



Town & Country Planning Act 1990

**APPEAL
ON BEHALF OF
SATNAM MILLENNIUM LIMITED**

**IN RESPECT OF
Land at Peel Hall, Warrington**

RE-OPENED PUBLIC INQUIRY 14th September 2020

**PLANNING INSPECTORATE REF:
APP/M0655/W/17/3178530**

LOCAL AUTHORITY PLANNING APPLICATION REFERENCE: 2016/28493

Proof of Evidence of Lesley Goodall

Of Miller Goodall Ltd.

AIR QUALITY

Vol 1: PROOF OF EVIDENCE

Lesley Goodall

Date: 10th August 2020

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Abbreviations

The following abbreviations are used within this report: -

ADMS-Roads	Atmospheric Dispersion Modelling System for Roads (modelling software provided by CERC Ltd)
AQMA	Air Quality Management Area
DEFRA	Department for Environment, Food and Rural Affairs
EFT	Emission Factor Toolkit (a database of vehicle emission factors produced by DEFRA for use in air quality assessments)
EIA	Environmental Impact Assessment
ES	Environmental Statement
LAQM	Local Air Quality Management
LPA	Local Planning Authority
LPCS	Local Plan Core Strategy
MGL	Miller Goodall Ltd
NO ₂	Nitrogen dioxide
NO _x	Nitrogen oxides
PM	Particulate Matter
PM ₁₀	Particles smaller than 10 micrometers in diameter
PM _{2.5}	Particles smaller than 2.5 micrometers in diameter
µg/m ³	Micrograms per cubic metre
WBC	Warrington Borough Council

1.0 Introduction

- 1.1 I am an Environmental Consultant and Director of Miller Goodall Ltd (MGL), a private company engaged by Satnam Millenium Ltd to advise on air quality matters in respect of this appeal. MGL is based at Ashworth House, Deakins Business Park, Egerton, Bolton, BL7 9RB.
- 1.2 I hold a Bachelor of Science degree with Honours in Environmental Health, a Master of Science degree in Environmental Protection and a Post Graduate Diploma in Acoustics and Noise Control. I am a Graduate Member of the Chartered Institute of Environmental Health and a Member of the Institute of Air Quality Management. I have worked as an Environmental Health Officer for just under 30 years, 26 of which I have spent specialising in pollution control.
- 1.3 MGL works within the fields of air quality and acoustics and provides services to local authorities and private clients. MGL was formed by Joanne Miller and myself in September 2004 and since that time I have been involved in assessing planning applications in respect of air quality and noise impacts for local authorities, as well as acting on behalf of developers in respect of their planning applications.
- 1.4 I have been involved with this project since January 2019. I am retained to replace Mr Nick Hawkins of Hawkins Environmental as he is unable to continue with this project.
- 1.5 Since the appeal was heard, technical updates to the main inputs used in Mr Hawkins' air quality modelling and assessment have been published by the Department of Environment Fisheries and Rural Affairs and thus the previous air quality model is outdated. New modelling has, therefore, been undertaken using the latest inputs and using methodology agreed with the Local Planning Authority (LPA).
- 1.6 In addition, at the request of the LPA, further monitoring of levels of nitrogen dioxide (NO₂) around the site has been undertaken at agreed locations and this has been utilised within the latest air quality modelling.
- 1.7 Also at the request of the LPA, updated traffic information which has been agreed with the LPA has also been produced by Highgate Transportation Ltd and used within the new assessment.

- 1.8 A new air quality assessment and supporting appendices have, therefore, been produced which reviews both the impact of traffic associated with the development on local air quality and the impact of air quality on future residents of the site.
- 1.9 On 1st July 2020 the Council's Development Management Committee resolved not to raise any objections to the development on air quality grounds.
- 1.10 The evidence which I have prepared and provide for this appeal (reference APP/M0655/W/17/3178530) in this proof of evidence is true and has been prepared and is given in accordance with the guidance of my professional institution and I confirm that the opinions expressed are my true and professional opinions.

2.0 The Site and the Surroundings

- 2.1 The development is described as:

“Outline planning application for a new mixed-use neighbourhood comprising residential institution (residential care home – use Class C2); up to 1200 dwelling houses and apartments (Use Class C3); local centre including food store up to 2000 square metres (Use Class A1); financial & professional services; restaurants and cafes; drinking establishments; hot food takeaways (Use Classes A2-A5 inclusive); units within Use Class D1 (non-residential institution) of up to 600 sq m; and family restaurant/pub of up to 800 sq m (Use Classes A3/A4); primary school; open space including sports pitches with ancillary facilities; means of access (including the demolition of 344; 346; 348; 458 and 460 Poplars Avenue) and supporting infrastructure. (All detailed matters other than access reserved for subsequent approval.) (Application is accompanied by an Environmental Impact Assessment).”

- 2.2 The planning application was submitted in outline with all matters other than access reserved for future consideration.

- 2.3 The development is located at:

“Land at Peel Hall; South of the M62 bounded by Elm Road; Birch Avenue; Poplars Avenue; Newhaven Road; Windermere Avenue; Grasmere Avenue; Merewood Close; Osprey Close; Lockerbie Close; Ballater Drive and Mill Lane, Poplars and Hulme, Warrington.”

- 2.4 Reason 1 for refusal specifically mentions air quality:

“It is considered that insufficient information has been submitted to enable the local planning authority to confirm that the potential impacts of the proposed development on the transport network would not be severe, in the terms set out in paragraph 32 of the National Planning Policy Framework. In the absence of adequate information to accurately forecast potential impact, it is not considered possible to design and deliver suitable highways/ transport mitigation, nor consequently, to confirm that the proposal would be acceptable in terms of its air quality and traffic noise effects. The submitted information contains no agreed base year model, forecast year models or Local Model Validation report. In these circumstances, therefore, the local planning authority can not confirm that there would not be a serious conflict with the following policies in the Local Plan Core Strategy for Warrington.....”

3.0 The Case for Satnam Millenium Ltd

- 3.1 The new air quality assessment is presented in Chapter 12.0 of Volume 8 of the updated ES. The new air quality assessment has been undertaken following extensive consultation with Warrington Borough Council (WBC) and has been completed using the most up to date guidance, monitoring data and emission factors available.

Existing Air Quality Close to and Across the Development

- 3.2 The majority of Warrington has good air quality and meets national air quality objectives which have been derived by Government based on medical and scientific evidence of how each pollutant affects human health. The annual average objective for NO₂ is 40 µg/m³ and the short-term NO₂ objective is that the 1-hour average of 200 µg/m³ is not exceeded more than 18 times per year. If the annual average concentration of NO₂ is less than 60 µg/m³ it is unlikely that the short-term objective will be exceeded. The annual average objective for PM₁₀ is 40 µg/m³. The annual average target for PM_{2.5} is 25 µg/m³ with a target of reducing the three-year running annual mean by 15% against 2010 base levels.
- 3.3 There are locations within Warrington’s area where the annual average objective for NO₂ is not met but these areas are close to major roads. There are no areas within Warrington where the short-term (i.e. hourly) air quality objective for NO₂ is exceeded. There are no identified locations within Warrington’s area where the annual average nor short-term objectives for PM₁₀ are exceeded nor are there exceedances of the PM_{2.5} annual average target.

- 3.4 The annual average objectives are applicable at locations where members of the public might be regularly exposed, such as residential properties, schools and hospitals. That does not include places of work or residential gardens or the kerbside. The short-term objectives apply to all locations included with the annual average objectives as well as residential gardens and places of work.
- 3.5 Where an air quality objective is unlikely to be met by the relevant deadline, as set out in the relevant legislation, local authorities must designate those areas as Air Quality Management Areas (AQMAs) and take action to work towards meeting the objectives. Two of Warrington's AQMAs are partially within and close to the development [Appendix 1]¹. They are focussed along the M62 motorway, the A49, Sandy Way West and the A50.
- 3.6 Both the Council and the Applicant have completed monitoring of NO₂ in areas close to and around the site. The Council's monitoring data for the area close to the development is presented in Table 12.15 of ES Volume 8. The Council also monitors background levels of several pollutants, including NO₂, at an automatic monitoring station located at Selby Street, approximately 3.6 km to the south-west of the development. The Council's background monitoring data at Selby Street is presented in Table 12.14 of Volume 8 of the ES.
- 3.7 Monitoring of NO₂ around the development was completed by the Applicant over a twelve-month period from February 2019 to January 2020 and this data is provided below in Table 1. Monitoring was not undertaken in August 2019. Excluding August, there are three additional instances in which data was not available at a particular location due to factors such as missing tubes or contamination in the tubes e.g. presence of insects.
- 3.8 The locations of the Applicant's monitoring positions are shown in Appendix 2².

¹ AQ10 Figure 12.5 of Volume 9 of the ES

² AQ8 Figure 12.3 of Volume 9 of the ES

Table 1 (Table 12.16 of Volume 8 of the ES) Applicant's Monthly NO₂ Results – Diffusion Tubes

Site ID	OS Grid reference	Level of nitrogen dioxide (µg/m ³)												Average
		2019											2020	
		Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	
MG1	362078, 392005	35.14	39.25	33.92	33.46	17.87	26.84	-	33.71	37.15	39.66	31.73	40.35	33.55
MG2	361702, 391896 ³	32.7	30.45	31.89	-	23.89	20.5	-	23.21	18.69	27.36	25.52	31.73	26.59
MG3	362383, 391634	38.65	25.03	32.11	25.05	26.23	20.59	-	28.75	20.12	39.31	32.79	33.92	29.32
MG4	361211, 391320	32.16	24.91	24.13	16.50	22.65	20.55	-	25.95	33.76	35.46	30.46	34.21	27.34
MG5	360660, 391642	34.28	31.47	28.28	18.99	23.96	22.75	-	31.35	33.54	35.56	32.4	38.05	30.06
MG6	360574, 391726	28.13	17.77	23.01	20.24	19.53	20.36	-	-	29.4	31	26.88	33.92	25.02
MG7	360531, 391887	32.54	41.89	31.65	28.23	31.43	28.29	-	34.01	37.37	38.1	35.34	-	33.88

The annual average air quality objective for NO₂ is 40 µg/m³

³ There is a typo in the coordinates of MG2 in Table 12.16 of the ES Addendum 2 Volume 8. The coordinates in this Proof are accurate.

- 3.9 These monitoring results indicate that annual average levels of NO₂ are;
- i. Below the annual average objective for NO₂ at less trafficked locations close to the development; and
 - ii. Below the annual average objective level of 40 µg/m³ at all monitored locations within the development site.
- 3.10 Annual average levels of PM₁₀ are well below the annual average PM₁₀ objective at the background site located at Selby Street. Concentrations of PM_{2.5} are below the annual target at Selby Street.

Assessment Parameters

- 3.11 During the previous inquiry the Inspector raised concerns in relation to air quality and it was agreed that a precautionary approach should be taken to air quality issues and that modelling and conclusions should be based on the best evidence reasonably available. Worse case conditions have, therefore, been incorporated within the assessment. Further detail of the precautionary nature of the assessment undertaken can be found in paragraph 12.3.43 of Volume 8 of the ES. To reiterate;
- i. Background levels of all pollutants included within the assessment have been held at the levels measured at Selby Street automatic monitoring station in the verification period (October 2018 to September 2019). The levels monitored at Selby Street were similar or higher than Defra background concentrations.

I consider this is a precautionary approach based on two sources; a report for WBC by Aecom⁴ (LP44) and a report published by Air Quality Consultants⁵ (LP45).

AECOM was appointed by WBC to produce a borough-wide air quality assessment of concentrations of NO₂ and particulate matter (PM₁₀ and PM_{2.5}), and carbon dioxide (CO₂) emissions from the local transport network, to support further evaluation of the growth options in the draft Local Plan Preferred Development Option. The Peel Hall site was included in this study.

⁴ Aecom (October 2018) Warrington Borough Council Local Plan Air Quality Modelling Executive Summary and Technical Report Core Document LP44

⁵ Air Quality Consultants (January 2020) *Nitrogen Oxide Trends in the Uk 2013 to 2019* Core Document LP45

The detailed NO₂ modelling presented in the AECOM report for the year 2026 demonstrates that the situation is expected to improve significantly. On average concentrations of NO₂ are predicted to fall by 22% between 2016 - 2026, and the number of properties in excess of the national and European objectives are predicted to drop by 95%. A similar, albeit less marked change is predicted for particulates: PM_{2.5} concentrations are predicted to fall by 5% during this time period. For 2036, further significant improvements are predicted.

The recent study by Air Quality Consultants (AQC) (LP45) indicates that background levels of nitrogen are expected to decrease in future years.

The executive summary of the report states;

“In October 2019, AQC reported significant reductions in ambient nitrogen oxides (NO_x) concentrations across the UK over the period 2005 to 2018. This current report extends the earlier analysis to include measurements made in 2019.

The reductions in average NO_x concentrations have continued through 2019. Furthermore, the average rate of reduction over the period 2013 to 2019 is considerably steeper than that for the 2010 to 2018 period reported previously. This is particularly true at roadside sites and is principally because of the non-linearity of the trend, with the steepest reductions occurring since 2016.

A separate analysis has been carried out to nominally remove the effects of inter-year differences in meteorology. This is because meteorology can obscure any underlying trends associated with factors such as emissions reductions. With these meteorological effects removed there is still a non-linear trend in average concentrations, with the greatest reductions occurring since 2016. NO_x concentrations at roadside sites have reduced by an average of 5.14% per year since 2013, with the average reductions since 2016 being greater than this.”

- ii. Conservatively, vehicle emission factors have been held at 2019 levels within the assessment for all scenarios. Emissions of pollutants from road vehicles are expected to decrease each year due to factors such as improvements brought about by tighter vehicle emission regulations, technology conversions in the national fleet, replacement of older vehicles, electric vehicles and improvements in fuel. These

reductions are normally reflected within the air quality model inputs; vehicle emissions within a model for 2019 will usually be higher than in a model for 2023. However, in this model, the same vehicle emission factors were used for all scenarios.

- iii. Modelling has been completed as if the development will be completed and fully occupied (operational) in 2022 which will not be the case. Full build-out will not be completed for approximately 10 years ie circa 2030, if not later, by which time background levels of NO₂, PM₁₀ and PM_{2.5} and vehicle emission will undoubtedly be lower than in 2019.
- iv. In addition, the air quality assessment takes no account of the impact of the proposed 4 m acoustic barrier to be built to the north of the development alongside the M62 motorway which will have some beneficial impact on concentrations of NO₂ and PM₁₀ at dwellings in the northern part of the Proposed Development.

3.12 The basis of modelling congested junctions was an issue raised at the previous inquiry. In this assessment, in line with guidance within LAQM TG16 at paragraphs 7.241, 7.392 and 7.399, the speed of traffic was reduced to 5 kph close to junctions known to be congested for the whole 24-hour period. Other more complex methods of modelling congestion are available but were not used due to the complexity of the model set up.

Assessment of Future Air Quality across the Site

3.13 In order to assess the levels of pollutants across an area, background pollution concentrations must be ascertained. Computer modelled concentrations from the assessed sources, in this case, roads, are then added to the background concentrations

3.14 Background data can come from a number of sources but usually comes from local background monitoring stations or data produced by Defra and the Devolved Administrations to assist local authorities in carrying out Review and Assessment of local air quality as part of their duties under the Environment Act 1995. In this case, at the request of the Council, background concentrations measured at the Council's Selby Street background automatic monitoring station were used within the assessment.

3.15 Background concentrations of NO₂ and PM₁₀ were downloaded from the Defra database and compared to the Council's monitoring data for 2018. Defra data can be seen in Table

12.13 of Volume 8 of the ES. The Defra data provides similar or lower levels of background pollution levels than the Selby Street monitor, thus the assessment uses the higher background data from the Selby Street monitor as a basis for the assessment.

- 3.16 Baseline conditions across the study area were modelled for the period covering 2019 and 2022 using exactly the same inputs in each model with the exception of traffic flow data, which is increased in 2022 to reflect growth in traffic levels. Details of the inputs into the model are provided in AQ4 of Volume 9 of the ES (Appendix 12.4 ADMS and Assessment Inputs). A number of locations were selected as sensitive receptor locations for use within the assessment. The location of these receptors can be found in Appendix 3⁶.
- 3.17 The results from the 2019 baseline model were used to verify that the model was accurate and the outcome of the verification process, agreed with the Council, indicated that the model was performing well.
- 3.19 The results of the 2022 baseline (i.e. without development) assessment of NO₂ and PM₁₀ are shown in Table 12.19 of Volume 8 of the ES and concentrations of these pollutants across the study area are shown in Appendix 4⁷ and Appendix 5⁸. These indicate that;
- i. Existing sensitive receptors are expected to experience annual average NO₂ and PM₁₀ concentrations below the respective annual average objectives;
 - ii. Annual average concentrations of NO₂ are likely to remain high along the main arterial routes through the study area such as the A50; and
 - iii. Annual average levels of NO₂ across the majority of the development site will be below the relevant air quality objective except for a small strip of land directly adjacent to the M60 motorway. No dwellings will be located within the strip of land identified. The site is, therefore, suitable for residential use.

Assessment of the impact of the Development on Air Quality

- 3.20 In order to assess the impact of the development on air quality, the 2022 baseline model was updated with new traffic data to reflect the traffic flows associated with the development. The results of the 2022 (with development) assessment are shown in

⁶ AQ9 Figure 12.4 of Volume 9 of the ES

⁷ AQ12 Figure 12.7 of Volume 9 of the ES

⁸ AQ14 Figure 12.9 of Volume 9 of the ES

Appendix 4⁹ and Appendix 5¹⁰ as well as Tables 4¹¹ and 5¹¹ below, which separates the results by pollutant type for each receptor. The tables also provide;

- i. the baseline (without development) concentration of the pollutant as an annual average level;
- ii. the concentration of the pollutant as an annual average level in the 'with development' scenario;
- iii. the change in pollutant concentration in μgm^{-3} at the receptor as a result of the development;
- iv. the % change in concentration relative to the annual average air quality objective;
- v. the resulting long-term average concentration at each receptor in 2022 as a percentage of the annual average air quality objective; and
- vi. an impact descriptor for each individual receptor.

3.21 These parameters are considered within the assessment of significance methodology laid out in 12.3.32 to 12.3.37 of Volume 8 of the ES which follows the methodology within the Institute of Air Quality Management guidance document¹² used by air quality consultants and local authorities.

Table 4: Results and Analysis of the Modelling of NO₂ for 2022 without and with the Development in Place

Receptor	Without Development	With Development	Microgram Change	% Change relative to AQAL	% of AQAL	Impact (Table 6.3 IAQM)
R1	37.16	37.46	0.3	0.75	94	Negligible
R2	34.2	35.1	0.9	2.25	88	Slight
R3	36.41	36.58	0.17	0.43	91	Negligible
R4	24.8	26.23	1.43	3.58	66	Negligible
R5	24.15	24.34	0.19	0.48	61	Negligible
R6	23.07	23.33	0.26	0.65	58	Negligible
R7	24.05	24.88	0.83	2.08	62	Negligible
R8	25.28	26.06	0.78	1.95	65	Negligible
R9	25.96	26.18	0.22	0.55	65	Negligible
R10	28.3	28.54	0.24	0.6	71	Negligible

⁹ AQ11 Figure 12.6 of Volume 9 of the ES

¹⁰ AQ13 Figure 12.8 of Volume 9 of the ES

¹¹ Table 12.23 of Volume 8 of the ES

¹² EPUK and IAQM (January 2017) *Land Use Planning and Development Control: Planning for Air Quality (v1.2)*

R11	24.47	25.13	0.66	1.65	63	Negligible
R12	25.1	26.49	1.39	3.47	66	Negligible
R13	25.68	26.78	1.1	2.75	67	Negligible
R14	26.48	26.76	0.28	0.7	67	Negligible
R15	26.13	26.4	0.27	0.67	66	Negligible
R16	26.01	26.37	0.36	0.9	66	Negligible
R17	26.7	27.35	0.65	1.63	68	Negligible
R18	35.39	35.7	0.31	0.78	89	Negligible
R19	30.46	30.84	0.38	0.95	77	Negligible
R20	32.55	32.62	0.07	0.18	82	Negligible
R21	27.97	28.08	0.11	0.27	70	Negligible
R22	25.17	25.48	0.31	0.77	64	Negligible
R23	23.28	24.18	0.9	2.25	60	Negligible
R24	23.18	23.7	0.52	1.3	59	Negligible

Table 5: Results and Analysis of the Modelling of PM₁₀ for 2022 without and with the Development in Place

Receptor	Without Development	With Development	Microgram Change	% Change relative to AQAL	% of AQAL	Impact
R1	18.51	18.54	0.03	0.06	46	Negligible
R2	18.33	18.45	0.12	0.3	46	Negligible
R3	19.59	19.62	0.03	0.08	49	Negligible
R4	17.49	17.63	0.14	0.36	44	Negligible
R5	17.23	17.26	0.03	0.08	43	Negligible
R6	17.17	17.21	0.04	0.1	43	Negligible
R7	17.34	17.46	0.11	0.28	44	Negligible
R8	17.48	17.59	0.11	0.26	44	Negligible
R9	17.47	17.50	0.03	0.08	44	Negligible
R10	17.73	17.76	0.03	0.08	44	Negligible
R11	17.29	17.38	0.09	0.24	43	Negligible
R12	17.44	17.64	0.2	0.49	44	Negligible
R13	17.52	17.67	0.15	0.37	44	Negligible
R14	17.85	17.91	0.06	0.14	45	Negligible
R15	17.76	17.80	0.04	0.09	45	Negligible
R16	17.44	17.48	0.05	0.12	44	Negligible
R17	17.55	17.65	0.09	0.23	44	Negligible
R18	18.31	18.35	0.04	0.1	46	Negligible

R19	18.06	18.11	0.05	0.13	45	Negligible
R20	18.03	18.04	0.01	0.02	45	Negligible
R21	17.66	17.67	0.01	0.03	44	Negligible
R22	17.38	17.43	0.05	0.12	44	Negligible
R23	17.18	17.30	0.12	0.29	43	Negligible
R24	17.19	17.27	0.08	0.19	43	Negligible

3.22 The impact descriptors are for the individual receptors. Overall significance is determined using professional judgement. In this case, the contour plots of with development NO₂ and PM₁₀ levels have also been considered. These are shown in Appendix 4⁹ and Appendix 5¹⁰. The contour plots are very similar for both pollutants in terms of the without and with development results. There are no significant areas of new exposure to levels of NO₂ or PM₁₀ above the relevant air quality objectives. The difference between the “without development” and the “with development” contour plots is barely perceptible except at the roundabout junction of Poplars Avenue and Capesthorpe Road.

3.23 Mr Moore raised a query with respect to the contour plots at the roundabout junction of Poplars Avenue and Capesthorpe Road and further analysis of this area was undertaken. A single grid point caused the contours to show a circular pattern in concentration due to high pollutant concentrations at the specific grid point location and the surrounding grid spacing. Subsequently, the area has been mapped with finer resolution. The updated contour plot is produced as Appendix 6 of this Proof. It indicates that along small sections of the roads within and leading into the roundabout, NO₂ concentrations are predicted to be above 40 µg/m³. However, the annual average objective does not apply to the areas shown in the plot that are expected to be exposed to NO₂ concentrations above 40 µg/m³ as there are no relevant receptors there i.e. no dwellings.

3.24 Overall then, given the conservative nature of the assessment methodology, the predicted levels of NO₂ and PM₁₀ at sensitive receptors and the magnitude of impacts, the effect of road traffic associated with the development is not significant when considered in accordance with the Institute of Air Quality Management guidance document¹².

3.26 Therefore, despite the conservative nature of the assessment, it indicates that;

- i. The site itself is suitable for residential use, with the exception of a small strip of land directly adjacent to the M60 motorway; and
 - ii. The effect of road traffic associated with the Proposed Development is not Significant in relation to annual average air quality objectives.
- 3.27 The air quality assessment has been reviewed by Warrington's Air Quality expert, Mr Richard Moore, and he has confirmed that he considers the methodology, results, assessment and conclusions used to be acceptable. A Statement of Common Ground has been drafted to this effect. The Council agrees that the additional traffic generated by the development will not cause a significant impact on local air quality. The Council no longer objects to the development on air quality grounds provided there is no building within 30 m of the southern edge of the M62 motorway.
- 3.28 The following measures have been included as integral parts of the design of the Proposed Development;
- i. Draft travel plan;
 - ii. Infrastructure to promote sustainable modes of transport to the Poplars Avenue area such as cycling and walking; and
 - iii. A range of highways improvements designed to improve traffic flows. Off-site mitigation measures include improvements to the A50/Hilden Road roundabout and proposed improvements to the A49/Cromwell Avenue/Sandy Lane West junction. Other measures being considered include: parking and traffic calming measures on Poplars Avenue; provision of bus services within the Proposed Development via diversion of existing buses; widening and improvements to the A49/Golborne Road junction; a contribution to upgraded MOVA (traffic control strategy) operation at the A49 / A50 and A50/Hallfields Road junctions; contributions to traffic management measures on Delph Lane; and contribution towards the signalisation of the Delph Lane/Myddleton Lane junction. Whilst the impacts of the development on local air quality are not significant, opportunities to mitigate impacts have been identified (for example, installation of electric vehicle charging points and infrastructure) and will also be secured by planning conditions.

4.0 Summary and Conclusions

- 4.1 The updated air quality assessment for the Peel Hall development has been completed using the most up to date guidance, monitoring data and emission factors available and has been designed to be precautionary in nature. It indicates that the site itself is suitable for residential use and that there will be no significant impact on local air quality as a result of the development. The local authority has agreed with the conclusions within the assessment and I see no reason why outline planning permission should be withheld for the development of this site on air quality grounds.



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AIR QUALITY

Vol 2: APPENDICES

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Date: 10th August 2020

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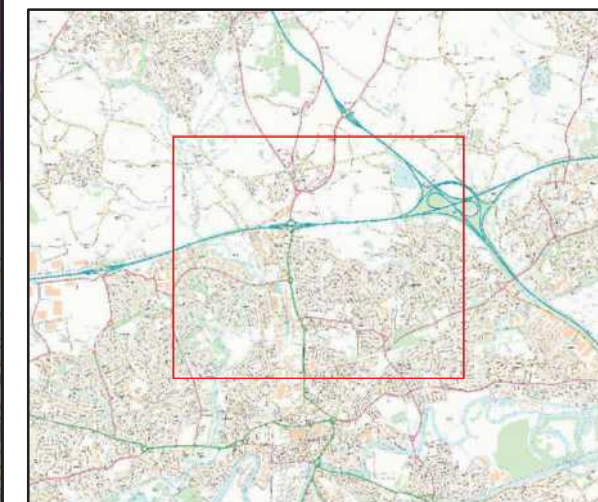
Appendix 1

Peel Hall Warrington - AQMA Locations in Relation to the Development
ES Volume 9: Figure 12.5 (AQ10)

Appendix 1: AQMA Locations in Relation to the Development

Legend

- Site
- AQMA



Rev.	Date	Drawn By	Approved By
1	06/08/2020	MH	LG

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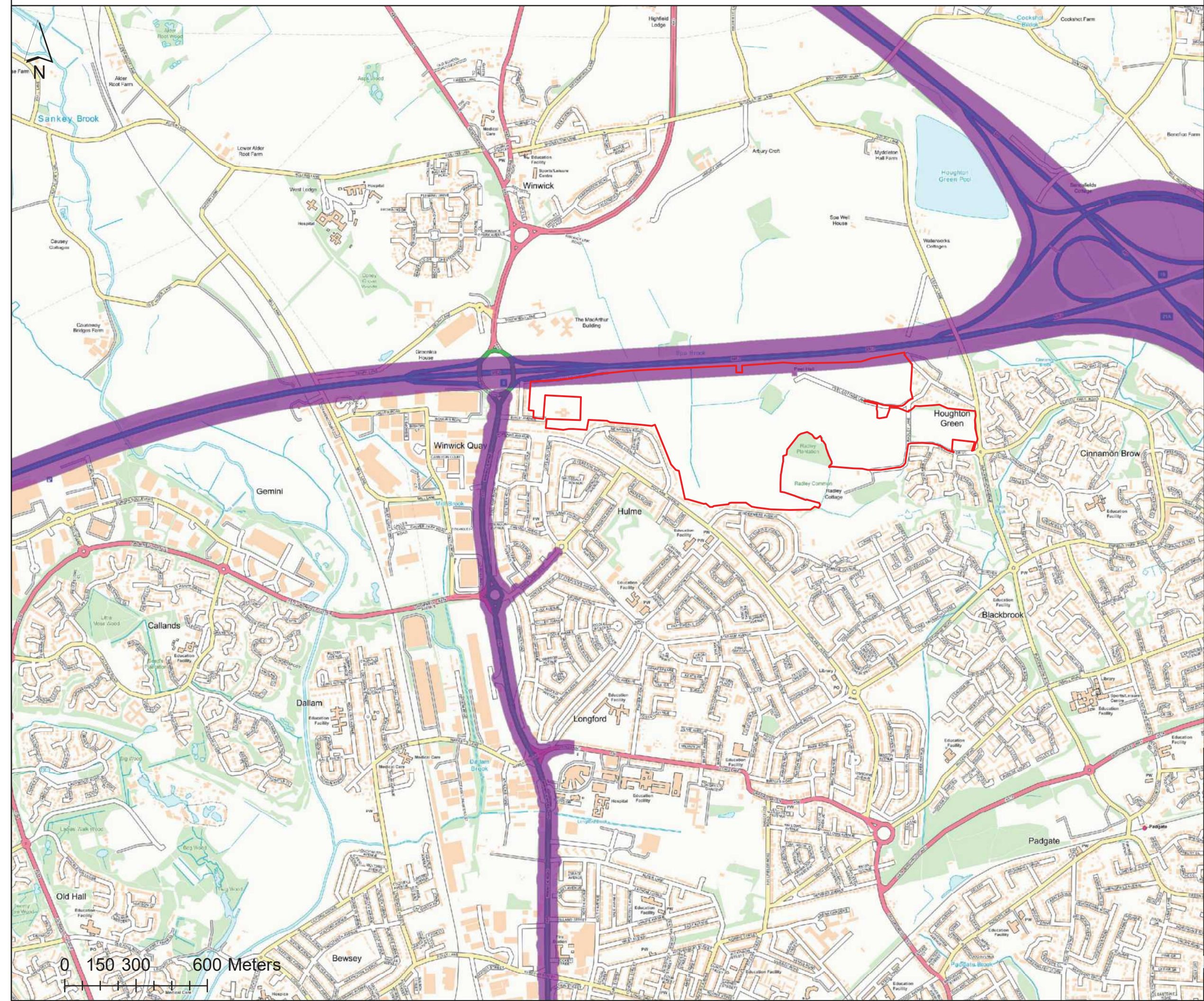
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Appendices Page 3

ES Volume 9: Figure 12.5 (AQ10)

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Appendix 2

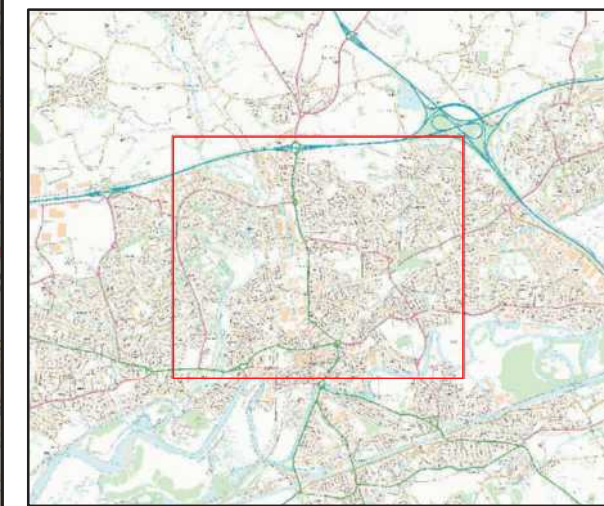
Peel Hall Warrington - Location of the Council's and Applicant's Monitoring Sites

ES Volume 9: Figure 12.3 (AQ8)

Appendix 2: Location of the Council's and Applicant's Monitoring Sites

Legend

- Site
- Monitoring sites



Rev. 1	Date 07/08/2020	Drawn By MH	Approved By LG
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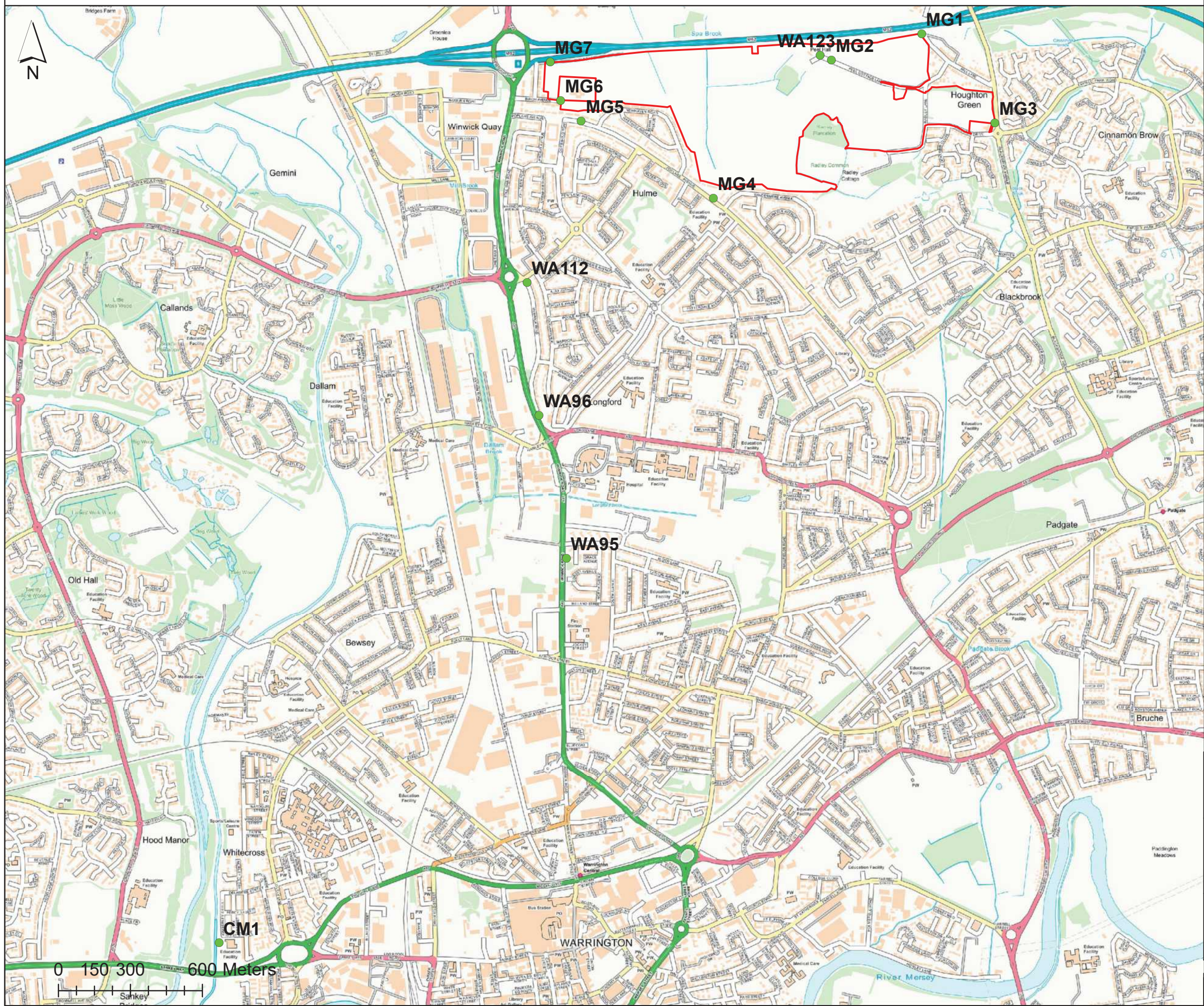
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ES Volume 9: Figure 12.3 (AQ 8)

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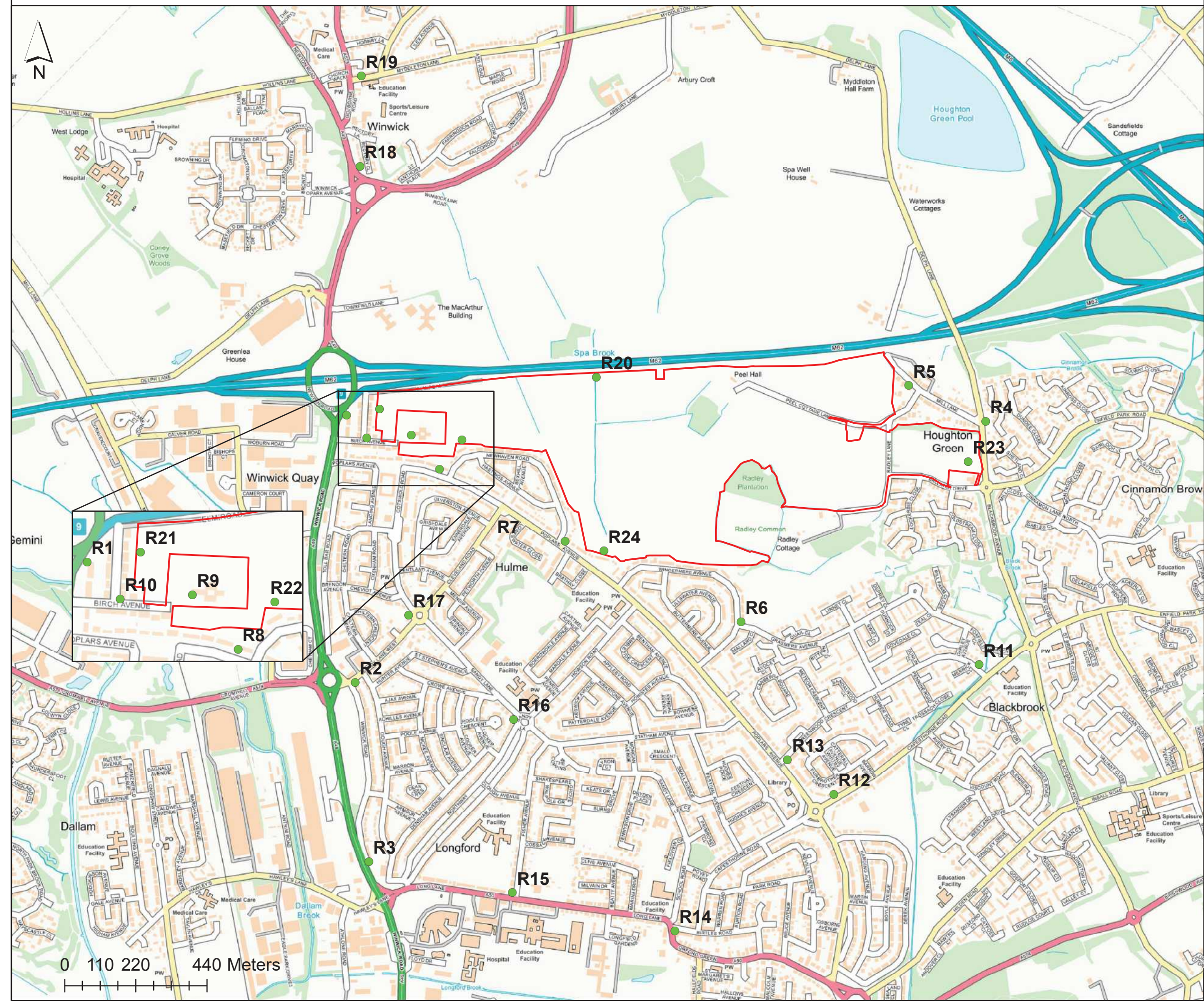
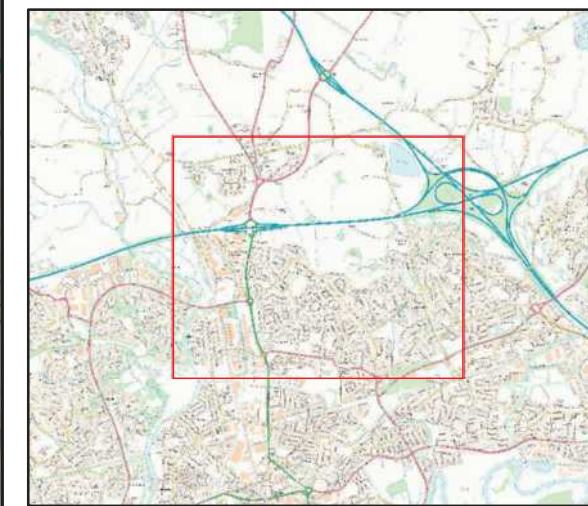
Appendix 3

Peel Hall Warrington - Location of Receptors
ES Volume 9: Figure 12.4 (AQ9)

Appendix 3: Location of receptors

Legend

- Site
- Receptors



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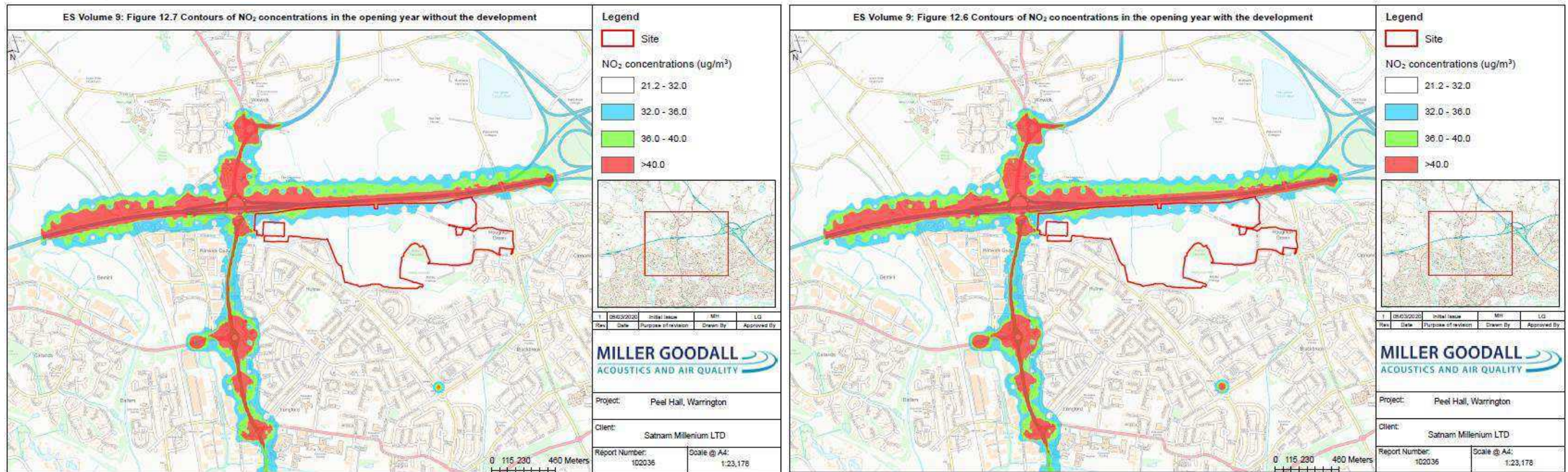
ES Volume 9: Figure 12.4 (AQ9)

Report Number: 102036	Scale @ A4: 1:11,078
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Appendix 4

Peel Hall Warrington - Contours of NO₂ concentrations in the opening year without the development (AQ12) (left) and Contours of NO₂ concentrations in the opening year with the development (AQ11) (right)
ES Volume 9: Figure 12.7 (AQ12) (left). ES Volume 9: Figure 12.6 (AQ11) (right)

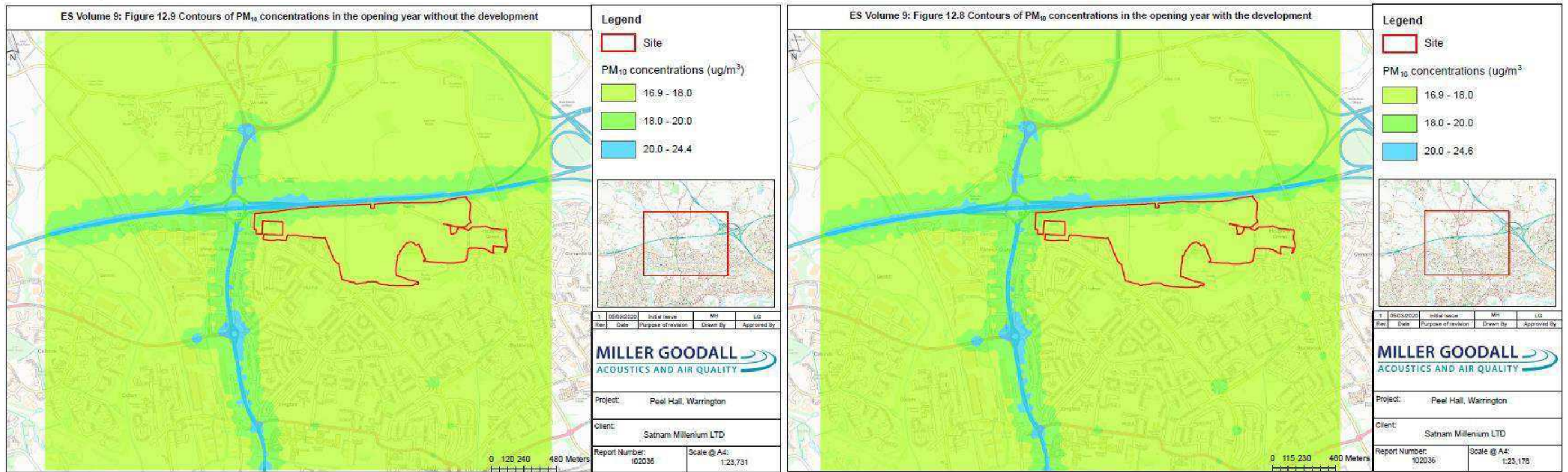
Appendix 4: Contours of NO₂ concentrations in the opening year without the development (AQ12) (left) and Contours of NO₂ concentrations in the opening year with the development (AQ11) (right) [Not to scale]



Appendix 5

Peel Hall Warrington - Contours of PM₁₀ concentrations in the opening year without the development (AQ14) (left) and Contours of PM₁₀ concentrations in the opening year with the development (AQ13) (right)
ES Volume 9: Figure 12.9 (AQ14) (left). ES Volume 9: Figure 12.8 (AQ13) (right)

Appendix 5: Contours of PM₁₀ concentrations in the opening year without the development (AQ14) (left) and Contours of PM₁₀ concentrations in the opening year with the development (AQ13) (right)
 [Not to scale]








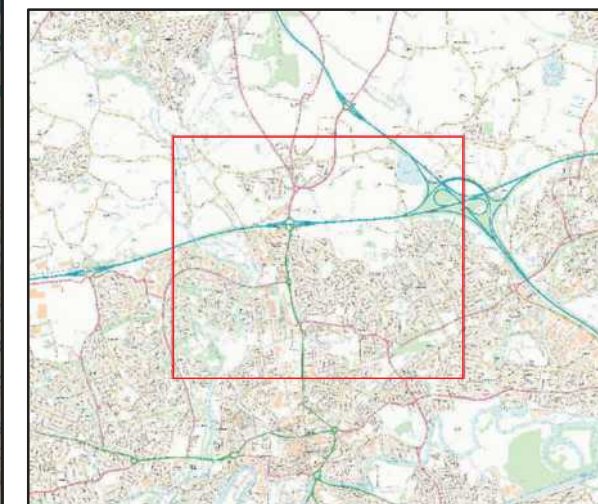
Appendix 6

Peel Hall Warrington - Updated Contours of Annual Average NO₂
Concentrations in the Opening Year With Development

Appendix 6: Updated Contours of Annual Average NO₂ Concentrations in the Opening Year With Development

Legend

-  Site
- NO₂ concentrations (ug/m³)
-  21.2 - 32.0
-  32.0 - 36.0
-  36.0 - 40.0
-  >40.0



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