | 5         |
| Unit 13               | 7                                               | 7             | 7         |
| Unit 14               | 2                                               | 2             | 2         |

| Location on Main Site | Night period over a 15 minute assessment period |               |           |
|-----------------------|-------------------------------------------------|---------------|-----------|
|                       | Reverse                                         | Load / Unload | Pull Away |
| Unit 15               | 2                                               | 2             | 2         |
| Unit 16               | 3                                               | 3             | 3         |
| Unit 17               | 2                                               | 2             | 2         |
| Railport              | 58                                              | -             | 58        |

9.8 The source sound levels for each manoeuvre/activity, which form the basis of the operational calculations are presented the table below.

**Table 9.4 Source sound levels for each manoeuvre/activity**

| Source                        | Sound Power Level - corrected for day time on-time (dB) |       |       |       |      |      |      |      |     |
|-------------------------------|---------------------------------------------------------|-------|-------|-------|------|------|------|------|-----|
|                               | 63Hz                                                    | 125Hz | 250Hz | 500Hz | 1KHz | 2KHz | 4KHz | 8KHz | dBA |
| Reverse                       | 83                                                      | 76    | 76    | 73    | 76   | 77   | 66   | 61   | 81  |
| Load                          | 87                                                      | 86    | 87    | 86    | 83   | 80   | 76   | 70   | 88  |
| Start-up/ pull away           | 89                                                      | 83    | 80    | 79    | 79   | 76   | 69   | 60   | 83  |
| Chiller reverse and pull away | 92                                                      | 88    | 75    | 75    | 72   | 70   | 64   | 40   | 79  |
| Chiller hook up               | 78                                                      | 83    | 83    | 80    | 80   | 78   | 75   | 73   | 85  |

9.9 To align with the assessment periods for day and night, corrections are applied to the source terms considered, these are presented in Table 9.5 and Table 9.6 below.



**Table 9.5 Source sound power levels with on-time corrections (Day)**

| Source                        | On time (mins) | Sound Power Level - corrected for day time on-time (dB) |       |       |       |      |      |      |      |     |
|-------------------------------|----------------|---------------------------------------------------------|-------|-------|-------|------|------|------|------|-----|
|                               |                | 63Hz                                                    | 125Hz | 250Hz | 500Hz | 1KHz | 2KHz | 4KHz | 8KHz | dBA |
| Reverse                       | 1              | 83                                                      | 76    | 76    | 73    | 76   | 77   | 66   | 61   | 81  |
| Load                          | 30             | 87                                                      | 86    | 87    | 86    | 83   | 80   | 76   | 70   | 88  |
| Start-up/ pull away           | 1              | 89                                                      | 83    | 80    | 79    | 79   | 76   | 69   | 60   | 83  |
| Chiller reverse and pull away | 1              | 92                                                      | 88    | 75    | 75    | 72   | 70   | 64   | 40   | 79  |
| Chiller hook up               | 30             | 78                                                      | 83    | 83    | 80    | 80   | 78   | 75   | 73   | 85  |

**Table 9.6 Source sound power levels with on-time corrections (Night)**

| Source                        | On time (mins) | Sound Power Level - corrected for night-time on-time (dB) |       |       |       |      |      |      |      |     |
|-------------------------------|----------------|-----------------------------------------------------------|-------|-------|-------|------|------|------|------|-----|
|                               |                | 63Hz                                                      | 125Hz | 250Hz | 500Hz | 1KHz | 2KHz | 4KHz | 8KHz | dBA |
| Reverse                       | 1              | 89                                                        | 82    | 82    | 79    | 82   | 83   | 72   | 67   | 87  |
| Load                          | 15             | 90                                                        | 89    | 90    | 89    | 86   | 83   | 79   | 73   | 91  |
| Start-up/ pull away           | 1              | 95                                                        | 89    | 86    | 85    | 85   | 82   | 75   | 66   | 89  |
| Chiller reverse and pull away | 1              | 98                                                        | 94    | 81    | 81    | 78   | 76   | 80   | 66   | 85  |
| Chiller hook up               | 15             | 81                                                        | 86    | 86    | 83    | 83   | 81   | 78   | 76   | 88  |

- 9.10 The predictions of HGV activity noise at the receptors have been carried out in accordance with ISO 9613-2. All sources associated with HGV activity have been modelled as point sources.

***Vehicles travelling along access routes within the SRFI***

- 9.11 HGVs have been modelled as line sources based on the principles contained in BS 5228 and ISO 9613. The number of vehicles has been derived for the daytime and night-time assessment periods based on the 24-hour vehicle profile provided by the traffic consultant. This profile has been applied to the relevant assessment period and the measured source terms presented in Table 9.7.

**Table 9.7 Source sound power levels of Heavy vehicles travelling within the development.**

| Source               | Sound Power Level - corrected for day time on-time (dB) |       |       |       |      |      |      |      |     |
|----------------------|---------------------------------------------------------|-------|-------|-------|------|------|------|------|-----|
|                      | 63Hz                                                    | 125Hz | 250Hz | 500Hz | 1KHz | 2KHz | 4KHz | 8KHz | dBA |
| HGV pass-by at 30mph | 108                                                     | 102   | 101   | 101   | 101  | 95   | 88   | 83   | 104 |
| HGV pass-by at 10mph | 97                                                      | 95    | 90    | 91    | 92   | 90   | 83   | 75   | 96  |

**OPERATIONAL PLANT SOURCES AT THE RAILPORT**

- 9.12 The dominant operational plant sources serving the Railport are based on information provided by the rail consultants and experience of other schemes. These dominant noise sources are from the associated loading and unloading activities interfacing with the HGV deliveries and collections within the Railport. The main sources are from Gantry Crane units, Container Handlers and Reach Stackers. The assumed number of plant unit for the day and night assessment scenarios is presented in Table 9.8 below.

**Table 9.8 Opening Year Operational plant sources at the Railport**

| Plant                   | Sound Power Level | Day (1 hour) |           | Night (15 min) |           |
|-------------------------|-------------------|--------------|-----------|----------------|-----------|
|                         |                   | No           | On Time % | No             | On Time % |
| Reach Stacker           | 108               | 1            | 100       | 1              | 100       |
|                         |                   | 1            | 50        | 1              | 50        |
| Empty Container Handler | 106               | 1            | 100       | 1              | 100       |
|                         |                   | 1            | 50        | 1              | 50        |

9.13 The Reach Stacker and Container Handlers elements are evenly distributed around the operational areas of the Railport, with the Gantry Crane sources distributed along the Railport reception areas. The sound power levels allocated to these sources are presented in Table 9.9 below.

**Table 9.9 Operational noise sources**

| Item                    | Sound Power Level - not corrected for on time |       |       |       |      |      |      |      |     | Source Heights (m) | Data Source                               |
|-------------------------|-----------------------------------------------|-------|-------|-------|------|------|------|------|-----|--------------------|-------------------------------------------|
|                         | 63Hz                                          | 125Hz | 250Hz | 500Hz | 1KHz | 2KHz | 4KHz | 8KHz | dBA |                    |                                           |
| Reach Stacker           | 104                                           | 110   | 104   | 102   | 103  | 102  | 96   | -    | 108 | 1.5                | Kalmar Eco reach stackers measured at EMG |
| Empty container Handler | 122                                           | 111   | 105   | 103   | 99   | 97   | 93   | 85   | 106 | 1.5                | Telehandler Level from Database           |
| Gantry movement         | 103                                           | 99    | 99    | 95    | 95   | 90   | 83   | 73   | 99  | 18*                | Measurements Electric Gantry Crane        |

| Item                                                                                                                                                                                                                                                                                               | Sound Power Level - not corrected for on time |       |       |       |      |      |      |      |     | Source Heights (m) | Data Source                                         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|-------|-------|-------|------|------|------|------|-----|--------------------|-----------------------------------------------------|
|                                                                                                                                                                                                                                                                                                    | 63Hz                                          | 125Hz | 250Hz | 500Hz | 1KHz | 2KHz | 4KHz | 8KHz | dBA |                    |                                                     |
| Gantry Alarm                                                                                                                                                                                                                                                                                       | 89                                            | 90    | 88    | 86    | 85   | 89   | 84   | 74   | 93  | 3                  | Measurements<br>Electric Gantry Crane               |
| Gantry Spreader                                                                                                                                                                                                                                                                                    | 98                                            | 93    | 92    | 92    | 88   | 83   | 77   | 67   | 93  | 6^                 | Measurements<br>Electric Gantry Crane               |
| Gantry Placement                                                                                                                                                                                                                                                                                   | 90                                            | 86    | 85    | 81    | 78   | 76   | 69   | 59   | 84  | 6^                 | Dublin<br>Measurements<br><br>Electric Gantry Crane |
| Notes on Heights:<br>*Drive motors may be at a significantly lower height, just above the wheels, however for the purposes of the predictions, all movement noise is assumed to be located at the top of the gantry crane as a worst case.<br>^ Approximately the height of two stacked containers |                                               |       |       |       |      |      |      |      |     |                    |                                                     |

TARGET RATING LEVELS FOR FIXED PLANT SOURCES

9.14 Target noise rating levels for fixed plant and substations at all relevant receptors are presented in the following tables. The values represent cumulative rating levels, i.e., they represent the combined noise level produced by all fixed plant associated with ILPN RFI , including any corrections for acoustic features as required.

Table 9.10 Target Rating Levels for Fixed Plant - Daytime

| Receptor Location             | Day                                            |                                                      |                                                  |                                                      |
|-------------------------------|------------------------------------------------|------------------------------------------------------|--------------------------------------------------|------------------------------------------------------|
|                               | Easterly wind direction                        |                                                      | Westerly wind direction                          |                                                      |
|                               | Background Sound Level - L <sub>90</sub><br>dB | Target Rating Level L <sub>Aeq, 1 hour</sub><br>(dB) | Background Sound Level - L <sub>90</sub><br>(dB) | Target Rating Level L <sub>Aeq, 1 hour</sub><br>(dB) |
| R01 Highfield Farm            | 47                                             | 47                                                   | 46                                               | 46                                                   |
| R02 465 Newton Rd             | 42                                             | 42                                                   | 46                                               | 46                                                   |
| R03 The Orchard Parkside Road | 46                                             | 46                                                   | 50                                               | 50                                                   |
| R04 Rosemary Drive            | 54                                             | 54                                                   | 49                                               | 49                                                   |
| R05 Banastre Drive            | 52                                             | 52                                                   | 40                                               | 40                                                   |
| R06 12 Whitefield Ave         | 52                                             | 52                                                   | 40                                               | 40                                                   |
| R07 59 Winwick Rd             | 47                                             | 47                                                   | 48                                               | 48                                                   |
| R08 Monk House Parkside Rd    | 54                                             | 54                                                   | 50                                               | 50                                                   |
| R09 The Cottage Parkside Rd   | 54                                             | 54                                                   | 50                                               | 50                                                   |
| R10 Hermitage Green           | 53                                             | 53                                                   | 51                                               | 51                                                   |

| Receptor Location                        | Day                                              |                                                      |                                                  |                                                      |
|------------------------------------------|--------------------------------------------------|------------------------------------------------------|--------------------------------------------------|------------------------------------------------------|
|                                          | Easterly wind direction                          |                                                      | Westerly wind direction                          |                                                      |
|                                          | Background Sound Level - L <sub>90</sub><br>(dB) | Target Rating Level L <sub>Aeq, 1 hour</sub><br>(dB) | Background Sound Level - L <sub>90</sub><br>(dB) | Target Rating Level L <sub>Aeq, 1 hour</sub><br>(dB) |
| R11 Hilbre Winwick Road                  | 53                                               | 53                                                   | 56                                               | 56                                                   |
| R12 Hill Crest Winwick Road              | 53                                               | 53                                                   | 56                                               | 56                                                   |
| R13 Hollow Dene Crest Winwick Road       | 53                                               | 53                                                   | 56                                               | 56                                                   |
| R14 Sherbrooke Crest Winwick Road        | 53                                               | 53                                                   | 56                                               | 56                                                   |
| R15 Over Back Farm Crest Winwick Road    | 55                                               | 55                                                   | 58                                               | 58                                                   |
| R16 Over Back Cottage Crest Winwick Road | 55                                               | 55                                                   | 58                                               | 58                                                   |
| R17 Sandy Brow Ln                        | 43                                               | 43                                                   | 49                                               | 49                                                   |
| R18 Rock House Sandy Brow Ln             | 43                                               | 43                                                   | 49                                               | 49                                                   |
| R19 The Lodge Sandy Brow Ln              | 43                                               | 43                                                   | 49                                               | 49                                                   |
| R20 Carringtons Coffee Co Winwick Ln     | 50                                               | 50                                                   | 53                                               | 53                                                   |
| R21 Kenyon Hall Farm South Winwick Ln    | 50                                               | 50                                                   | 53                                               | 53                                                   |
| R22 Kenyon Hall Farm North Winwick Ln    | 50                                               | 50                                                   | 53                                               | 53                                                   |
| R23 Morris's Farm Main Ln                | 50                                               | 50                                                   | 53                                               | 53                                                   |
| R24 10 Main Ln                           | 50                                               | 50                                                   | 53                                               | 53                                                   |
| R25 Home Main Ln                         | 50                                               | 50                                                   | 53                                               | 53                                                   |

| Receptor Location                                | Day                                            |                                                      |                                                  |                                                      |
|--------------------------------------------------|------------------------------------------------|------------------------------------------------------|--------------------------------------------------|------------------------------------------------------|
|                                                  | Easterly wind direction                        |                                                      | Westerly wind direction                          |                                                      |
|                                                  | Background Sound Level - L <sub>90</sub><br>dB | Target Rating Level L <sub>Aeq, 1 hour</sub><br>(dB) | Background Sound Level - L <sub>90</sub><br>(dB) | Target Rating Level L <sub>Aeq, 1 hour</sub><br>(dB) |
| R26 High Peak Residential & Nursing Home Main Ln | 50                                             | 50                                                   | 53                                               | 53                                                   |
| R27 49 Kenyon Ln                                 | 50                                             | 50                                                   | 53                                               | 53                                                   |
| R28 345 Newton Rd                                | 49                                             | 49                                                   | 53                                               | 53                                                   |

Table 9.11 Target Rating Levels for Fixed Plant – Night-time

| Receptor Location             | Night                                          |                                                      |                                                |                                                      |
|-------------------------------|------------------------------------------------|------------------------------------------------------|------------------------------------------------|------------------------------------------------------|
|                               | Easterly wind direction                        |                                                      | Westerly wind direction                        |                                                      |
|                               | Background Sound Level - L <sub>90</sub><br>dB | Target Rating Level L <sub>Aeq, 15 min</sub><br>(dB) | Background Sound Level - L <sub>90</sub><br>dB | Target Rating Level L <sub>Aeq, 15 min</sub><br>(dB) |
| R01 Highfield Farm            | 39                                             | 39                                                   | 41                                             | 41                                                   |
| R02 465 Newton Rd             | 38                                             | 38                                                   | 42                                             | 42                                                   |
| R03 The Orchard Parkside Road | 42                                             | 42                                                   | 47                                             | 47                                                   |
| R04 Rosemary Drive South      | 49                                             | 49                                                   | 48                                             | 48                                                   |
| R05 Banastre Drive East       | 46                                             | 46                                                   | 41                                             | 41                                                   |

| Receptor Location                        | Night                                          |                                                      |                                                |                                                      |
|------------------------------------------|------------------------------------------------|------------------------------------------------------|------------------------------------------------|------------------------------------------------------|
|                                          | Easterly wind direction                        |                                                      | Westerly wind direction                        |                                                      |
|                                          | Background Sound Level - L <sub>90</sub><br>dB | Target Rating Level L <sub>Aeq, 15 min</sub><br>(dB) | Background Sound Level - L <sub>90</sub><br>dB | Target Rating Level L <sub>Aeq, 15 min</sub><br>(dB) |
| R06 12 Whitefield Ave                    | 46                                             | 46                                                   | 41                                             | 41                                                   |
| R07 59 Winwick Rd                        | 42                                             | 42                                                   | 38                                             | 38                                                   |
| R08 Monk House Parkside Rd               | 48                                             | 48                                                   | 50                                             | 50                                                   |
| R09 The Cottage Parkside Rd              | 48                                             | 48                                                   | 50                                             | 50                                                   |
| R10 Hermitage Green                      | 47                                             | 47                                                   | 45                                             | 45                                                   |
| R11 Hilbre Winwick Road                  | 43                                             | 43                                                   | 50                                             | 50                                                   |
| R12 Hill Crest Winwick Road              | 43                                             | 43                                                   | 50                                             | 50                                                   |
| R13 Hollow Dene Crest Winwick Road       | 43                                             | 43                                                   | 50                                             | 50                                                   |
| R14 Sherbrooke Crest Winwick Road        | 43                                             | 43                                                   | 50                                             | 50                                                   |
| R15 Over Back Farm Crest Winwick Road    | 42                                             | 42                                                   | 46                                             | 46                                                   |
| R16 Over Back Cottage Crest Winwick Road | 42                                             | 42                                                   | 46                                             | 46                                                   |
| R17 Sandy Brow Ln                        | 41                                             | 41                                                   | 38                                             | 38                                                   |
| R18 Rock House Sandy Brow Ln             | 41                                             | 41                                                   | 38                                             | 38                                                   |
| R19 The Lodge Sandy Brow Ln              | 41                                             | 41                                                   | 38                                             | 38                                                   |



| Receptor Location                                | Night                                          |                                                      |                                                |                                                      |
|--------------------------------------------------|------------------------------------------------|------------------------------------------------------|------------------------------------------------|------------------------------------------------------|
|                                                  | Easterly wind direction                        |                                                      | Westerly wind direction                        |                                                      |
|                                                  | Background Sound Level - L <sub>90</sub><br>dB | Target Rating Level L <sub>Aeq, 15 min</sub><br>(dB) | Background Sound Level - L <sub>90</sub><br>dB | Target Rating Level L <sub>Aeq, 15 min</sub><br>(dB) |
| R20 Carringtons Coffee Co Winwick Ln             | 44                                             | 44                                                   | 43                                             | 43                                                   |
| R21 Kenyon Hall Farm South Winwick Ln            | 44                                             | 44                                                   | 43                                             | 43                                                   |
| R22 Kenyon Hall Farm North Winwick Ln            | 44                                             | 44                                                   | 43                                             | 43                                                   |
| R23 Morris's Farm Main Ln                        | 44                                             | 44                                                   | 43                                             | 43                                                   |
| R24 10 Main Ln                                   | 44                                             | 44                                                   | 43                                             | 43                                                   |
| R25 Home Main Ln                                 | 44                                             | 44                                                   | 43                                             | 43                                                   |
| R26 High Peak Residential & Nursing Home Main Ln | 44                                             | 44                                                   | 43                                             | 43                                                   |
| R27 49 Kenyon Ln                                 | 44                                             | 44                                                   | 43                                             | 43                                                   |
| R28 345 Newton Rd                                | 44                                             | 44                                                   | 45                                             | 45                                                   |

**RESULTS: NOISE FROM OPERATIONAL ACTIVITY AT THE MAIN SITE AND THE WESTERN RAIL CHORD****Table 9.12 Predictions of Main Site and Western Rail Chord activity noise and comparison to LOAEL/SOAEL assessment thresholds - Daytime – Easterly wind direction**

| Receptor Location                      | Daytime Rating Level $L_{Aeq, 1 \text{ hour}}$ (dB) | Easterly Background Sound Level $L_{A90}$ (dB) | Rating Level – Background | Effect Level                        |
|----------------------------------------|-----------------------------------------------------|------------------------------------------------|---------------------------|-------------------------------------|
| R01 Highfield Farm GF South            | 45                                                  | 47                                             | -2                        | No Observed Effect i.e. below LOAEL |
| R01 Highfield Farm GF West             | 44                                                  | 47                                             | -3                        | No Observed Effect i.e. below LOAEL |
| R02 465 Newton Rd GF                   | 42                                                  | 42                                             | 0                         | No Observed Effect i.e. below LOAEL |
| R03 The Orchard Parkside Road GF East  | 45                                                  | 46                                             | -1                        | No Observed Effect i.e. below LOAEL |
| R03 The Orchard Parkside Road GF South | 45                                                  | 46                                             | -1                        | No Observed Effect i.e. below LOAEL |
| R04 Rosemary Drive GF South            | 40                                                  | 54                                             | -14                       | No Observed Effect i.e. below LOAEL |
| R05 Banastre Drive GF East             | 36                                                  | 52                                             | -16                       | No Observed Effect i.e. below LOAEL |
| R06 12 Whitefield Ave GF               | 33                                                  | 52                                             | -19                       | No Observed Effect i.e. below LOAEL |
| R07 59 Winwick Rd GF                   | 35                                                  | 47                                             | -12                       | No Observed Effect i.e. below LOAEL |
| R08 Monk House Parkside Rd GF          | 49                                                  | 54                                             | -5                        | No Observed Effect i.e. below LOAEL |
| R09 The Cottage Parkside Rd GF         | 42                                                  | 54                                             | -12                       | No Observed Effect i.e. below LOAEL |
| R10 Hermitage Green                    | 36                                                  | 53                                             | -17                       | No Observed Effect i.e. below LOAEL |
| R11 Hilbre Winwick Road GF             | 47                                                  | 53                                             | -6                        | No Observed Effect i.e. below LOAEL |
| R12 Hill Crest Winwick Road GF         | 49                                                  | 53                                             | -4                        | No Observed Effect i.e. below LOAEL |
| R13 Hollow Dene Crest Winwick Road GF  | 53                                                  | 53                                             | 0                         | No Observed Effect i.e. below LOAEL |

| Receptor Location                                   | Daytime Rating Level $L_{Aeq, 1 \text{ hour}}$ (dB) | Easterly Background Sound Level $L_{A90}$ (dB) | Rating Level – Background | Effect Level                        |
|-----------------------------------------------------|-----------------------------------------------------|------------------------------------------------|---------------------------|-------------------------------------|
| R14 Sherbrooke Crest Winwick Road GF                | 54                                                  | 53                                             | 1                         | No Observed Adverse Effect          |
| R15 Over Back Farm Crest Winwick Road GF            | 49                                                  | 55                                             | -6                        | No Observed Effect i.e. below LOAEL |
| R16 Over Back Cottage Crest Winwick Road GF         | 48                                                  | 55                                             | -7                        | No Observed Effect i.e. below LOAEL |
| R17 Sandy Brow Ln GF                                | 46                                                  | 43                                             | 3                         | No Observed Adverse Effect          |
| R18 Rock House Sandy Brow Ln GF                     | 38                                                  | 43                                             | -5                        | No Observed Effect i.e. below LOAEL |
| R19 The Lodge Sandy Brow Ln GF                      | 45                                                  | 43                                             | 2                         | No Observed Adverse Effect          |
| R20 Carringtons Coffee Co Winwick Ln GF South       | 45                                                  | 50                                             | -5                        | No Observed Effect i.e. below LOAEL |
| R20 Carringtons Coffee Co Winwick Ln GF West        | 46                                                  | 50                                             | -4                        | No Observed Effect i.e. below LOAEL |
| R21 Kenyon Hall Farm South Winwick Ln GF South      | 50                                                  | 50                                             | 0                         | No Observed Effect i.e. below LOAEL |
| R21 Kenyon Hall Farm South Winwick Ln GF West       | 50                                                  | 50                                             | 0                         | No Observed Effect i.e. below LOAEL |
| R22 Kenyon Hall Farm North Winwick Ln GF            | 45                                                  | 50                                             | -5                        | No Observed Effect i.e. below LOAEL |
| R23 Morris's Farm Main Ln GF                        | 49                                                  | 50                                             | -1                        | No Observed Effect i.e. below LOAEL |
| R24 10 Main Ln GF                                   | 47                                                  | 50                                             | -3                        | No Observed Effect i.e. below LOAEL |
| R25 Home Main Ln GF                                 | 41                                                  | 50                                             | -9                        | No Observed Effect i.e. below LOAEL |
| R26 High Peak Residential & Nursing Home Main Ln GF | 41                                                  | 50                                             | -9                        | No Observed Effect i.e. below LOAEL |

| Receptor Location    | Daytime Rating Level $L_{Aeq, 1 \text{ hour}}$ (dB) | Easterly Background Sound Level $L_{A90}$ (dB) | Rating Level – Background | Effect Level                        |
|----------------------|-----------------------------------------------------|------------------------------------------------|---------------------------|-------------------------------------|
| R27 49 Kenyon Ln GF  | 36                                                  | 50                                             | -14                       | No Observed Effect i.e. below LOAEL |
| R28 345 Newton Rd GF | 40                                                  | 49                                             | -9                        | No Observed Effect i.e. below LOAEL |

**Table 9.13 Predictions of Main Site and Western Rail Chord activity noise and comparison to LOAEL/SOAEL assessment thresholds – Night-time – Easterly wind direction**

| Receptor Location                      | Night Rating Level $L_{Aeq, 15 \text{ min}}$ (dB) | Easterly Background Sound Level $L_{A90}$ (dB) | Rating Level – Background | Effect Level                                                |
|----------------------------------------|---------------------------------------------------|------------------------------------------------|---------------------------|-------------------------------------------------------------|
| R01 Highfield Farm 1F South            | 46                                                | 39                                             | 7                         | Observed Adverse Effect (at or above LOAEL but below SOAEL) |
| R01 Highfield Farm 1F West             | 46                                                | 39                                             | 7                         | Observed Adverse Effect (at or above LOAEL but below SOAEL) |
| R02 465 Newton Rd 1F                   | 43                                                | 38                                             | 5                         | Observed Adverse Effect (at or above LOAEL but below SOAEL) |
| R03 The Orchard Parkside Road 1F East  | 44                                                | 42                                             | 2                         | No Observed Adverse Effect                                  |
| R03 The Orchard Parkside Road 1F South | 43                                                | 42                                             | 1                         | No Observed Adverse Effect                                  |
| R04 Rosemary Drive 1F South            | 43                                                | 49                                             | -6                        | No Observed Effect i.e. below LOAEL                         |
| R05 Banastre Drive 1F East             | 36                                                | 46                                             | -10                       | No Observed Effect i.e. below LOAEL                         |
| R06 12 Whitefield Ave 1F               | 33                                                | 46                                             | -13                       | No Observed Effect i.e. below LOAEL                         |
| R07 59 Winwick Rd 1F                   | 32                                                | 42                                             | -10                       | No Observed Effect i.e. below LOAEL                         |
| R08 Monk House Parkside Rd 1F          | 46                                                | 48                                             | -2                        | No Observed Effect i.e. below LOAEL                         |
| R09 The Cottage Parkside Rd 1F         | 39                                                | 48                                             | -9                        | No Observed Effect i.e. below LOAEL                         |

| Receptor Location                              | Night Rating Level $L_{Aeq, 15 \text{ min}}$ (dB) | Easterly Background Sound Level $L_{A90}$ (dB) | Rating Level – Background | Effect Level                                                |
|------------------------------------------------|---------------------------------------------------|------------------------------------------------|---------------------------|-------------------------------------------------------------|
| R10 Hermitage Green                            | 33                                                | 47                                             | -14                       | No Observed Effect i.e. below LOAEL                         |
| R11 Hilbre Winwick Road 1F                     | 46                                                | 43                                             | 3                         | No Observed Adverse Effect                                  |
| R12 Hill Crest Winwick Road 1F                 | 46                                                | 43                                             | 3                         | No Observed Adverse Effect                                  |
| R13 Hollow Dene Crest Winwick Road 1F          | 51                                                | 43                                             | 8                         | Observed Adverse Effect (at or above LOAEL but below SOAEL) |
| R14 Sherbrooke Crest Winwick Road 1F           | 52                                                | 43                                             | 9                         | Observed Adverse Effect (at or above LOAEL but below SOAEL) |
| R15 Over Back Farm Crest Winwick Road 1F       | 47                                                | 42                                             | 5                         | Observed Adverse Effect (at or above LOAEL but below SOAEL) |
| R16 Over Back Cottage Crest Winwick Road 1F    | 47                                                | 42                                             | 5                         | Observed Adverse Effect (at or above LOAEL but below SOAEL) |
| R17 Sandy Brow Ln 1F                           | 43                                                | 41                                             | 2                         | No Observed Adverse Effect                                  |
| R18 Rock House Sandy Brow Ln 1F                | 42                                                | 41                                             | 1                         | No Observed Adverse Effect                                  |
| R19 The Lodge Sandy Brow Ln 1F                 | 42                                                | 41                                             | 1                         | No Observed Adverse Effect                                  |
| R20 Carringtons Coffee Co Winwick Ln 1F South  | 45                                                | 44                                             | 1                         | No Observed Adverse Effect                                  |
| R20 Carringtons Coffee Co Winwick Ln 1F West   | 46                                                | 44                                             | 2                         | No Observed Adverse Effect                                  |
| R21 Kenyon Hall Farm South Winwick Ln GF South | 48                                                | 44                                             | 4                         | No Observed Adverse Effect                                  |
| R21 Kenyon Hall Farm South Winwick Ln GF West  | 49                                                | 44                                             | 5                         | Observed Adverse Effect (at or above LOAEL but below SOAEL) |
| R22 Kenyon Hall Farm North Winwick Ln 1F       | 44                                                | 44                                             | 0                         | No Observed Effect i.e. below LOAEL                         |
| R23 Morris's Farm Main Ln 1F                   | 48                                                | 44                                             | 4                         | No Observed Adverse Effect                                  |

| Receptor Location                                   | Night Rating Level $L_{Aeq, 15 \text{ min}}$ (dB) | Easterly Background Sound Level $L_{A90}$ (dB) | Rating Level – Background | Effect Level                        |
|-----------------------------------------------------|---------------------------------------------------|------------------------------------------------|---------------------------|-------------------------------------|
| R24 10 Main Ln 1F                                   | 45                                                | 44                                             | 1                         | No Observed Adverse Effect          |
| R25 Home Main Ln 1F                                 | 38                                                | 44                                             | -6                        | No Observed Effect i.e. below LOAEL |
| R26 High Peak Residential & Nursing Home Main Ln 1F | 38                                                | 44                                             | -6                        | No Observed Effect i.e. below LOAEL |
| R27 49 Kenyon Ln GF                                 | 32                                                | 44                                             | -12                       | No Observed Effect i.e. below LOAEL |
| R28 345 Newton Rd GF                                | 37                                                | 44                                             | -7                        | No Observed Effect i.e. below LOAEL |

**Table 9.14 Predictions of Main Site and Western Rail Chord activity noise and comparison to LOAEL/SOAEL assessment thresholds - Daytime – Westerly wind direction**

| Name                                   | Daytime Rating Level $L_{Aeq, 1 \text{ hour}}$ (dB) | Westerly Background Sound Level $L_{A90}$ (dB) | Rating Level – Background | Effect Level                        |
|----------------------------------------|-----------------------------------------------------|------------------------------------------------|---------------------------|-------------------------------------|
| R01 Highfield Farm GF South            | 45                                                  | 46                                             | -1                        | No Observed Effect i.e. below LOAEL |
| R01 Highfield Farm GF West             | 44                                                  | 46                                             | -2                        | No Observed Effect i.e. below LOAEL |
| R02 465 Newton Rd GF                   | 42                                                  | 46                                             | -4                        | No Observed Effect i.e. below LOAEL |
| R03 The Orchard Parkside Road GF East  | 45                                                  | 50                                             | -5                        | No Observed Effect i.e. below LOAEL |
| R03 The Orchard Parkside Road GF South | 45                                                  | 50                                             | -5                        | No Observed Effect i.e. below LOAEL |
| R04 Rosemary Drive GF South            | 40                                                  | 49                                             | -9                        | No Observed Effect i.e. below LOAEL |
| R05 Banastre Drive GF East             | 36                                                  | 40                                             | -4                        | No Observed Effect i.e. below LOAEL |
| R06 12 Whitefield Ave GF               | 33                                                  | 40                                             | -7                        | No Observed Effect i.e. below LOAEL |



| Name                                           | Daytime Rating Level $L_{Aeq, 1 \text{ hour}}$ (dB) | Westerly Background Sound Level $L_{A90}$ (dB) | Rating Level – Background | Effect Level                        |
|------------------------------------------------|-----------------------------------------------------|------------------------------------------------|---------------------------|-------------------------------------|
| R07 59 Winwick Rd GF                           | 35                                                  | 48                                             | -13                       | No Observed Effect i.e. below LOAEL |
| R08 Monk House Parkside Rd GF                  | 49                                                  | 50                                             | -1                        | No Observed Effect i.e. below LOAEL |
| R09 The Cottage Parkside Rd GF                 | 42                                                  | 50                                             | -8                        | No Observed Effect i.e. below LOAEL |
| R10 Hermitage Green                            | 36                                                  | 51                                             | -15                       | No Observed Effect i.e. below LOAEL |
| R11 Hilbre Winwick Road GF                     | 47                                                  | 56                                             | -9                        | No Observed Effect i.e. below LOAEL |
| R12 Hill Crest Winwick Road GF                 | 49                                                  | 56                                             | -7                        | No Observed Effect i.e. below LOAEL |
| R13 Hollow Dene Crest Winwick Road GF          | 53                                                  | 56                                             | -3                        | No Observed Effect i.e. below LOAEL |
| R14 Sherbrooke Crest Winwick Road GF           | 54                                                  | 56                                             | -2                        | No Observed Effect i.e. below LOAEL |
| R15 Over Back Farm Crest Winwick Road GF       | 49                                                  | 58                                             | -9                        | No Observed Effect i.e. below LOAEL |
| R16 Over Back Cottage Crest Winwick Road GF    | 48                                                  | 58                                             | -10                       | No Observed Effect i.e. below LOAEL |
| R17 Sandy Brow Ln GF                           | 46                                                  | 49                                             | -3                        | No Observed Effect i.e. below LOAEL |
| R18 Rock House Sandy Brow Ln GF                | 38                                                  | 49                                             | -11                       | No Observed Effect i.e. below LOAEL |
| R19 The Lodge Sandy Brow Ln GF                 | 45                                                  | 49                                             | -4                        | No Observed Effect i.e. below LOAEL |
| R20 Carringtons Coffee Co Winwick Ln GF South  | 45                                                  | 53                                             | -8                        | No Observed Effect i.e. below LOAEL |
| R20 Carringtons Coffee Co Winwick Ln GF West   | 46                                                  | 53                                             | -7                        | No Observed Effect i.e. below LOAEL |
| R21 Kenyon Hall Farm South Winwick Ln GF South | 50                                                  | 53                                             | -3                        | No Observed Effect i.e. below LOAEL |

| Name                                                | Daytime Rating Level $L_{Aeq, 1 \text{ hour}}$ (dB) | Westerly Background Sound Level $L_{A90}$ (dB) | Rating Level – Background | Effect Level                        |
|-----------------------------------------------------|-----------------------------------------------------|------------------------------------------------|---------------------------|-------------------------------------|
| R21 Kenyon Hall Farm South Winwick Ln GF West       | 50                                                  | 53                                             | -3                        | No Observed Effect i.e. below LOAEL |
| R22 Kenyon Hall Farm North Winwick Ln GF            | 45                                                  | 53                                             | -8                        | No Observed Effect i.e. below LOAEL |
| R23 Morris's Farm Main Ln GF                        | 49                                                  | 53                                             | -4                        | No Observed Effect i.e. below LOAEL |
| R24 10 Main Ln GF                                   | 47                                                  | 53                                             | -6                        | No Observed Effect i.e. below LOAEL |
| R25 Home Main Ln GF                                 | 41                                                  | 53                                             | -12                       | No Observed Effect i.e. below LOAEL |
| R26 High Peak Residential & Nursing Home Main Ln GF | 41                                                  | 53                                             | -12                       | No Observed Effect i.e. below LOAEL |
| R27 49 Kenyon Ln GF                                 | 36                                                  | 53                                             | -17                       | No Observed Effect i.e. below LOAEL |
| R28 345 Newton Rd GF                                | 40                                                  | 48                                             | -8                        | No Observed Effect i.e. below LOAEL |

Table 9.15 Predictions of on-site activity noise and comparison to LOAEL/SOAEL assessment thresholds – Night-time – Westerly wind direction

| Name                                   | Night Rating Level $L_{Aeq, 15 \text{ min}}$ (dB) | Westerly Background Sound Level - $L_{A90}$ (dB) | Rating Level – Background | Effect Level                                                |
|----------------------------------------|---------------------------------------------------|--------------------------------------------------|---------------------------|-------------------------------------------------------------|
| R01 Highfield Farm 1F South            | 46                                                | 41                                               | 5                         | Observed Adverse Effect (at or above LOAEL but below SOAEL) |
| R01 Highfield Farm 1F West             | 46                                                | 41                                               | 5                         | Observed Adverse Effect (at or above LOAEL but below SOAEL) |
| R02 465 Newton Rd 1F                   | 43                                                | 42                                               | 1                         | No Observed Adverse Effect                                  |
| R03 The Orchard Parkside Road 1F East  | 44                                                | 47                                               | -3                        | No Observed Effect i.e. below LOAEL                         |
| R03 The Orchard Parkside Road 1F South | 43                                                | 47                                               | -4                        | No Observed Effect i.e. below LOAEL                         |



| Name                                        | Night Rating Level $L_{Aeq, 15 \text{ min}}$ (dB) | Westerly Background Sound Level - $L_{A90}$ (dB) | Rating Level – Background | Effect Level                                                |
|---------------------------------------------|---------------------------------------------------|--------------------------------------------------|---------------------------|-------------------------------------------------------------|
| R04 Rosemary Drive 1F South                 | 43                                                | 48                                               | -5                        | No Observed Effect i.e. below LOAEL                         |
| R05 Banastre Drive 1F East                  | 36                                                | 41                                               | -5                        | No Observed Effect i.e. below LOAEL                         |
| R06 12 Whitefield Ave 1F                    | 33                                                | 41                                               | -8                        | No Observed Effect i.e. below LOAEL                         |
| R07 59 Winwick Rd 1F                        | 32                                                | 38                                               | -6                        | No Observed Effect i.e. below LOAEL                         |
| R08 Monk House Parkside Rd 1F               | 46                                                | 50                                               | -4                        | No Observed Effect i.e. below LOAEL                         |
| R09 The Cottage Parkside Rd 1F              | 39                                                | 50                                               | -11                       | No Observed Effect i.e. below LOAEL                         |
| R10 Hermitage Green                         | 33                                                | 45                                               | -12                       | No Observed Effect i.e. below LOAEL                         |
| R11 Hilbre Winwick Road 1F                  | 46                                                | 50                                               | -4                        | No Observed Effect i.e. below LOAEL                         |
| R12 Hill Crest Winwick Road 1F              | 46                                                | 50                                               | -4                        | No Observed Effect i.e. below LOAEL                         |
| R13 Hollow Dene Crest Winwick Road 1F       | 51                                                | 50                                               | 1                         | No Observed Adverse Effect                                  |
| R14 Sherbrooke Crest Winwick Road 1F        | 52                                                | 50                                               | 2                         | No Observed Adverse Effect                                  |
| R15 Over Back Farm Crest Winwick Road 1F    | 47                                                | 46                                               | 1                         | No Observed Adverse Effect                                  |
| R16 Over Back Cottage Crest Winwick Road 1F | 47                                                | 46                                               | 1                         | No Observed Adverse Effect                                  |
| R17 Sandy Brow Ln 1F                        | 43                                                | 38                                               | 5                         | Observed Adverse Effect (at or above LOAEL but below SOAEL) |
| R18 Rock House Sandy Brow Ln 1F             | 42                                                | 38                                               | 4                         | No Observed Adverse Effect                                  |
| R19 The Lodge Sandy Brow Ln 1F              | 42                                                | 38                                               | 4                         | No Observed Adverse Effect                                  |

| Name                                                | Night Rating Level $L_{Aeq, 15 \text{ min}}$ (dB) | Westerly Background Sound Level - $L_{A90}$ (dB) | Rating Level – Background | Effect Level                                                |
|-----------------------------------------------------|---------------------------------------------------|--------------------------------------------------|---------------------------|-------------------------------------------------------------|
| R20 Carringtons Coffee Co Winwick Ln 1F South       | 45                                                | 43                                               | 2                         | No Observed Adverse Effect                                  |
| R20 Carringtons Coffee Co Winwick Ln 1F West        | 46                                                | 43                                               | 3                         | No Observed Adverse Effect                                  |
| R21 Kenyon Hall Farm South Winwick Ln GF South      | 48                                                | 43                                               | 5                         | Observed Adverse Effect (at or above LOAEL but below SOAEL) |
| R21 Kenyon Hall Farm South Winwick Ln GF West       | 49                                                | 43                                               | 6                         | Observed Adverse Effect (at or above LOAEL but below SOAEL) |
| R22 Kenyon Hall Farm North Winwick Ln 1F            | 44                                                | 43                                               | 1                         | Observed Adverse Effect (at or above LOAEL but below SOAEL) |
| R23 Morris's Farm Main Ln 1F                        | 48                                                | 43                                               | 5                         | No Observed Adverse Effect                                  |
| R24 10 Main Ln 1F                                   | 45                                                | 43                                               | 2                         | Observed Adverse Effect (at or above LOAEL but below SOAEL) |
| R25 Home Main Ln 1F                                 | 38                                                | 43                                               | -5                        | No Observed Adverse Effect                                  |
| R26 High Peak Residential & Nursing Home Main Ln 1F | 38                                                | 43                                               | -5                        | No Observed Effect i.e. below LOAEL                         |
| R27 49 Kenyon Ln GF                                 | 32                                                | 43                                               | -11                       | No Observed Effect i.e. below LOAEL                         |
| R28 345 Newton Rd GF                                | 37                                                | 45                                               | -8                        | No Observed Effect i.e. below LOAEL                         |