

Appendix 9.2

Detailed Viewpoint Analysis

30 Pages

Viewpoint 01 Birdy Brow on Longridge Fell, OS 688 405

Receptor	Sensitivity of Receptor	Direction of View	Distance of View to Closest Boundary	Date of Photo	Weather and Lighting	Single Frame or Panorama
AONB, footpaths, residential, public road	High	East	5 km	6 March 2012	Bright, clear and sunny	Single

	Existing View	View During Construction	View on Completion with Mitigation
View description	Distant views of Clitheroe	Barely discernible	Barely discernible
Magnitude of Visual Change (effect)		Negligible	Negligible
Overall Impact		Slight	Slight
Significance of Effect		Not Significant	Not Significant

Viewpoint 01 Birdy Brow on Longridge Fell, OS 688 405

The site is visible on the right hand side of Clitheroe (orange outline indicates visible portion of site)

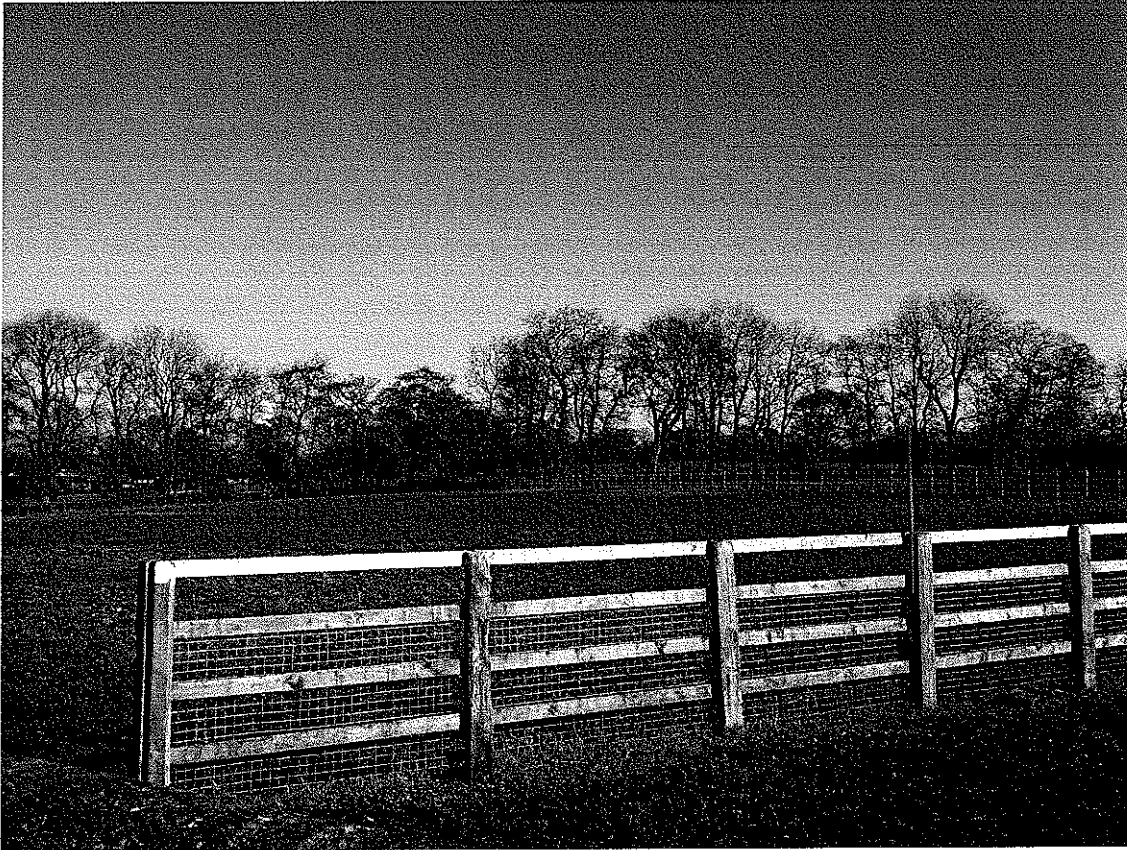


Viewpoint 02 **Whalley Road Barraclough House on the southern approach to Clitheroe OS 739 400**

Receptor	Sensitivity of Most Sensitive Receptor	Direction of View	Distance of View to Closest Boundary	Date of photo	Weather and Lighting	Single Frame or Panorama
Residential, Barraclough House Public Road	High	North	430 m	6 March 2012	Bright, clear and sunny	Single

	Existing View	View During Construction	View on Completion with Mitigation
View Description	View from house to pastoral/ parkland landscape with mature trees, and pastoral fields with the residential edge of Clitheroe much screened in the far distance.	Construction site in distance much screened by trees even in winter	Residential edge will come closer to the viewer but still be very distant and barely discernible through two strong lines of trees. There will be some additional screening from new tree planting.
Magnitude of Visual Change (effect)		Low	Low
Overall Impact		Moderate	Moderate
Significance of Effect		Not Significant	Not Significant

Viewpoint 02 Whalley Road, Barraclough House on the southern approach to Clitheroe OS 739 400
*The site is barely discernible through two strong lines of trees, it is **not** the green field visible through the first row of trees but beyond the further row of trees.*



Viewpoint 03 Whalley Road between Standen Cottages and Lower Standen on the southern approach to Clitheroe OS 739 406

Receptor	Sensitivity of Most Sensitive Receptor	Direction of View	Distance of View to Closest Boundary	Date of Photo	Weather and Lighting	Single Frame or Panorama
Residential, Lower Standen PROW Public Road	High	North-East	300 m	6 March 2012	Bright, clear and sunny	Single

	Existing View	View During Construction	View on Completion with Mitigation
View Description	View over busy A road to pastoral/ parkland landscape with mature trees, and pastoral fields with the residential edge of Clitheroe in the distance.	Construction site in mid-distance (beyond line of trees in centre of photograph)	Residential edge will come closer to the viewer approaching the line of trees in the centre of the photo. There will be some additional screening from new tree planting
Magnitude Of Visual Change (effect)		Medium	Medium
Overall Impact		Moderate/ Substantial	Moderate/ Substantial
Significance of Effect		Significant	Significant

Viewpoint 03 Whalley Road between Standen Cottages and Lower Standen on the southern approach to Clitheroe OS 739 406

The site can be seen beyond the hedge running through the field, it is not the closest field (orange outline indicates visible portion of site)



Viewpoint 04 Clitheroe Castle ramparts OS 742 416

Receptor	Sensitivity of Most Sensitive Receptor	Direction of View	Distance of View to Closest Boundary	Date of Photo	Weather and Lighting	Single Frame or Panorama
Scheduled Monument and visitor attraction	High	South-East	870 m	6 March 2012	Bright, clear and sunny	Single

	Existing View	View During Construction	View on Completion with Mitigation
View Description	View over Clitheroe roofscape. The site sits is the greenfields visible on the edge of Clitheroe in the middle of the photo running up to the farm buildings of Higher Standen in the mid-distance	Construction site in mid-distance will detract from views	Residential edge will be extended. There will be some additional tree planting which will soften and break-up the roofscape which will be less stark when compared to the existing roofscape.
Magnitude of Visual Change (effect)		Medium	Low
Overall Impact		Moderate/ Substantial	Moderate
Significance of Effect		Significant	Not Significant

Viewpoint 04 Clitheroe Castle ramparts OS 742 416

The site visible in the photograph includes the two fields immediately on the edge of Clitheroe just beyond the housing. (orange outline indicates visible portion of site)



Viewpoint 05 Littlemoor OS 743 407

Receptor	Sensitivity of Most Sensitive Receptor	Direction of View	Distance of View to Closest Boundary	Date of Photo	Weather and Lighting	Single Frame or Panorama
Residential and public road	High	East	adjacent	6 March 2012	Bright, clear and sunny	Single

	Existing View	View During Construction	View on Completion with Mitigation
View Description	View over fenced pastoral land toward disused barn and mature hedgerow.	Construction site adjacent to properties will dominate views	Views will be of entrance to a new residential area. Planting will soften the impact on this view to a degree.
Magnitude of Visual Change (effect)		High	High
Overall Impact		Substantial	Substantial
Significance of Effect		Significant	Significant

Viewpoint 05 Littlemoor OS 743 407

(orange outline indicates visible portion of site)

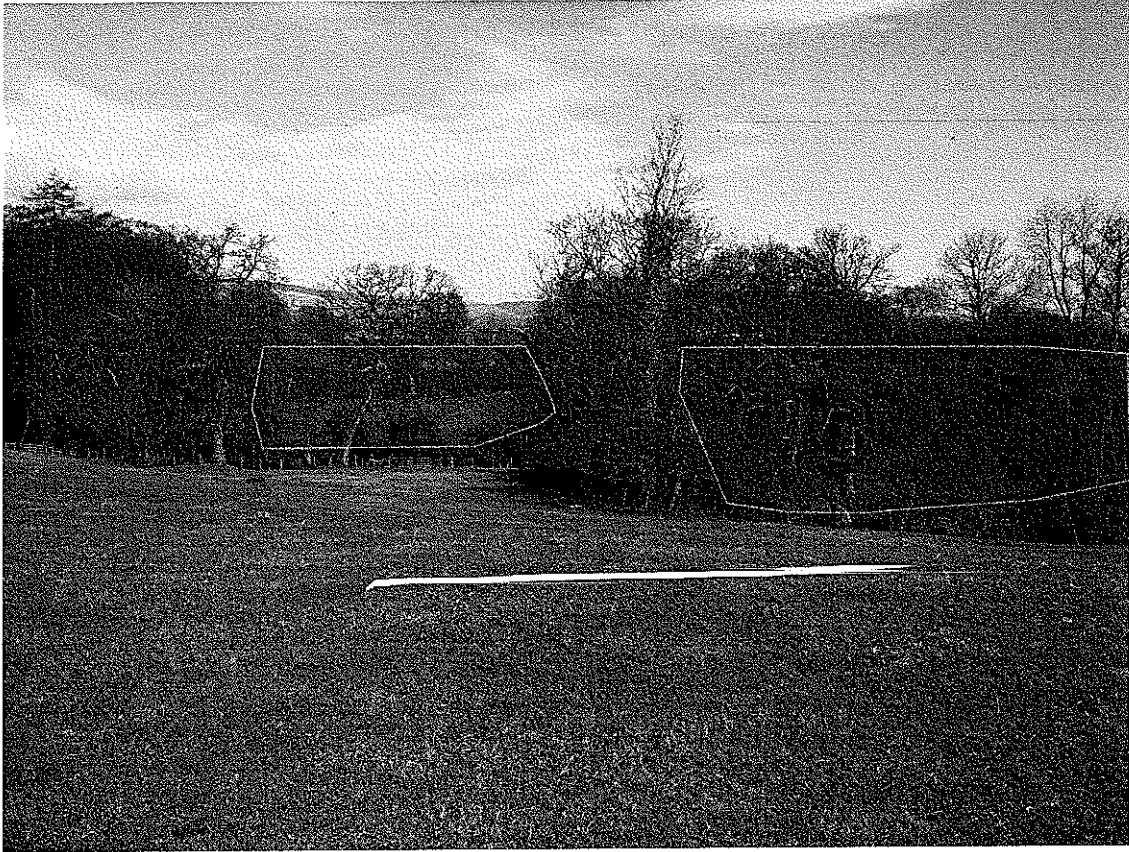


Viewpoint 06 Footpath through fields to the west of Standen Hall OS 745 403

Receptor	Sensitivity of Most Sensitive Receptor	Direction of View	Distance of View to Closest Boundary	Date of Photo	Weather and Lighting	Single Frame or Panorama
PROW	High	North	120 m	6 March 2012	Bright, clear and sunny	Single

	Existing View	View During Construction	View on Completion with Mitigation
View Description	View from public footpath through mature belt of trees on river banks to edge of development site.	Construction site will be an uncharacteristic intrusion into this parkland landscape	Views will be of entrance to the edge of the new residential area. The development has been designed to avoid development adjacent to the river which along with planting will soften the impact on this view to a degree.
Magnitude of Visual Change (effect)		High	High
Overall Impact		Substantial	Substantial
Significance of Effect		Significant	Significant

Viewpoint 06 Footpath through fields to the west of Standen Hall OS 745 403
(orange outline indicates visible portion of site)



Viewpoint 07 Properties on Lingfield Avenue and Highfield Close, Footpath through Fields to the north of Standen Hall OS 745 407

Receptor	Sensitivity of Most Sensitive Receptor	Direction of View	Distance of View to Closest Boundary	Date of Photo	Weather and Lighting	Single Frame or Panorama
Residential Properties and PROW	High	South	Adjacent with the PROW running through the site	6 March 2012	Bright, clear and sunny	Single

	Existing View	View During Construction	View on Completion with Mitigation
View Description	View from/ over back gardens into pastoral fields with strong hedgerow boundaries and regular mature trees. View from public footpath running through the above pastoral fields which will be the development site.	Construction site will be an uncharacteristic intrusion into this pastoral landscape.	Views will be to the edge of the new residential area. Planting will soften the impact on this view to a degree.
Magnitude of Visual Change (effect)		High	High
Overall Impact		Substantial	Substantial
Significance of Effect		Significant	Significant

Viewpoint 07 Properties on Lingfield Avenue and Highfield Close, Footpath through fields to the north of Standen Hall OS 745 407 (*orange outline indicates visible portion of site*)



Viewpoint 08 Properties on Peel Park Avenue, Langshaw Drive and Claremont Drive, Footpath along eastern edge of properties on Lingfield Avenue and Beechwood Avenue OS 747 411

Receptor	Sensitivity of Most Sensitive Receptor	Direction of View	Distance of View to Closest Boundary	Date of Photo	Weather and Lighting	Single Frame or Panorama
Residential Properties and PROW	High	South	100 m	6 March 2012	Bright, clear and sunny	Single

	Existing View	View During Construction	View on Completion with Mitigation
View description	View from/ over back gardens across pastoral field or across sports field with strong hedgerow boundaries and regular mature trees.	Construction site will be an uncharacteristic intrusion into this pastoral landscape but will be screened to a degree by rising landscape form and mature hedgerow and trees.	Views will be to the edge of the new residential area across the pastoral/ sports. Housing will be screened to a degree by rising landscape form and mature hedgerow and trees. Additional planting will soften the impact on this view further.
Magnitude of Visual Change (effect)		High	High
Overall Impact		Substantial	Substantial
Significance of Effect		Significant	Significant

Viewpoint 08 Properties on Peel Park Avenue, Langshaw Drive and Claremont Drive, Footpath along eastern edge of properties on Lingfield Avenue and Beechwood Avenue OS 747 411
The site is beyond the hedgerow. (orange outline indicates visible portion of site)



Viewpoint 09 Properties on the end of Shays Drive and along Gills Croft OS 748 409

Receptor	Sensitivity of Most Sensitive Receptor	Direction of View	Distance of View to Closest Boundary	Date of Photo	Weather and Lighting	Single Frame or Panorama
Residential Properties	High	South-west	adjacent	6 March 2012	Bright, clear and sunny	Single

	Existing View	View During Construction	View on Completion with Mitigation
View Description	View from/ over back gardens into pastoral fields with strong hedgerow boundaries and regular mature trees.	Construction site will be an uncharacteristic intrusion into this pastoral landscape	Views will be to the edge of the new residential area. Planting will soften the impact on this view to a degree.
Magnitude of Visual Change (effect)		High	High
Overall Impact		Substantial	Substantial
Significance of Effect		Significant	Significant

Viewpoint 09 Properties on the end of Shays Drive and along Gills Croft OS 748 409

(orange outline indicates visible portion of site)



Viewpoint 10 Residential properties on Pagefield Cr, Gills Croft and the end of Bretts Close and the Public Footpath passing through the Proposed Site from this Point, OS 753 412

Receptor	Sensitivity of Most Sensitive Receptor	Direction of View	Distance of View to Closest Boundary	Date of Photo	Weather and Lighting	Single Frame or Panorama
Residential Properties PROW	High	South	adjacent	6 March 2012	Bright, clear and sunny	Single

	Existing View	View During Construction	View on Completion with Mitigation
View Description	View from/ over back gardens into pastoral fields with strong hedgerow boundaries and regular mature trees.	Construction site will be an uncharacteristic intrusion into this pastoral landscape.	Views will be to the edge of the new residential area. Planting will soften the impact on this view to a degree.
Magnitude of Visual Change (effect)		High	High
Overall Impact		Substantial	Substantial
Significance of Effect		Significant	Significant

Viewpoint 10 Residential properties on Pagefield Cr, Gills Croft and the end of Bretts Close and the Public Footpath passing through the Proposed Site from this Point, OS 753 412

(orange outline indicates visible portion of site)



Viewpoint 11 Residential Property southwest of Four Lane Ends and Public Footpath passing through the Proposed Site from this Point, OS 755 407

Receptor	Sensitivity of Most Sensitive Receptor	Direction of View	Distance of View to Closest Boundary	Date of Photo	Weather and Lighting	Single Frame or Panorama
Residential Properties PROW	High	West	adjacent	6 March 2012	Bright, clear and sunny	Single

	Existing View	View During Construction	View on Completion with Mitigation
View Description	View over hedge into pastoral fields with strong hedgerow boundaries and regular mature trees. Distant views to Longridge Fells with the residential edge of Clitheroe in the mid-distance.	Construction site will be an uncharacteristic intrusion into this pastoral landscape.	Views will be to the edge of the new residential area. Planting will soften the impact on this view to a degree.
Magnitude of Visual Change (effect)		High	High
Overall Impact		Substantial	Substantial
Significance of Effect		Significant	Significant

Viewpoint 11 Residential property southwest of Four Lane Ends and Public Footpath passing through the Proposed Site from this Point, OS 755 407
(orange outline indicates visible portion of site)



Viewpoint 12 Junction of Pendle Rd and A59 , OS 756 407

Receptor	Sensitivity of Most Sensitive Receptor	Direction of View	Distance of View to Closest Boundary	Date of Photo	Weather and Lighting	Single Frame or Panorama
Public Road	Medium	West	190 m	6 March 2012	Bright, clear and sunny	Single

	Existing View	View During Construction	View on Completion with Mitigation
View Description	Filtered view through into Pastoral Fields.	Construction site in the mid-distance will be an uncharacteristic intrusion into this pastoral landscape.	Views in the mid-distance will be to the edge of the new residential area. Planting will soften the impact on this view to a degree.
Magnitude of Visual Change (effect)		Low	Low
Overall Impact		Slight/ Moderate	Slight/ Moderate
Significance of Effect		Not Significant	Not Significant

Viewpoint 12 Junction of Pendle Rd and A59 , OS 756 407

The site may just be visible from this location but perhaps only from a raised vantage point such as a lorry where roof tops would be visible. The site is not the field behind the visible hedge but is further west. *(orange outline indicates visible portion of site)*



Viewpoint 13 Layby on A59 where Crossed by Public Footpath, OS 753 404

Receptor	Sensitivity of Most Sensitive Receptor	Direction of View	Distance of View to Closest Boundary	Date of Photo	Weather and Lighting	Single Frame or Panorama
PROW Public Road	High	North-west	200 m	6 March 2012	Bright, clear and sunny	Single

	Existing View	View During Construction	View on Completion with Mitigation
View Description	Filtered view through strong hedgerow with mature trees into Pastoral Fields.	Construction site in the mid-distance will be an uncharacteristic intrusion into this pastoral landscape.	Views in the mid-distance will be to the edge of the new residential area. Planting will soften the impact on this view to a degree.
Magnitude of Visual Change (effect)		Medium	Low
Overall Impact		Moderate/ Substantial	Moderate
Significance of Effect		Significant	Not Significant

Viewpoint 13 Lay-by on A59 where crossed by Public Footpath, OS 753 404

The site is the most distant of the three green fields in the photograph (*orange outline indicates visible portion of site*)



Viewpoint 14 Representative View including a limited number of Properties on the north edge of Pendleton, Public Road (used as recognised leisure cycle route Lancashire Cycleway Regional Route 91) and Bridleway between Pendleton Hall and Mearley Hall OS 753 404

Receptor	Sensitivity of Most Sensitive Receptor	Direction of View	Distance of View to Closest Boundary	Date of Photo	Weather and Lighting	Single Frame or Panorama
Residential Properties PROW Cyclists on recognised cycle route Public Road	High	North-west	1100 m	6 March 2012	Bright, clear and sunny	Single

	Existing View	View During Construction	View on Completion with Mitigation
View Description	Distant views of site over Pastoral Fields with strong hedgerow and mature trees. Long views to the Longridge fell and Bowland Fell AONB	Construction site in the distance will be an uncharacteristic intrusion into this pastoral landscape.	The developed edge of Clitheroe will move perceptibly toward the viewer. Planting will soften the impact on this view significantly when mature.
Magnitude of Visual Change (effect)		Medium	Low
Overall Impact		Moderate/ Substantial	Moderate
Significance of Effect		Significant	Not Significant

Viewpoint 14 Representative View including a limited number of properties on the north edge of Pendleton, public road (used as recognised leisure cycle route Lancashire Cycleway Regional Route 91) and bridleway between Pendleton Hall and Mearley Hall OS 753 404

The site is visible in this green field beyond the A59 (orange outline indicates visible portion of site)



Viewpoint 15 **Representative View from Pendle Hill AONB, view from Ski slope and Wellsprings pub OS 773 389**

Receptor	Sensitivity of Most Sensitive Receptor	Direction of View	Distance of View to Closest Boundary	Date of Photo	Weather and Lighting	Single Frame or Panorama
AONB PROW Public Road	High	North-west	2500 m	6 March 2012	Bright, clear and sunny	Single

	Existing View	View During Construction	View on Completion with Mitigation
View Description	Distant views of site over AONB and Pastoral Fields with strong hedgerow and mature trees. From this particular viewpoint the artificial ski slope is visible in the foreground. Long views to the Longridge fell and Bowland Fell AONB	Construction site in the distance will be an uncharacteristic intrusion into this pastoral landscape.	The developed edge of Clitheroe will move perceptibly toward the viewer. Planting will soften the impact on this view significantly when mature.
Magnitude of Visual Change (effect)		Medium	Low
Overall Impact		Substantial/ Moderate	Moderate
Significance of Effect		Significant	Not Significant

Viewpoint 15 Representative View from Pendle Hill AONB, view from Ski slope and Wellsprings pub
OS 773 389

Site is located on the near edge of Clitheroe (orange outline indicates visible portion of site)



Appendix 10.1 Noise Terminology

2 Pages

Key Noise Terms

The ratio between the quietest audible sound and the loudest tolerable sound is a million to one in terms of the change in sound pressure. Due to this wide range, a scale based on logarithms is used in noise level measurement. The scale used is the decibel (dB) scale which extends from 0 to 140 decibels (dB) corresponding to the intensity of the sound pressure level. The ear has the ability to recognise a particular sound depending on the pitch or frequencies found at the source. Microphones cannot differentiate noise in the same way as the ear; and to counter this weakness the noise-measuring instrument applies a correction to correspond more closely to the frequency response of the ear. The correction factor is called "A Weighting" and the resulting measurements are written as dB(A). "A Weighting" refers to the noise level that represents the human ear's response to sound. The dB(A) unit is internationally accepted and has been found to correspond well with people's subjective reaction to noise. Typical dB(A) noise levels for familiar noises are given in Table 1.

Table 1 Typical Noise Levels

Approximate Noise Level dB(A)	Example
0	Limit of hearing
30	Rural area at night no wind or adverse weather conditions
40	Library
50	Quiet office without noisy machinery, such as typewriters
60	Normal conversation
70	In car noise without radio
80	Household vacuum cleaner
100	Pneumatic drill
140	Threshold of pain

Source: Amec

The noise levels given in Table 1 are sound pressure levels (L_p) and describe the noise level at a point in space. Sound power levels (L_w) are used to describe the noise output of a noise source. Noise levels vary over time depending on noise generating activities. The following indices are used to take account of these variations:

- L_{Aeq} is the equivalent continuous sound level and is the sound level of a steady sound having the same energy as a fluctuating sound over the same period. It is possible to consider this level as the ambient noise encompassing all noise at a given time. L_{Aeq} is considered the best general purpose index for environmental noise;
- L_{A90} index represents the noise level exceeded for 90 percent of the measurement period and is used to indicate quieter times during the measurement period. It is usually referred to as the background noise level;

- L_{A10} refers to the level exceeded for 10% of the measurement period L_{A10} is widely used as a descriptor of traffic noise;
- L_{Amax} is maximum recorded noise level during the measurement period;
- L_{AE} is the single event level (SEL) It is a descriptor of the total sound energy of a discrete event (e.g. a road vehicle passby), corrected to 1 second.

In addition, the following definitions may be helpful when reading this report:

- Ambient Noise: Totally encompassing sound in a given situation at a given time usually composed of sound from many sources near and far;
- Background Noise: (See L_{A90T}). The A-weighted sound pressure level of the residual noise at the assessment position that is exceeded for 90% of a given time interval, T , measured using the fast time weighting;
- Fast Time Weighting: A sound pressure level measurement using a 125ms moving average time weighting period is said to have been determined using 'fast weighting';
- Free Field: Signifies that a noise measurement has been undertaken in 'free field' conditions i.e. away from any reflecting facades e.g. building facades, close boarded fencework etc;
- Façade level: Addition of 3dB (A) façade correction to free field levels to reach noise level at the façade of a building (1 m or less);
- Basic Noise Level (BNL): Used in CRIN methodology—for road traffic noise - the basic noise level at a reference distance of 10 m away from the nearside carriageway edge* is obtained from the traffic flow, the speed of the traffic, the composition of the traffic, the gradient of the road and the road surface;
- Specific noise level, $L_{Aeq T}$: The equivalent continuous A-weighted sound pressure level at the assessment position produced by an industrial noise source over a given reference time interval;
- Rating level, $L_{Ar T}$: The specific noise level plus any adjustment for the characteristic features of the noise.

Appendix 10.2 Noise Monitoring Equipment

2 Pages



Kit 1 (Amec)

Sound Level Meter Rion NL 31 Level Meter
Serial Number: 00541628
Calibration Date: 18.05.11

Pre-amplifier: Rion NH-21
Serial Number: 11614
Calibration Date: 18.05.11

Microphone: Rion UC-53A
Serial Number: 314146
Calibration Date: 18.05.11

NA-32 02 (Amec)

Sound Level Meter Rion NA-32 Level Meter
Serial Number: 00513581
Calibration Date: 26.07.11

Pre-amplifier: Rion NH-21
Serial Number: 35683
Calibration Date: 26.07.11

Microphone: Rion UC-53A
Serial Number: 318469
Calibration Date: 26.07.11

Kit 12 (Amec)

Sound Level Meter Rion NL 31 Level Meter
Serial Number: 00583299
Calibration Date: 21.02.11

Pre-amplifier: Rion NH-21
Serial Number: 27529
Calibration Date: 21.02.11

Microphone: Rion UC-53A
Serial Number: 314474
Calibration Date: 21.02.11

Kit 5 (Amec)

Sound Level Meter Rion NL 31 Level Meter
Serial Number: 00541626
Calibration Date: 09.12.11

Pre-amplifier: Rion NH-21
Serial Number: 11612
Calibration Date: 09.12.11

Microphone: Rion UC-53A
Serial Number: 306426
Calibration Date: 09.12.11

Kit 6 (Amec)

Sound Level Meter Rion NL 31 Level Meter
Serial Number: 00541623
Calibration: Date 29.11.11

Pre-amplifier: Rion NH-21
Serial Number: 11609
Calibration Date : 29.11.11

Microphone: Rion UC-53A
Serial Number: 306478
Calibration Date: 29.11.11

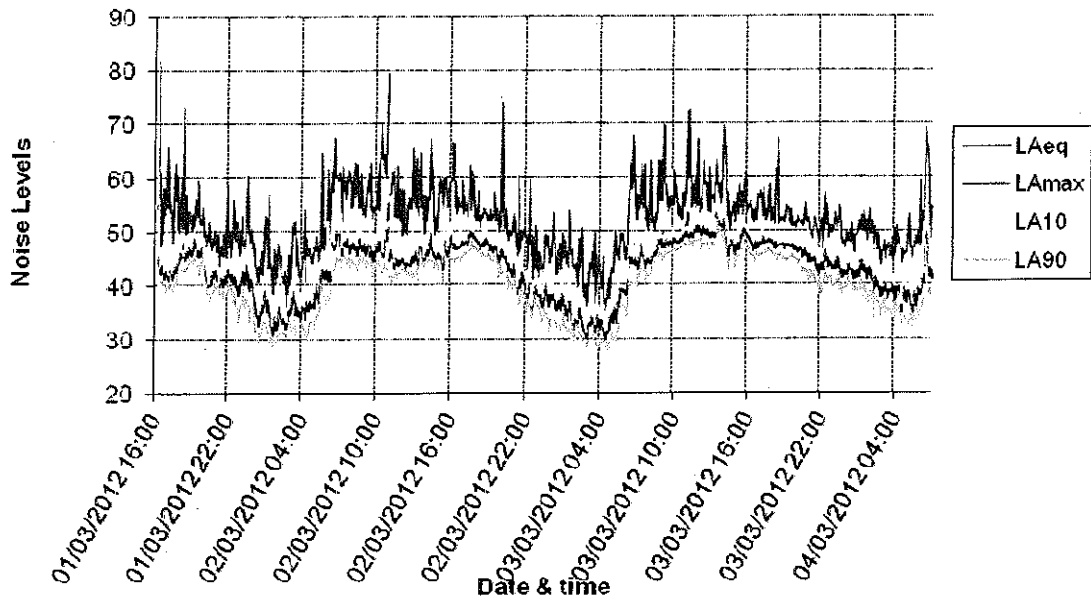
Calibrator

Calibrator: Rion NC-74
Serial Number: 34251556
Calibration Date: 21.07.11

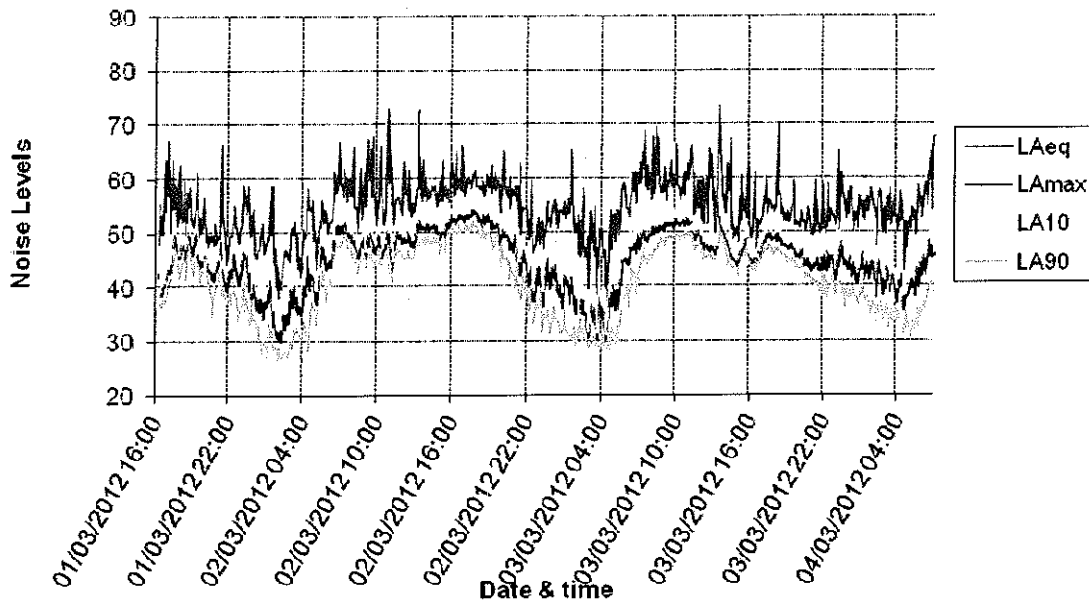
Appendix 10.3 Noise Monitoring Results

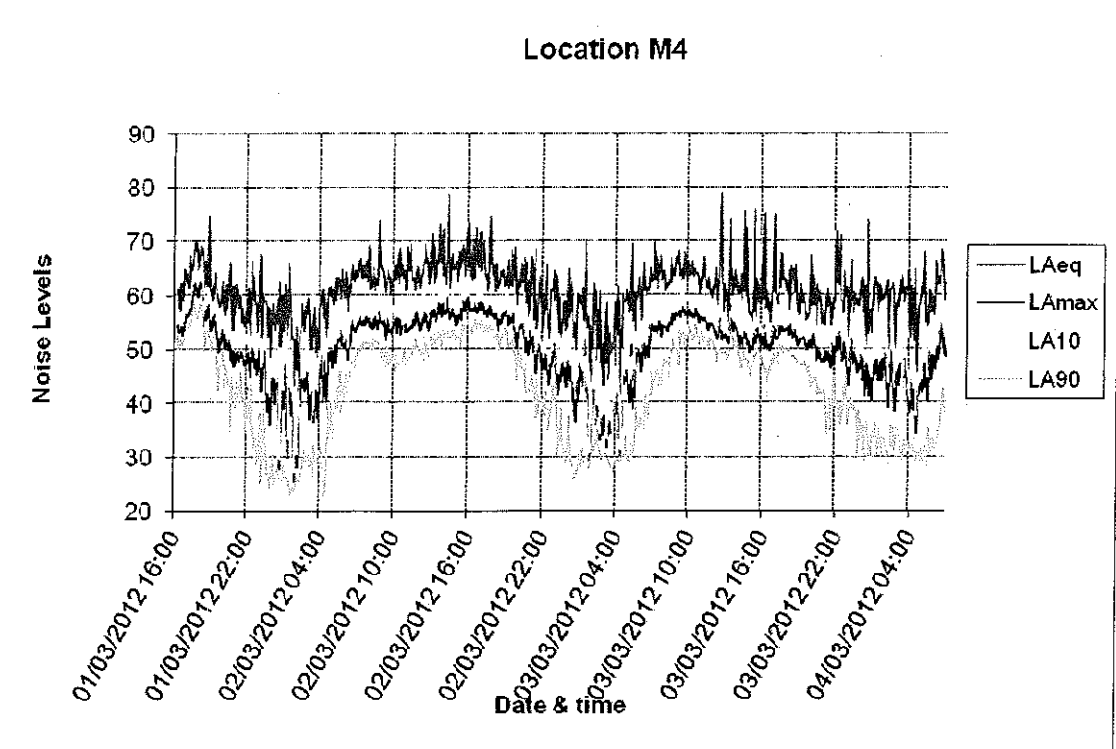
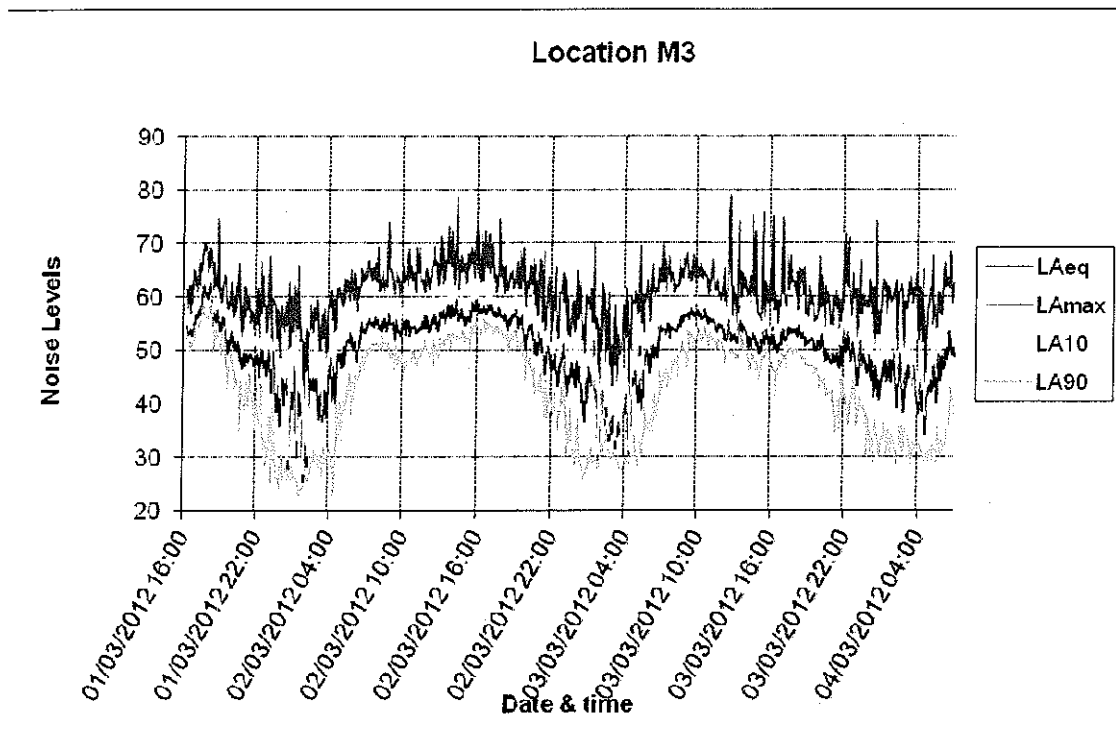
3 Pages

Location M1

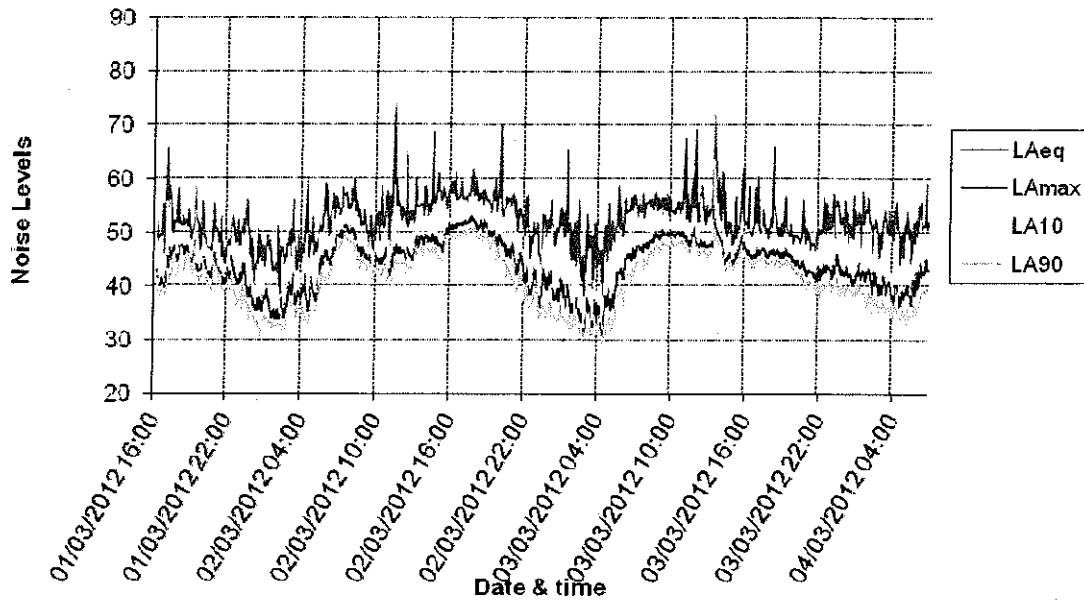


Location M2

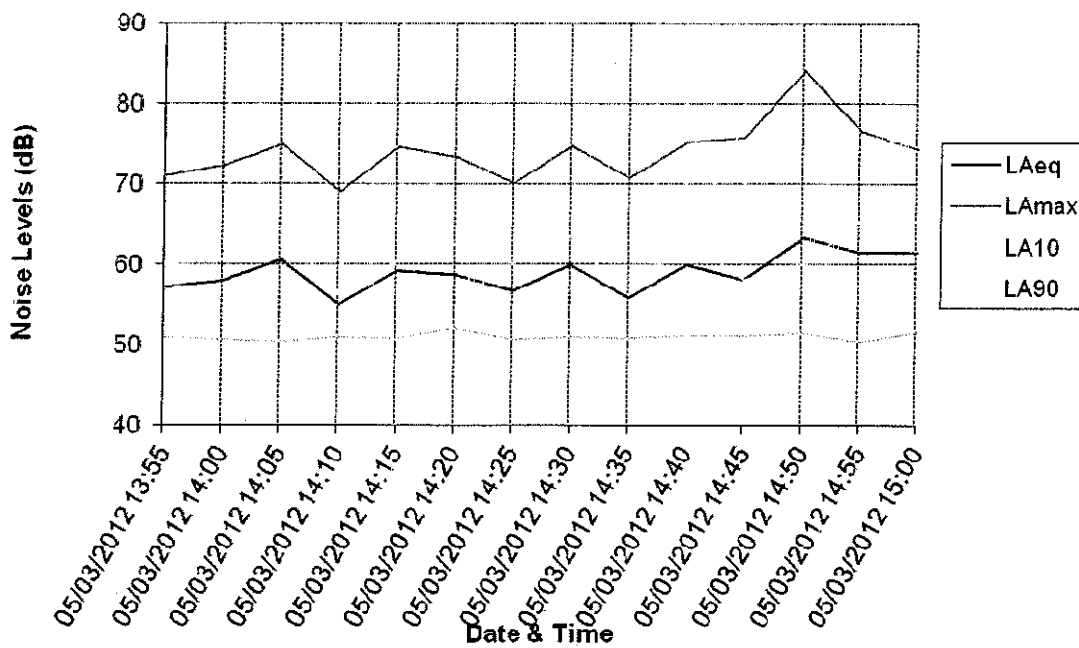




Location M5



Location M6





Appendix 10.4 Road Traffic Noise (Screening)

2 Pages



Table 10.4-1 DMRB Screening Assessment

No.	Name	Speed (kph)	Baseline (2020)		With Development (2020)		Baseline (2035)		With Development (2035)		% Increase in Total Vehicles	% Increase in Total Vehicles	Potentially Significant Change in Traffic?
			Total Vehicles	%HGV	Total Vehicles	%HGV	Total Vehicles	%HGV	Total Vehicles	%HGV			
1	A59 (north of A671 Cantburn Rd)	87.2	11101	14.0	11795	13.2	13681	14.0	14375	13.3	6.3	5.1	No
2	A59 (Pendle Rd-A671 Chatburn Rd)	86.9	13091	14.9	13786	14.2	16134	14.2	16828	14.3	5.3	4.3	No
3	A59 (A671 Whalley Rd-A671 Accrington Rd)	80.0	28908	10.0	33290	8.8	35262	10.0	40008	9.0	15.2	12.3	No
4	A671 Accrington Road	67.6	18181	9.3	20996	8.2	22406	9.3	25221	8.4	15.5	12.5	No
5	A59 (south of Accrington Rd rdbt)	74.8	16466	11.2	18033	10.3	20293	11.2	21859	10.5	9.5	7.7	No
6	A671 (Shawbridge St-Wells Terr)	40.2	13879	5.0	14764	4.8	17104	5.0	17990	4.8	6.4	5.2	No
7	A671 (Littlemoor Rd-Shawbridge St)	38.8	11113	5.6	12612	5.1	13696	5.6	15194	5.2	13.5	10.9	No
8	Pendle Rd (A671-Goosbutts Ln)	44.7	6449	5.0	9817	3.6	7948	5.0	11315	3.8	52.2	42.3	Yes
9	Goosebutts Ln	33.6	1011	4.4	1214	3.8	1246	4.4	1449	3.9	20.0	16.3	No
10A	Pendle Rd (new site access rd-Goosebutts Ln)	61.3	6548	5.0	10168	3.6	8069	5.0	11690	3.8	55.3	44.9	Yes
10B	Pendle Rd (A59 – new site access rd)	61.3	6548	5.0	11641	3.2	8069	5.0	13163	3.4	77.8	63.1	Yes

Table 10.4-1 (continued) DMRB Screening Assessment

No.	Name	Speed (kph)	Baseline (2020)		With Development (2020)		Baseline (2035)		With Development (2035)		% Increase in Total Vehicles	% Increase in Total Vehicles	Potentially Significant Change in Traffic?
			Total Vehicles	%HGV	Total Vehicles	%HGV	Total Vehicles	%HGV	Total Vehicles	%HGV			
11	A59 (A671 Whalley Rd-Pendle Rd)	85.5	16444	13.0	20826	10.5	20265	13.0	24647	10.9	26.7	21.6	Yes
12	Well Terrace	35.7	13490	6.6	14324	6.3	16625	6.6	17460	6.4	6.2	5.0	No
13	Taylor St	41.7	2154	8.9	3138	6.4	2654	8.9	3638	6.8	45.7	37.1	Yes
14	Eshton Terr.	29.0	8514	4.5	8888	4.3	10493	4.5	10867	4.3	4.4	3.6	No
15	Peel Park Av	35.4	627	3.9	728	3.5	772	3.9	874	3.5	16.2	13.1	No
16	A671 (Primrose Rd-Littlemoor Rd)	46.2	17428	6.8	17850	6.7	21479	6.8	21900	6.7	2.4	2.0	No
17	Littlemoor Rd	32.5	1384	5.2	1384	5.2	1705	5.2	1705	5.2	0	0	No
18	Unnamed (Pendle Rd-Oak Wood)	42.3	302	6.8	302	6.8	372	6.8	372	6.8	0	0	No
19	Clitheroe Rd (east of A59)	74.5	1588	7.1	1605	7.1	1957	7.1	1974	7.1	1.1	0.9	No
20	A671 (Whalley Rd-rdbt-Primrose Rd)	66.3	18445	7.5	18445	7.5	22732	7.5	22732	7.5	0	0	No

Appendix 10.5 CRTN Calculations

3 Pages



Table 10.5-1 CRTN Calculation – 2020 With and Without Development Scenarios

No.	Name	Without Development (2020)				With Development (2020)				Noise Level Change (dB)
		Total Vehicles	%HGV	Average Speed (km/h)	L _{A10, 18hr} Segment (dB)	Total Vehicles	%HGV	Average Speed (km/h)	L _{A10, 18hr} Segment (dB)	
8	Pendle Rd (A671-Goosbutts Ln)	6449	5.0	44.7	65.7	9817	3.6	44.7	67.2	1.5
10A	Pendle Rd (new site access rd-Goosebutts Ln)	6548	5.0	61.3	67.2	10168	3.6	61.3	68.9	1.7
10B	Pendle Rd (A59 – new site access rd)	6548	5.0	61.3	67.2	11641	3.2	61.3	69.2	2.0
11	A59 (A671 Whalley Rd-Pendle Rd)	16444	13.0	85.5	74.9	20826	10.5	85.5	75.6	0.7
12	Taylor Street	2154	8.9	41.7	61.9	3138	6.4	41.7	62.7	0.8

Table 10.5-2 CRTN Calculation – 2035 With and Without Development Scenarios

No.	Name	Without Development (2035)				With Development (2035)				Noise Level Change (dB)
		Total Vehicles	%HGV	Average Speed (km/h)	L _{A10, 18hr} for Segment (dB)	Total Vehicles	%HGV	Average Speed (km/h)	L _{A10, 18hr} for Segment (dB)	
8	Pendle Rd (A671-Goosbutts Ln)	7948	5.0	44.7	66.7	11315	3.8	44.7	67.9	1.2
10A	Pendle Rd (new site access rd-Goosbutts Ln)	8069	5.0	61.3	68.1	11690	3.8	61.3	69.6	1.5
10B	Pendle Rd (A59 – new site access rd)	8069	5.0	61.3	68.1	13163	3.4	61.3	69.7	1.6
11	A59 (A671 Whalley Rd-Pendle Rd)	20265	13.0	85.5	75.8	24647	10.9	85.5	76.3	0.5
12	Taylor Street	2654	8.9	41.7	62.8	3638	6.8	41.7	63.6	0.8

Table 10.5-1 CRTN Calculation – 2020 and 2035 Without Development Scenarios

No.	Name	Without Development (2020)				Without Development (2035)				Noise Level Change (dB)
		Total Vehicles	%HGV	Average Speed (km/h)	L _{A10, 18hr} for Segment (dB)	Total Vehicles	%HGV	Average Speed (km/h)	L _{A10, 18hr} for Segment (dB)	
8	Pendle Rd (A671-Goosbutts Ln)	6449	5.0	44.7	65.7	7948	5.0	44.7	66.7	1.0
10A	Pendle Rd (new site access rd-Goosebutts Ln)	6548	5.0	61.3	67.2	8069	5.0	61.3	68.1	0.9
10B	Pendle Rd (A59 – new site access rd)	6548	5.0	61.3	67.2	8069	5.0	61.3	68.1	0.9
11	A59 (A671 Whalley Rd-Pendle Rd)	16444	13.0	85.5	74.9	20265	13.0	85.5	75.8	0.9
12	Taylor Street	2154	8.9	41.7	61.9	2654	8.9	41.7	62.8	0.9



Appendix 11.1 Annualisation and Bias Adjustment of Diffusion Tubes

2 Pages

Table 11.1-1 Raw Diffusion Tube Data 2011

Tube	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Average	Average of Triplicate Tubes	Annualised Average	Bias Corrected Average
Whittle Close	n/a	n/a	n/a	n/a	n/a	n/a	n/a	10.57	8.68	20.73	23.93	15.62	15.91	n/a	17.73	16.49
Royal British Legion 1	n/a	n/a	n/a	n/a	n/a	n/a	n/a	35.31	35.58	47.92	60.88	43.14	44.57	n/a	n/a	n/a
Royal British Legion 2	n/a	n/a	n/a	n/a	n/a	n/a	n/a	34.02	25.73	46.80	64.50	41.13	42.44	n/a	n/a	n/a
Royal British Legion 3	n/a	n/a	n/a	n/a	n/a	n/a	n/a	34.48	29.93	48.71	60.20	40.85	42.83	43.28	48.25	44.87
Whalley Road	n/a	n/a	n/a	n/a	n/a	n/a	n/a	26.01	26.21	46.16	56.53	33.46	37.67	n/a	42.00	39.06
Greenacre Street	n/a	n/a	n/a	n/a	n/a	n/a	n/a	21.84	18.82	34.15	-	26.82	25.41	n/a	28.32	26.34

Notes: Tubes only in situ for Aug to Dec 2011. Royal British Legion are triplicate tubes. Bias correction factor 0.93 taken from Ribble Valley Borough Council. Average annualised using factor in Table 11.1-2.

Table 11.1-2 Annualisation of Diffusion Tube Measurements (2011)

Continuous Monitoring Site	Annual Mean (Am) - 2011	Period Mean (Pm) (Aug to Dec) - 2011	Ratio (Am/Pm)
Glazebury	18.35	15.87	1.16
Manchester	22.82	21.26	1.07
		Average Ratio	1.11

Appendix 11.2 Traffic Data

1 Page

Table 11.2-1 Traffic Data Used in the Assessment

Road	2011 Base		2020 Without Development		2020 With Development		Average Speed
	AADT	HGV%	AADT	HGV%	AADT	HGV%	kmph
Pendle Road	859	3%	943	3%	1088	3%	34
Goosebutts Lane	535	4%	587	4%	660	3%	35
Waterloo Road	11937	4%	13108	4%	13964	4%	40
Shawbridge Street	5498	4%	6037	4%	9435	3%	45
Taylor Street	1629	8%	1789	8%	2838	5%	42
Whalley Road	15386	6%	16895	6%	17345	6%	46
Greenacre	7606	4%	8352	4%	8645	4%	29
Pendle Road	5505	4%	6045	4%	11171	3%	61
A59 - South of Pendle Road	14416	11%	15830	11%	20274	9%	85
A59 – North of Chatburn Road	9925	12%	10899	12%	11568	11%	87
A59 – South of Whalley Road	25466	9%	27964	4%	32408	8%	80

Appendix 11.3 Verification

4 Pages



Table 11.3-1 Modelled Total NO₂ Vs Monitored Total NO₂ (Using 2010 Background Values)

Site	Monitored Total NO ₂	Modelled Total NO ₂	Difference ((modelled-monitored)/monitored)x100)	Within +/- 25%
5	44.87	30.72	-31.54	not within 25%
9	39.06	26.87	-31.21	not within 25%
10	26.34	30.75	16.74	within 25%

Table 11.3-2 Verification (Using Example 2 of LAQM TG (09)) – Verification Using Three Diffusion Tubes

Site	Monitored Total NO ₂	Background NO ₂	Monitored rd NO ₂ (total - bkgrd)	Monitored rd NOx (total - bkgrd)	Modelled rd NOx (excludes bkgrd)	Ratio of Monitored rd NOx/Modelled rd NOx	Adjustment Factor from Graph (Figure C.1)	Adjusted Modelled rd NOx	Modelled Total NO ₂	Monitored Total NO ₂	Difference ((modelled-monitored)/(monitored)x100) %	Within +/- 25%
5	44.87	17.19	27.68	62.66	28.03	2.235491	1.6383	45.92095	38.35	44.87	-14.5	within 25%
9	39.06	17.19	21.87	47.66	19.62	2.428789	1.6383	32.14828	32.54	39.06	-16.7	within 25%
10	26.34	17.19	9.15	18.49	28.09	0.658162	1.6383	46.02539	38.4	26.34	45.8	not within 25%

Table 11.3-3 Verification (Using Example 2 of LAQM TG (09)) -- Verification Using Two Diffusion Tubes

Site	Monitored Total NO ₂	Background NO ₂	Monitored rd NO ₂ (total - bkgrd)	Monitored rd NOx (total - bkgrd)	Modelled rd NOx (excludes bkgrd)	Ratio of Monitored rd NOx/Modelled rd NOx	Adjustment Factor from Graph (Figure C.1)	Adjusted Modelled rd NOx	Modelled Total NO ₂	Monitored Total NO ₂	Difference ((modelled-monitored)/(monitored)x100) %	Within +/- 25%
5	44.87	17.19	27.68	62.66	28.03	2.24	2.2991	64.44294	45.53	44.87	1.5	within 25%
9	39.06	17.19	21.87	47.66	19.62	2.43	2.2991	45.11513	38.03	39.06	-2.6	within 25%

Figure 11.3-1 Modelled Vs Monitored NO_x Road Contributions (verification using three diffusion tubes)

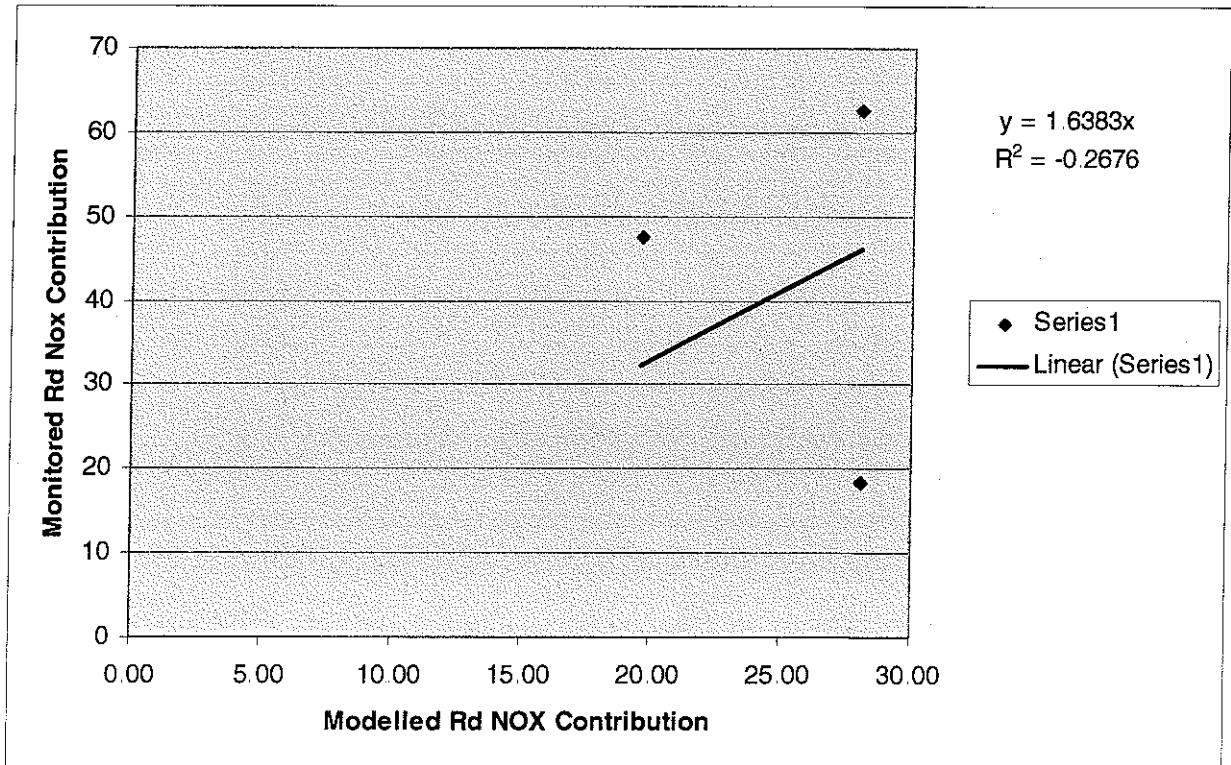
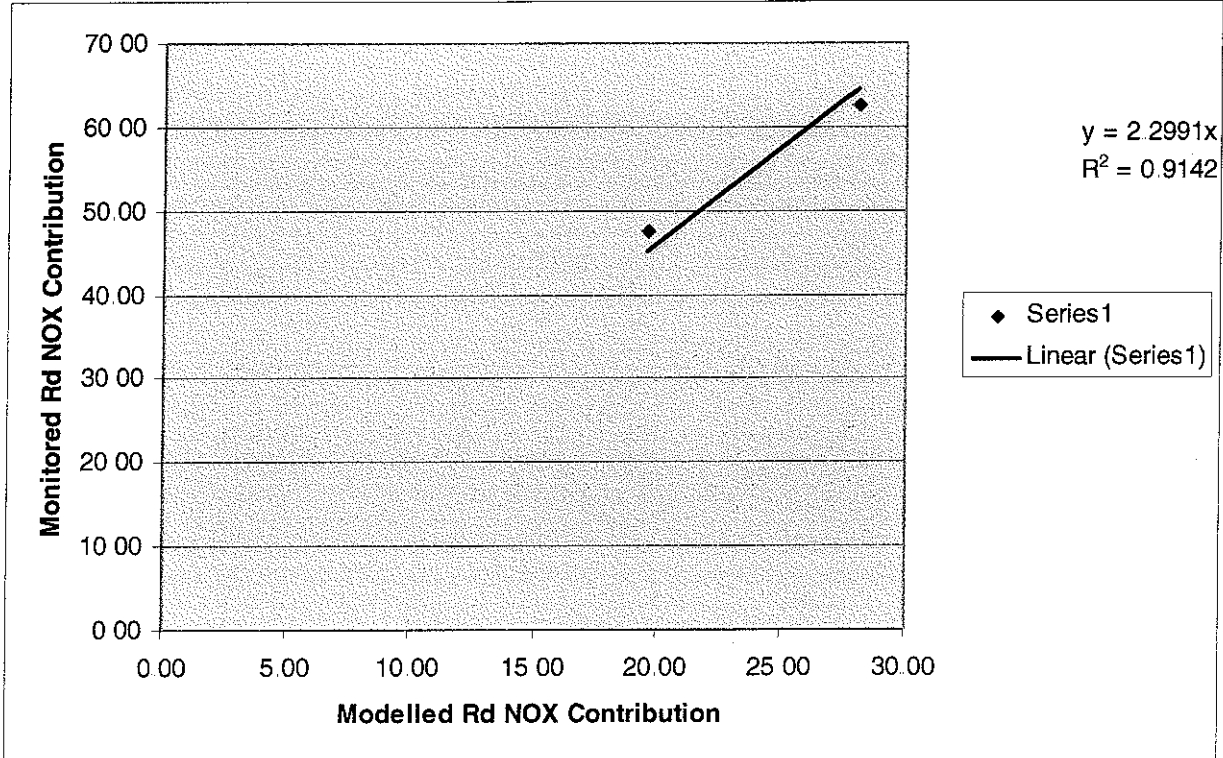


Figure 11.3-2 Modelled Vs Monitored NO_x Road Contributions (verification using two diffusion tubes)



Appendix 11.4 Dust Assessment

1 Page

Table 11.4-1 Dust Assessment

Site Activity	Taking Place?	Residential Receptor Within 350 m?	Ecological Receptor Within 200 m?	Large/Medium/Small Class	Risk Without Mitigation	Risk with Mitigation
Demolition	No	n/a	n/a	n/a	n/a	n/a
Earthworks	Yes	Yes	n/a	Large	High	Low
Construction	Yes	Yes	n/a	Large	High	Low
Track-out	Yes	Yes	n/a	Large	Medium	Low
						Overall Significance
						Slight Adverse
						Slight Adverse
						Slight Adverse
						Slight Adverse

Appendix 11.5 Results of DMRB Assessment

3 Pages

Table 11.5-1 Annual Average NO₂ Concentrations (verified) – Using 2020 Emission Factors and Background Concentrations for Future Years (µg m⁻³)

Receptor	2011 Baseline	2020 Without Development	2020 With Development	Change in Concentration	Magnitude of Change	Significance of Effects
1	17.92	16.43	16.54	0.11	imperceptible	negligible
2	18.7	17.15	17.28	0.13	imperceptible	negligible
3	34.48	33.19	33.90	0.71	small	negligible
4	19.63	17.91	18.53	0.62	small	negligible
5	45.53	41.53	41.94	0.41	small	slight adverse
6	19.34	17.64	18.01	0.37	imperceptible	negligible
7	24.00	21.78	21.84	0.06	imperceptible	negligible
8	18.20	16.36	16.60	0.24	imperceptible	negligible
9	38.03	34.05	34.23	0.18	imperceptible	negligible
10	45.58	41.65	42.07	0.42	small	slight adverse

Notes: Exceedences of annual mean NO₂ AQO of 40 µg m⁻³ shown in bold

Table 11.5-2 Annual Average PM₁₀ Concentrations (verified) (µg m⁻³)

Receptor	2011 Baseline	2020 Without Development	2020 With Development	Change in Concentration	Magnitude of Change	Significance of Effects
1	14.08	14.06	14.09	0.03	imperceptible	negligible
2	14.28	14.24	14.28	0.04	imperceptible	negligible
3	18.64	18.19	18.68	0.49	small	negligible
4	14.37	14.29	14.46	0.18	imperceptible	negligible
5	21.56	20.20	20.32	0.12	imperceptible	negligible
6	14.27	14.20	14.30	0.09	imperceptible	negligible
7	15.01	14.82	14.86	0.04	imperceptible	negligible
8	14.06	14.01	14.03	0.02	imperceptible	negligible
9	18.96	17.95	17.99	0.04	imperceptible	negligible
10	21.54	20.21	20.33	0.12	imperceptible	negligible

Table 11.5-3 Annual Average PM_{2.5} Concentrations (verified) (µg m⁻³)

Receptor	2011 Baseline	2020 Without Development	2020 With Development	Change in Concentration	Magnitude of Change	Significance of Effects
1	10.28	10.26	10.29	0.03	imperceptible	negligible
2	10.48	10.44	10.48	0.04	imperceptible	negligible
3	14.84	14.39	14.88	0.49	small	negligible
4	10.57	10.49	10.66	0.18	imperceptible	negligible
5	17.76	16.40	16.52	0.12	imperceptible	negligible
6	10.47	10.40	10.50	0.09	imperceptible	negligible
7	11.21	11.02	11.06	0.04	imperceptible	negligible
8	10.26	10.21	10.23	0.02	imperceptible	negligible
9	15.16	14.15	14.19	0.04	imperceptible	negligible
10	17.74	16.41	16.53	0.12	imperceptible	negligible

Table 11.5-4 Number of Exceedences of 24 Hour Mean PM₁₀ AQO (days)

Receptor	2011 Baseline	2020 Without Development	2020 With Development	Change in Number of Days	Magnitude of Change	Significance of Effects
1	0	0	0	<1	imperceptible	negligible
2	0	0	0	<1	imperceptible	negligible
3	2	2	2	<1	imperceptible	negligible
4	0	0	0	<1	imperceptible	negligible
5	6	4	4	<1	imperceptible	negligible
6	0	0	0	<1	imperceptible	negligible
7	0	0	0	<1	imperceptible	negligible
8	0	0	0	<1	imperceptible	negligible
9	2	1	1	<1	imperceptible	negligible
10	6	4	4	<1	imperceptible	negligible

Table 11.5-5 Annual Average NO₂ Concentrations (verified) – Using 2011 Emission Factors and Background Concentrations for Future Years (µg m⁻³)

Receptor	2011 Baseline	2020 Without Development	2020 With Development	Change in Concentrations	Magnitude of Change	Significance of Effects
1	17.92	17.99	18.11	0.12	imperceptible	negligible
2	18.70	18.85	18.99	0.14	imperceptible	negligible
3	34.48	37.67	38.15	0.48	small	slight adverse
4	19.63	19.87	20.51	0.64	small	negligible
5	45.53	46.85	47.30	0.45	small	slight adverse
6	19.34	19.50	19.89	0.39	imperceptible	negligible
7	24.00	24.65	24.68	0.03	imperceptible	negligible
8	18.20	17.90	18.23	0.33	imperceptible	negligible
9	38.03	38.72	38.92	0.20	imperceptible	negligible
10	45.58	46.91	47.36	0.45	small	slight adverse

Notes: Exceedences of annual mean NO₂ AQO of 40 µg m⁻³ shown in bold