

Proposed Change of Use of 103-105 Cheetham Hill Road, Manchester

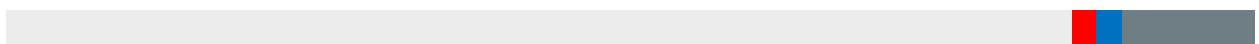
Planning application

122590/FO/2019

Air Quality Assessment

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12th August 2019



Executive Summary

An outline planning application is to be submitted to Manchester City Council for the proposed change of use of an existing building on Cheetham Hill Road in Manchester. The existing mixed office and apartment building at 103-105 Cheetham Hill Road will be converted into a budget hotel of 31 apartments, which will require the addition of third and fourth floors.

A semi-quantitative air quality assessment has been completed to investigate the suitability of the site for commercial residential use and the impact of emissions from the site on local air quality. The assessment aims to determine whether the submitted design is constrained by air quality and whether the development is consistent with the Manchester City Council Local Plan, the Greater Manchester Air Quality Action Plan and the National Planning Policy Framework (NPPF).

Best practice guidance, publicly available datasets and tools developed by DEFRA, Highways England, Environment Protection UK and the Institute of Air Quality Management have been used to assess the suitability of the site for commercial residential development and to inform the judgement of impact significance.

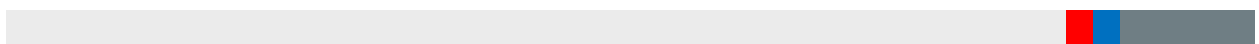
Existing air quality adjacent to the development is considered to be relatively poor, given that the site and surrounding area are located in the Greater Manchester Air Quality Management Area (AQMA). However, as there is no parking provision included in the design, the application is considered to be compliant with the NPPF Planning Policy Guidance because it will not generate any road traffic emissions. Furthermore, power for space and water heating, which is a potential emission source, will not be generated on-site. The development will therefore not adversely impact on local receptors or the Greater Manchester AQMA.

Using highly conservative assumptions, predictions of concentrations of key pollutants (nitrogen dioxide and fine particles) have been made using existing and future estimated traffic flows. The results show that exceedances of the short-term air quality objectives at the development site are unlikely to occur and the site is therefore suitable for this type of development.

The assessment has determined that there is no need for specific mitigation to be incorporated into the design to minimise the impact of existing air pollution emission sources. However, the opportunity remains for best practice measures for air emissions to be incorporated into the design, particularly during construction, and potential measures are described.

The development is compliant with the NPPF Planning Policy Guidance because the impacts from the development will be imperceptible. It is highly unlikely that the development will adversely impact the implementation of air quality strategies in the Greater Manchester Combined Authority Air Quality Action Plan or lead to breaches of national or European legislation.

This assessment demonstrates that there is no reason for refusal of the application because of poor air quality at the development site or as a result of the impact of generated emissions on local receptors and the Greater Manchester AQMA.



Introduction

An outline planning application is to be submitted to Manchester City Council (MCC), as the Local Planning Authority ('the LPA'), for the change of use of 103-105 Cheetham Hill Road, Cheetham Hill, Manchester into a budget hotel ('the development'). The development will comprise the conversion of an existing, flat roofed building which currently comprises office space and a small number of apartments over basement, ground, first and second floors. The development proposal is to convert the building into a budget hotel of some 31 apartments which will require the addition of third and fourth floors.

The applicant intends to demonstrate that the submitted design is not constrained by air quality and as such is consistent with the MCC Local Plan, the Greater Manchester Air Quality Action Plan and the National Planning Policy Framework.

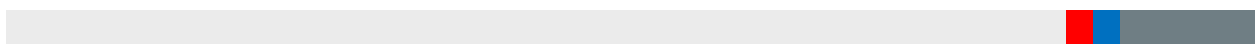
The aim of the study is to provide an impartial judgement as to the impact of the development on local air quality. This includes both assessing the suitability of the site for commercial residential development and the impact of emissions generated by the development on existing air quality. To meet the aim of the assessment, the objectives are:

- Determine existing and future air quality at the development site
- Assess the suitability of the site with respect to the exposure of patrons to existing and future air emissions
- Assess the likely effects of emissions from the development on local air quality during construction and operation
- Determine whether the impacts are significant and if air quality is a constraint to development
- Recommend design options for mitigating effects (if required)
- Determine whether the development will compromise or render inoperative the measures within the Greater Manchester Air Quality Action Plan where the development affects an Air Quality Management Area (AQMA)
- Determine any apparent conflicts with local and national planning policy.

Development Site Location

The development site is in a mixed-use area of North Manchester in proximity to retail development, light industry and transport infrastructure. This infrastructure includes the busy A665 Cheetham Hill Road, smaller local roads such as Knowsley Street and the railway line served by Manchester Victoria station, which is located to the south. The main source of air pollution at the site is from road traffic and no new parking provision is currently proposed. Space and water heating for the development will be provided using electricity from the national grid.

The existing building is located above and adjacent to the Alif Grill at 103-105 Cheetham Hill Road on the corner of Cheetham Hill Road and Knowsley Street. As such, the development



will introduce new human exposures to air pollution sources in the area and has the potential to change existing air quality through the generation of road traffic from hotel users.

Local air quality in the area is reviewed and assessed by MCC.

Regulatory Environment

National Air Quality Strategy

The Air Quality Strategy published by the Department for Environment, Food, and Rural Affairs (DEFRA) provides the policy framework (**Ref. 1**) for air quality management and assessment in the UK.

The Government has established a set of air quality standards and objectives to protect human health. The 'standards' are set as concentrations below which effects are unlikely even in sensitive population groups, or below which risks to public health would be exceedingly small.

The 'objectives' set out the extent to which the Government expects the standards to be achieved by a certain date. The objectives for use by local authorities are prescribed within the Air Quality (England) Regulations, 2000 (**Ref. 2**) and the Air Quality (England) (Amendment) Regulations 2002 (**Ref. 3**).

The objectives apply at locations where members of the public are likely to be regularly present and are likely to be exposed over the averaging period of the objective. The annual mean objectives for nitrogen dioxide (NO₂) and fine particles (PM₁₀) are considered to apply at the façades of residential properties, nurseries, schools and hospitals but not at hotels. The 24-hour objective for PM₁₀ is considered to apply at the same locations as the annual mean objective, as well as in gardens of residential properties and at hotels. The 1-hour mean objective for NO₂ applies wherever members of the public might regularly spend 1-hour or more, including outdoor eating locations and pavements of busy shopping streets.

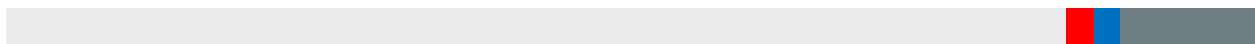
The objectives of relevance to the assessment are shown in **Appendix 1**.

A new Clean Air Strategy (**Ref. 4**) was published in January 2019 and includes a number of objectives including 'targeted local action' in problem areas and the provision of new powers for local authorities to tackle air pollution in such areas.

National Planning Policy Framework

The National Planning Policy Framework (NPPF) (**Ref. 5**) sets out planning policy for England in one place. It places a general presumption in favour of sustainable development, stressing the importance of local development plans, and states that the planning system should perform an environmental role to minimise pollution.

The NPPF is supported by Planning Practice Guidance (PPG) (**Ref. 6**), which includes guiding principles on how planning can take account of the impacts of new development on air quality. The PPG states that "*Defra carries out an annual national assessment of air quality using*



modelling and monitoring to determine compliance with EU Limit Values” and “It is important that the potential impact of new development on air quality is taken into account ... where the national assessment indicates that relevant limits have been exceeded or are near the limit”. The role of the local authorities is covered by the Local Air Quality Management (LAQM) regime, with the PPG stating that local authority Air Quality Action Plans “identify measures that will be introduced in pursuit of the objectives”.

The PPG states that “Whether or not air quality is relevant to a planning decision will depend on the proposed development and its location. Concerns could arise if the development is likely to generate air quality impact in an area where air quality is known to be poor. They could also arise where the development is likely to adversely impact upon the implementation of air quality strategies and action plans and/or, in particular, lead to a breach of EU legislation (including that applicable to wildlife)”.

The PPG sets out the information that may be required in an air quality assessment, making clear that “Assessments should be proportional to the nature and scale of development proposed and the level of concern about air quality”. It also provides guidance on options for mitigating air quality impacts, as well as examples of the types of measures to be considered. It makes clear that “Mitigation options where necessary, will depend on the proposed development and should be proportionate to the likely impact”.

Manchester Local Development Framework

The Core Strategy was adopted by MCC on 11th July 2012 (**Ref. 7**). It is the key document in Manchester's Local Development Framework and covers a period of 15 years from 2012 to 2027. It outlines the Council's vision for Manchester in 2027 along with the planning policies which will be used to deliver that vision. These include:

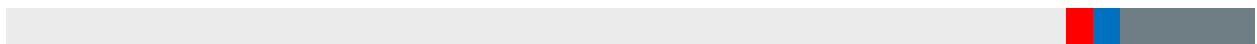
Policy CC 5- Transport

“...Proposals will be supported that improve pedestrian safety, improve air quality and increase the scope for accessible public realm improvements...”

Policy EN 16 - Air Quality

The Council will seek to improve the air quality within Manchester, and particularly within AQMAs, located along Manchester's principal traffic routes and at Manchester Airport. Developers will be expected to take measures to minimise and mitigate the local impact of emissions from traffic generated by the development, as well as emissions created by the use of the development itself, including from Combined Heat and Power and biomass plant.

When assessing the appropriateness of locations for new development the Council will consider the impacts on air quality, alongside other plan objectives. This includes cumulative impacts, particularly in AQMAs.



Policy DM 1 - Development Management

All development should have regard to the following specific issues for which more detailed guidance may be given within a supplementary planning document:

Effects on amenity, including privacy, light, noise, vibration, air quality, odours, litter, vermin, birds, road safety and traffic generation. This could also include proposals which would be sensitive to existing environmental conditions, such as noise.

Consultation on a Greater Manchester's Plan for Homes, Jobs and the Environment was held between January and March 2019.

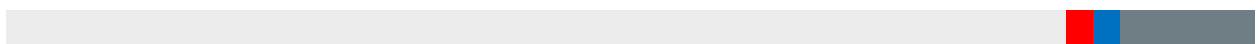
Greater Manchester Air Quality Action Plan

The Greater Manchester Combined Authority published the Greater Manchester Air Quality Action Plan (AQAP) 2016-2021 (**Ref. 8**). The AQAP involved a review of the strategies, policies and plans which tackle or are in some way related to air quality, to develop a clear, robust and meaningful set of actions to deliver real changes in terms of air quality, whilst supporting the sustainable economic growth of the region.

No specific actions are mentioned with respect to air quality in Cheetham Hill or on Cheetham Hill Road.

Draft Clean Air Plan

MCC is currently drafting a Clean Air Plan which will include a list of actions to enable the Council and other Greater Manchester Authorities to meet statutory obligations with respect to NO₂ concentrations in the shortest time possible. This is likely to include the introduction of a Clean Air Zone from 2021 in which the most polluting vehicles would be required to pay a financial penalty to enter the zone. This is likely to apply to vehicles used for public services and commerce only.



Existing Environment

Emission Sources

The key local source of air pollution which currently impacts on air quality at the development site is road traffic. Vehicle exhaust gas emissions are produced by traffic using Cheetham Hill Road (A665) and slow-moving traffic on Knowlsley Street and Bent Street adjacent to the development site. Therefore, this assessment focusses on the potential impact of emissions from road traffic on local air quality at, and in proximity to, the development site.

Sensitive Receptors

The development site is considered to consist of medium sensitivity receptors because it will introduce new human exposures to air pollution. However, the development is considered to be less sensitive than a residential development because it will be occupied by people for shorter periods of time.

The development is adjacent to several other sensitive receptors, which are locations that could be impacted by changes in air emissions relating to traffic from the development.

The closest sensitive receptors, which could be impacted by permanent effects related to increases in traffic caused by the development during construction and operation, include medium sensitivity receptors on Cheetham Hill Road (Alif Grill, Derby Brewery Arms, Bukhara Manchester, Cleopatra Trading and Influence) and on Knowlsley Street (Brezza Bazaar).

Air Quality Management Areas

Concerns about air quality are manifest in the Greater Manchester AQMA, the boundaries of which were declared in 2016 because of exceedances of the annual mean NO₂ objective. The section of the AQMA relevant to the Cheetham Hill area is the arterial route along Cheetham Hill Road shown in the centre of **Figure 1**.

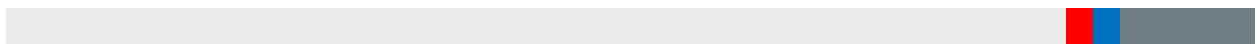
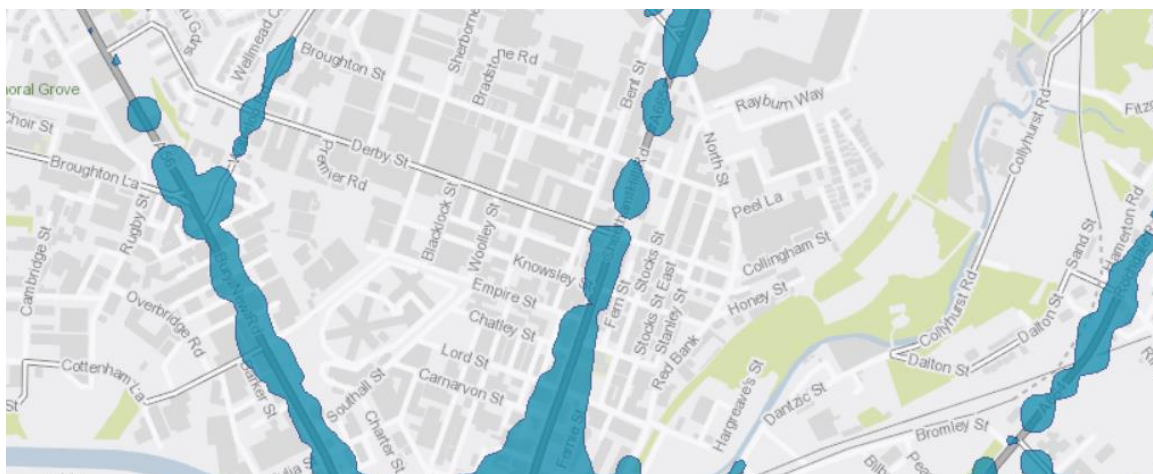


Figure 1. Greater Manchester AQMA (Ref. 9)



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Figure 1 shows the development site is located inside to the Greater Manchester AQMA, which follows the A635 Cheetham Hill Road north of Manchester city centre.

Background Air Quality

The development site centre is located at OS grid reference 384175, 399657, which corresponds to DEFRA 1 km² mapped background square 384500, 399500 within the MCC area **Ref. 10**). The background squares surrounding the development site centre are all located in an area for which MCC is responsible for the review and assessment of local air quality.

Table 1 (NO₂) and **Table 2** (PM₁₀) show the concentrations extracted for the site centre and eight surrounding 1 km² grid squares. Apportionment of sources contributing to total background NO₂ (the key pollutant of concern) show that the main contributions in this area of Manchester are made by the A-roads, cold start emissions on local roads, domestic heating and rural sources.

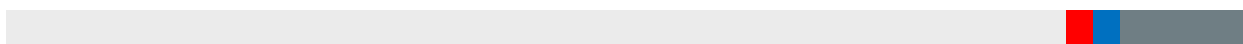


Table 1. Background NO₂ concentrations (µg/m³)

X	Y	Pollutant	2017	2019	2020	2030
384500	399500	NO ₂	25.6	23.6	22.5	16.9
383500	399500	NO ₂	23.9	22.0	21.0	15.9
385500	399500	NO ₂	24.5	22.5	21.4	16.0
383500	400500	NO ₂	21.8	20.1	19.2	14.1
384500	400500	NO ₂	21.5	19.8	18.9	14.1
385500	400500	NO ₂	22.1	20.3	19.3	14.3
383500	398500	NO ₂	30.5	28.4	27.1	20.9
384500	398500	NO ₂	33.2	30.8	29.5	22.5
385500	398500	NO ₂	27.0	25.0	23.9	18.4
Maximum			33.2	30.8	29.5	22.5
Annual mean objective			40			

Table 2. Background PM₁₀ concentrations (µg/m³)

X	Y	Pollutant	2017	2019	2020	2030
384500	399500	PM ₁₀	12.2	11.9	11.7	11.4
383500	399500	PM ₁₀	11.9	11.6	11.4	11.1
385500	399500	PM ₁₀	12.0	11.7	11.6	11.2
383500	400500	PM ₁₀	12.2	11.9	11.8	11.4
384500	400500	PM ₁₀	12.0	11.7	11.6	11.2
385500	400500	PM ₁₀	12.2	11.9	11.8	11.5
383500	398500	PM ₁₀	12.9	12.5	12.3	12.0
384500	398500	PM ₁₀	13.5	13.2	13.0	12.6
385500	398500	PM ₁₀	12.1	11.8	11.6	11.2
Maximum			13.5	13.2	13.0	12.6
Annual mean objective			40			

Table 1 and **Table 2** show the highest background NO₂ and PM₁₀ concentrations are mapped in square 384500,398500 in the city centre. However, none indicate an exceedance of the annual mean objectives of 40 µg/m³. Both tables show a downward trend in NO₂ and PM₁₀ between 2017 and 2030, which is stronger for NO₂ and PM₁₀.

Local Monitoring Data

A review of the Greater Manchester Combined Authority Annual Status Report (ASR) shows that no monitoring data has been or is currently collected on Cheetham Hill Road. However, for the purpose of assessing the performance of the Design Manual for Roads and Bridges (DMRB) local air quality screening spreadsheet, which is used to assess site suitability, data were collected for roadside monitoring sites over 1 km away with exposure to similar traffic flow conditions as Cheetham Hill Road. These sites and corresponding results for 2017 are shown in **Table 3**.

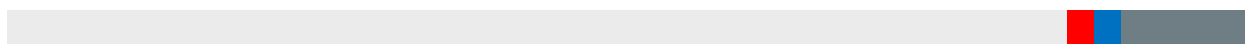


Table 3. NO₂ diffusion tube monitoring data (µg/m³)

Site	ID	X	Y	Distance to kerb (m)	2014	2015	2016	2017
A56 Bury New Road	SA14	382833	401035	3.0	31.8	31.9	35.5	36.4
A664 Rochdale Road	36	385205	399750	6.8	32.5	32.8	40.1	34.4

Table 3 shows that the concentrations recorded at SA14 on the A56 remained consistently under the 40 µg/m³ annual average objective between 2014 and 2017. However, in 2016 and 2017 the site was within 5 µg/m³ of the objective. At site 36 on the A664, the roadside concentration was over the objective in 2016 and within 6 µg/m³ in 2017. The consistency of the diffusion tube results indicates the reliability of these sites for the purpose of validating modelled predictions.

The closest Automatic Urban and Rural Network (AURN) monitor to the development site is located in a pedestrianized zone at Manchester Piccadilly. The site is located 200m from Portland Street and provides a measure of urban background conditions in this area of north-central Manchester. Recent results for this AURN site are shown in **Table 4**.

Table 4. Manchester Piccadilly urban background monitoring data (µg/m³)

Site	ID	Pollutant	X	Y	2015	2016	2017	2018
Manchester Piccadilly	MAN3	NO ₂	384311	398337	39.4	40.1	35.7	34.6
Manchester Piccadilly	MAN3	PM _{2.5}	384311	398337	10.5	10.2	8.4	10.9

Table 4 shows that the urban background concentrations of NO₂ in north-central Manchester marginally exceeded the NO₂ annual mean objective in 2016 and were within 6 µg/m³ of the objective in 2017 and 2018. Monitored concentrations of PM_{2.5} were consistently shown to be less than half of the annual mean objective (25 µg/m³).

Local Climate

Figure 2 shows the average annual wind direction and speed distribution from Manchester Airport which can be considered representative of the development site by proximity.

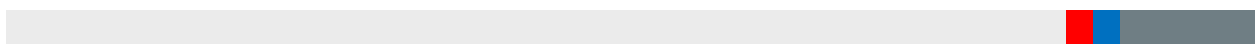


Figure 2. Indicative wind conditions at the development site (Ref. 11)

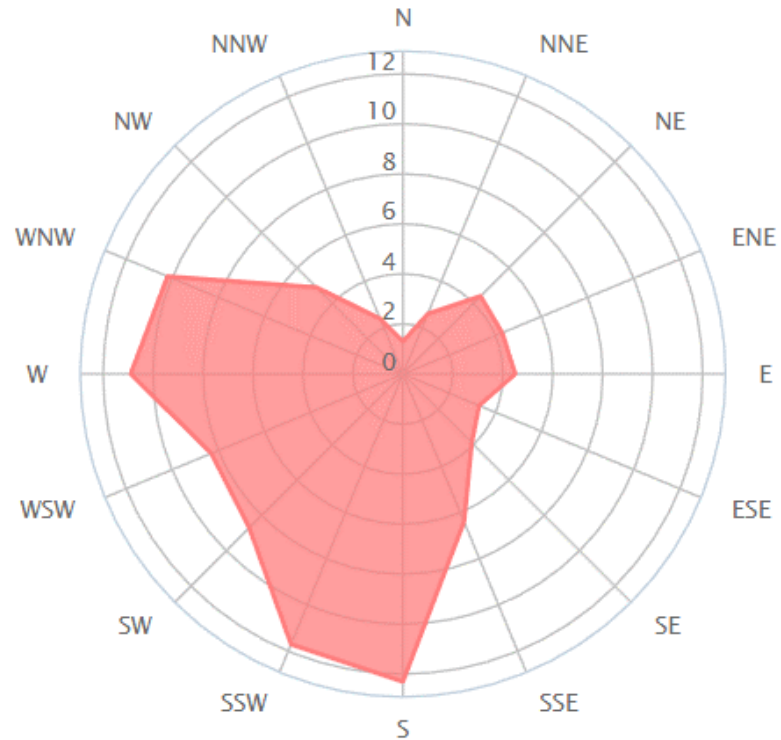


Figure 2 shows that the prevailing wind blows almost exclusively from the west and south, which disperses pollutants from these directions away from the respective emissions source. Pollutants produced by vehicle movements on Cheetham Hill Road will disperse to the north and east away from the development site for the majority of hours.

Assessment Method

Impact on the Greater Manchester AQMA

Environment Protection UK and the Institute of Air Quality Management (IAQM) have published guidance for the consideration of air quality within the land-use planning and development control process 'Land Use Planning & Development Control: Planning for Air Quality' (**Ref. 12**) (Planning Guidance). This guidance document has been used to assist the assessment of local air quality impacts from the development.

To assess the impact of the development on the local area, **Stage 1** of the process requires the comparison of the application against the criteria in **Table 5** to screen the need for a detailed air quality assessment:

Table 5. Stage 1 screening criteria for air quality assessment

Criteria to Proceed to Stage 2
A. If any of the following apply: 10 or more residential units or a site area of more than 0.5ha - more than 1,000 m² of floor space for all other uses or a site area greater than 1ha
B. Coupled with any of the following: - the development has more than 10 parking spaces - the development will have a centralised energy facility or other centralised combustion process
Note: Consideration should be given to the potential impacts of neighbouring sources on the site even if the surrounding area is screened out.

If any of the criteria are met in **Table 5**, it is considered necessary to screen the application further because significant effects are possible.

The Planning Guidance advises additional **Stage 2** screening in which several additional criteria are provided. The criteria relevant to the development are described in **Table 6**.

Table 6. Stage 2 screening criteria for air quality assessment

The development will	Indicative Criteria to Proceed to an Air Quality Assessment
2. Cause a significant change in Heavy Duty Vehicle (HDV) flows on local roads with relevant receptors (HDV=goods vehicles and buses >3.5t gross vehicle weight	A change of HDV flows of: - more than 25 AADT within or adjacent to an AQMA - more than 100 AADT elsewhere

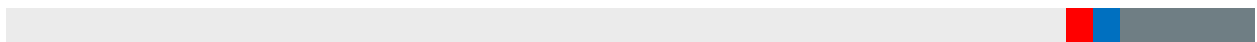


Table 6 shows the screening criteria applied at Stage 2, which indicates detailed assessment is required if the development will generate more than 25 vehicles a day within or adjacent to an AQMA or 100 vehicles elsewhere.

The development design information shown in **Appendix 2** has been reviewed to provide the information required to complete screening in accordance with the Planning Guidance.

Site Suitability

As the site is located within the Greater Manchester AQMA, the impact of the local area's emissions on the development itself is required to assess the exposure of hotel users. This was assessed following relevant DEFRA guidance – Local Air Quality Management Technical Guidance (LAQM.TG(16)) (**Ref. 13**) – and the methodology used by Local Authorities to semi-quantitatively assess roadside emissions from road traffic.

Pollutants

The assessment of site suitability focusses on emissions from road traffic for which NO₂ and PM₁₀ are of key concern to local authorities in urban areas. Although predictions of annual average concentration are made for NO₂ and PM₁₀ and compared to the objectives, the assessment against the short-term averaging periods for these pollutants are of more concern because patrons will not habit the hotel on a permanent basis.

Measurements across the UK have shown that the 1-hour mean NO₂ objective is unlikely to be exceeded unless the annual mean NO₂ concentration is greater than 60 µg/m³. Thus, exceedances of 60µg/m³ as an annual mean NO₂ concentration are used as an indicator of potential exceedances of the 1-hour mean objective, as stated in *paragraph 7.91 of LAQM.TG(16)*.

The LAQM guidance sets out the method by which the number of days in which the PM₁₀ 24-hour objective is exceeded and can be obtained by local authorities. It is based on a relationship with the predicted PM₁₀ annual mean, thus:

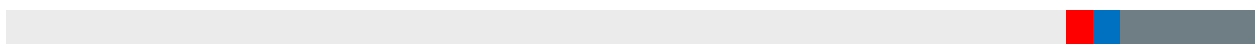
*No. of 24-hour mean exceedances = -18.5 + 0.00145 * annual mean³ + (206/annual mean)*

DMRB Screening Tool

The Highways England DMRB screening tool spreadsheet (v1.03c, 2007) ('DMRB screening tool') was used to estimate pollutant concentrations at the development site using traffic and air quality monitoring data.

Emission Factors

The DMRB screening tool includes emission factors embedded which are based on projections of the vehicle fleet made in 2007. It is accepted that emissions control has improved since 2007 with the introduction of cleaner Euro V and Euro VI vehicles to the fleet. However, Highways England interim advice note (IAN 170/12) (**Ref. 14**) indicates that the anticipated rate of reduction in roadside NO₂ concentrations over time has been less than expected with little or no reduction in roadside NO₂ between 2004 and 2010.



To prevent the under-estimation of NO₂ concentrations due to the uncertainty in the rate of reduction in roadside NO₂, 2010 emissions factors are applied to all assessment scenarios. This is likely to be a conservative approach because some reduction in emissions will be have been realised in this period. Another highly conservative scenario has been completed where the maximum background concentration of the eight surrounding DEFRA grid squares to the development site (**Table 1** and **Table 2**) has been applied. This square is located in central Manchester to the south of the development site.

The scenarios used to assess local air quality impacts are shown in **Table 7**.

Table 7. Assessment scenarios

Scenario	Emission year	Conservatism	Background square		Background year
			Development Site (384500, 399500)	City centre (384500, 398500)	
Current year 2019	2010	✓	✓		2019
Current year 2019	2010	✓✓		✓	2019
Assumed opening year 2020	2010	✓	✓		2020
Assumed opening year 2020	2010	✓✓		✓	2020
Future assessment 2030	2010	✓	✓		2030
Future assessment 2030	2010	✓✓		✓	2030

Sensitive Receptors

One location within the development site was chosen to represent human exposure as shown in **Figure 3**, which is labelled 'R1'. This location corresponds to the closest point of possible exposure of the development to traffic on Cheetham Hill Road. This has been measured at a distance of exactly 10m from Cheetham Hill Road and is representative of the entire development façade.

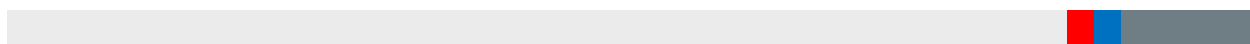
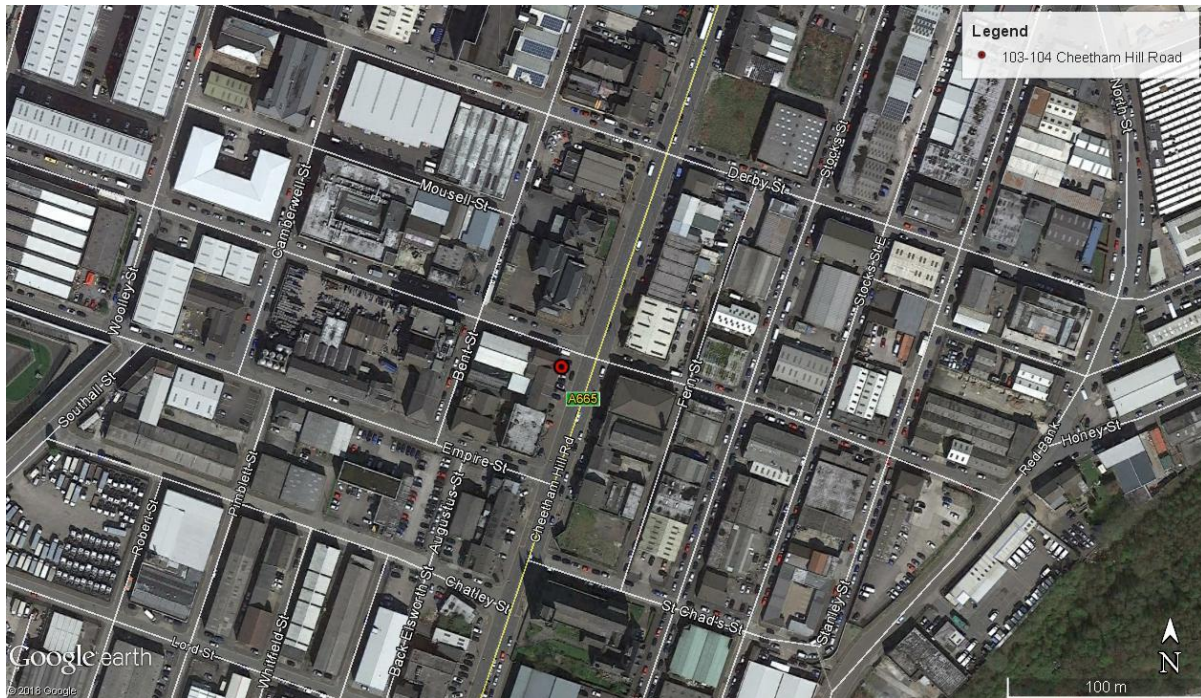


Figure 3. Sensitive receptors



The application of the DMRB screening tool assumes that the sensitive human exposure is at 'human breathing height' above ground level. While this will be the case for people occupying the reception and communal areas on the ground floor (**Appendix 2**) for short periods, the majority of the apartments are located on the first, second, third and fourth floors. As such, the expected levels of air pollutants at these higher floors will be lower relative to ground level due to vertical atmospheric dispersion of vehicle exhaust emissions on adjacent roads.

Furthermore, concentrations at ground floor locations within the development, which are further away from Cheetham Hill Road, such as those adjacent to Knowsley Street, will be lower due to the effect of horizontal atmospheric dispersion.

Traffic Data

Existing Traffic

Sampled traffic data were sourced from Department for Transport (DfT) Traffic Counters (**Ref. 15**) for the A56 and A664 for the purpose of verifying the DMRB screening tool outputs versus local monitoring and from the A665 for assessing local air quality at the development site adjacent to Cheetham Hill Road.

The data collected are shown in **Table 8** for year 2017.

Table 8. Raw Traffic Data

Road	Counter ID	Year	AADT	% HGV	Source
Cheetham Hill Road (A665)	7,428	2017	18,187	1.3	DfT
Bury New Road (A56)	73,193	2017	20,083	1.3	
Rochdale Road (A664)	27,447	2017	14,126	1.3	

Future Traffic

For the assessment of pollutant concentrations in 2019, 2020 and 2030 at the development site, a conservative annual growth factor of 2% was assumed and applied to the A665. The data used in the assessment are shown in **Table 9**.

Table 9. Traffic Data Used to Assess Site Suitability

Road	2017	2017	2019	2019	2020	2020	2030	2030
	AADT	% HGV	AADT	% HGV	AADT	% HGV	AADT	% HGV
Cheetham Hill Road (A665)	18,187	1.3	18,796	1.3	19,556	1.3	23,838	1.3

An average speed of 48 km/h (30 mph) is assumed for all roads in the verification and predictive modelling assessment.

The key site and traffic data used to run the DMRB screening tool spreadsheet are:

- Distance of exposure to road source centre (m)
- Annual Average Daily Traffic (AADT)
- Proportion of heavy-duty vehicles (>3.5t gross vehicle weight)
- Average speed (km/h)

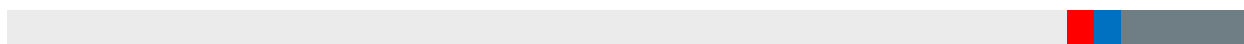
The Defra NO_x to NO₂ calculator v7.1 (**Ref. 16**) was used to convert the road-NO_x contribution from road traffic to total NO₂.

The background concentrations for 2019, 2020 and 2030 were not modified by the removal of the existing road contribution for motorway and Primary A-Roads. Therefore, the modelled road traffic contribution was double counted, which represents a conservative approach.

Model verification was completed in accordance with the methodology described in LAQM.TG(16) using monitored roadside annual average NO₂ diffusion concentrations from the council diffusion tube surveys and the aforementioned 2017 traffic data.

Model Verification

In the absence of roadside monitoring data on Cheetham Hill Road, the DMRB screening tool outputs were verified against the nearest locations for which roadside monitoring data and DfT traffic counts were available. The most recently available concurrent datasets were for 2017 on Bury New Road (A56) and Rochdale Road (A664), which carry similar flows of



traffic to Cheetham Hill Road, as shown in **Table 5**. A summary of the model verification results is provided in **Appendix 3**.

Assessing Significance

The Highways Agency Interim Advice Note IAN 174/13 (**Ref. 17**) and the Planning Guidance have been used in conjunction with results from the DMRB screening tool to assess the significance of impacts on local air quality produced by the development application.

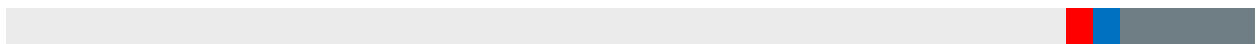
Construction Phase

The IAQM 'Guidance on the assessment of dust from demolition and construction' ('Dust Guidance') (**Ref. 18**) has been used to determine the potential dust emission magnitude of dust and PM₁₀ during construction. There will be no emissions from demolition or earthworks, as these activities will not be part of the construction programme. Trackout emissions associated with construction vehicle movements entering and leaving the site will not occur because the construction site is a single building in an urban location.

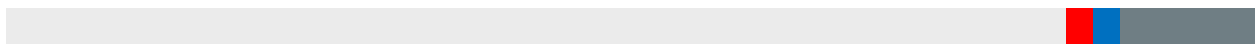
The IAQM methodology provides criteria to determine with sensitivity of the site and magnitude of construction activity (**Appendix 4**). This is combined to produce a semi-quantitative assessment of the risk to human health and amenity from construction dust emissions, which is used to determine appropriate mitigation.

Assumptions and Limitations

- The publicly available DMRB screening tool was released in 2007 and is therefore outdated because in-built emission factors do not reflect the current knowledge of emissions from the existing and future UK fleet. Therefore, a conservative approach has been taken to the assessment of site suitability to minimise the risk of pollutant under-prediction. The conservative assumptions made are as follows:
 - The application of 2010 vehicle emissions, as understood in 2007, to the 2019, 2020 and 2030 assessment scenarios.
 - The application of background concentration data from Manchester city centre in the event that background concentrations for the site are underestimated by the DEFRA modelling.
 - A conservative annual growth factor of 2% was assumed between the years of 2019 and 2030, which is likely to be an overestimate and does not consider the potential reduction in traffic due to the implementation of future MCC AQAP measures such as the CAZ and expansion of the public transport network.
 - Background concentrations were incorporated into the model predictions without the removal of A-road sources, which means that the contribution from Cheetham Hill Road was effectively double counted.
- At this stage of the design, detailed information about construction methods is not available. Therefore, the approximate building volume is assumed from the architect drawings in **Appendix 2** and generic low risk construction mitigation measures are



proposed. These measures could be refined when more detailed construction information is available.



Assessment Results

Impact on the Greater Manchester AQMA

Appendix 2 shows that the development will comprise more than 1,000m² of floor space and is likely to generate some utility and private delivery HGVs although the number is unknown. However, it is considered it is unlikely that more than 5 service vehicles associated with the development will be parked at any given time because no patron parking provision is provided.

In accordance with the Planning Guidance section and the NPPF PPG, a simple assessment relying on published information and without quantification of impacts is proportional to the nature and scale of development proposed.

The development has been assessed against the **Stage 1** screening criteria shown in **Table 4**. As the total development floor space will exceed 1,000m² the development has been assessed against the **Stage 2** screening criteria. As the development will not include car parking provision and is approximately 500m from Manchester Victoria station it can be determined that the majority of hotel patrons will travel on foot or by public transport. Therefore, it is unlikely that trip generation will exceed 25 vehicles as a result of the development and detailed assessment of air quality including quantification of vehicle emissions from the development is not considered necessary.

The impact of adding emissions from generated traffic from the development to the Greater Manchester AQMA is considered to be imperceptible in the context of the existing volume of traffic in this part of the AQMA.

Site Suitability

Results of the assessment of the suitability of the site for residential development and the impact of the development on local air quality are shown in this section.

Nitrogen Dioxide

Figure 4 shows predicted concentrations of annual average NO₂ for the expected and conservative scenarios at the on-site receptor shown in **Figure 3**.

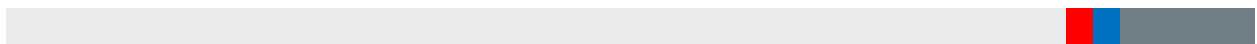


Figure 4. Annual average NO₂ results (R1)

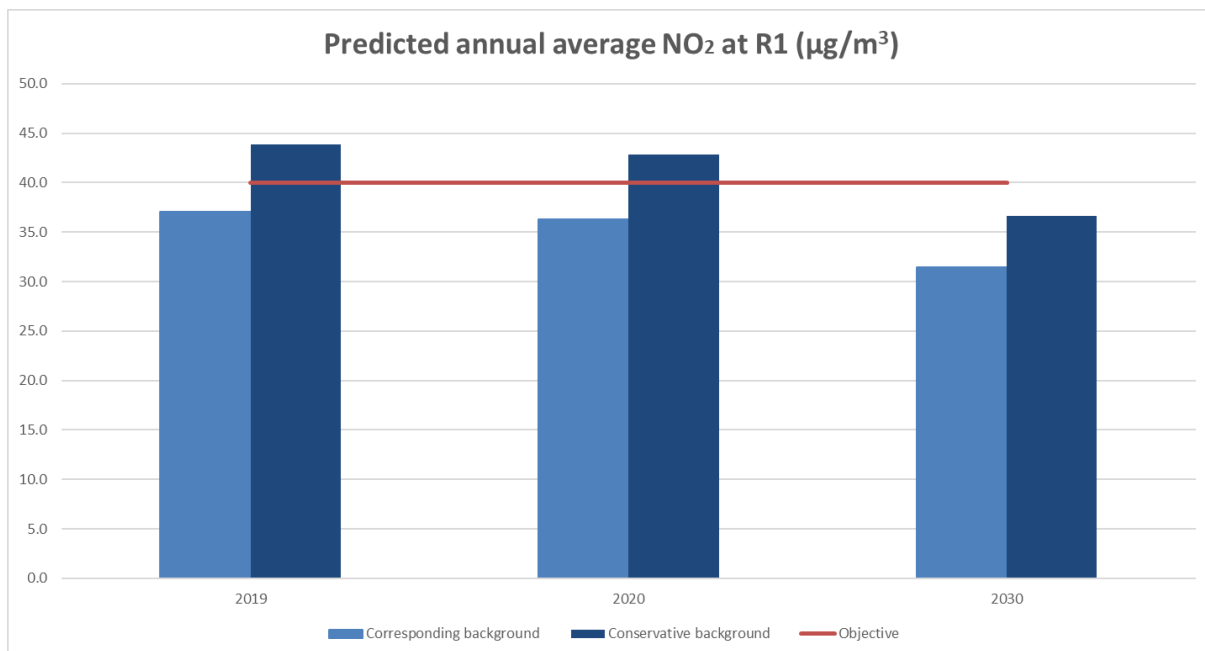


Figure 4 shows that predictions of NO₂ reduce between 2019 and 2030 even on the conservative assumption that traffic will grow by 2% per year. This shows that anticipated reductions background concentrations are larger than increases related to road traffic.

In 2019, the predicted concentration at R1 (37.1 µg/m³) is expected to be under the annual mean objective using emissions from the 2010 (conservative) and the DEFRA mapped background square. In the highly conservative scenario, the 40 µg/m³ objective is exceeded but this is unlikely to be realistic. In 2020, concentrations are slightly lower for both the conservative and highly conservative scenarios because the background concentration reduction is greater than the increase in emissions caused by assumed 2% traffic growth. No annual mean exceedance is predicted for either scenario in 2030 where the conservative scenario prediction is 31.4 µg/m³ which is 78% of the objective.

As all the results presented in **Figure 4** are under 60 µg/m³, no exceedances of the 1-hour objective are predicted at the façade in accordance with the DEFRA technical guidance LAQM.TG(16)). Therefore, it can be inferred that there will no exceedances of the 1-hour objective on the first, second, third and fourth floors and at all potential site exposures on Knowsley Street.

Particulate Matter

Figure 5 shows predicted concentrations of annual average PM₁₀ at the façade receptor R1.

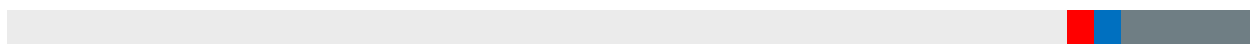


Figure 5. Annual average PM₁₀ results (R1)

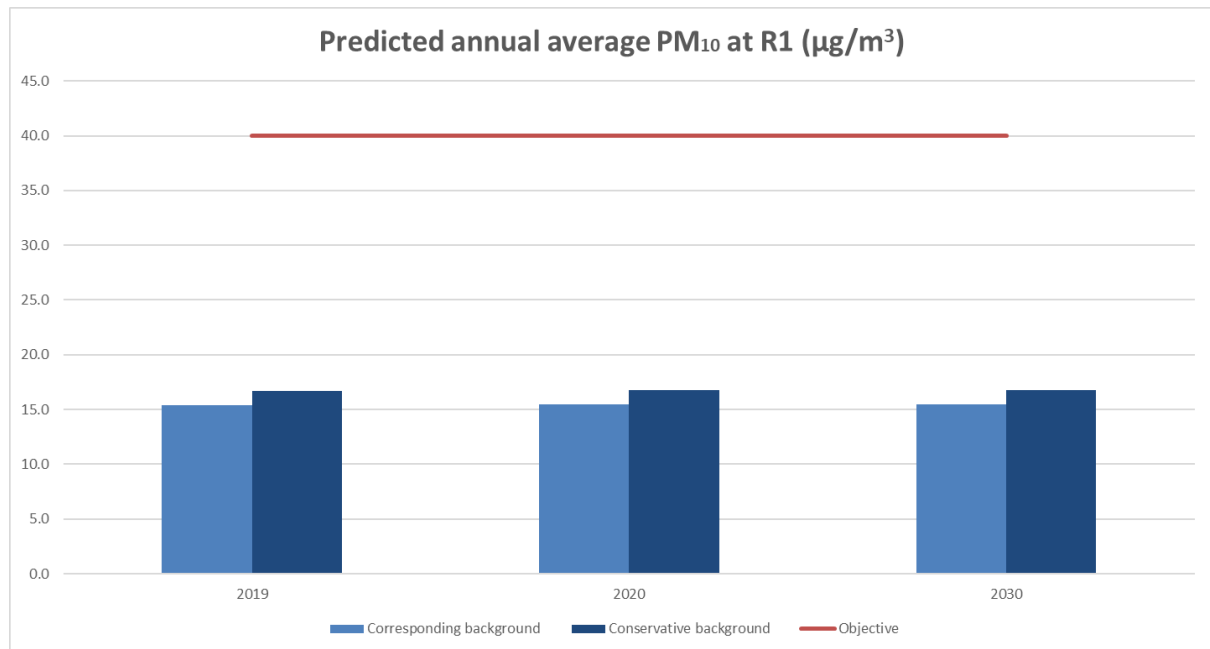


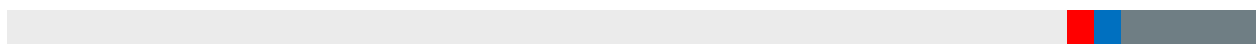
Figure 5 shows that predictions of annual average PM₁₀ are all predicted to be under 50% of the objective in 2019, 2020 and 2030. The highest predicted concentration is under the highly conservative scenario 2019 (16.1 µg/m³) which is just 40% of the objective.

Following the empirical relationship between the annual mean concentration of PM₁₀ and daily exceedances of the 24-hour mean objective in LAQM.TG(16), **Table 10** shows the number of predicted exceedances of the 50 µg/m³ daily mean objective for PM₁₀.

Table 10. Exceedances of the Daily Mean Objective for PM₁₀

Scenario	2019	2020	2030
Conservative	0.2	0.2	0.2
Highly conservative	0.6	0.6	0.6
Objective (exceedance days)	35	35	35

Table 10 shows that no exceedance of the 24-hour mean objective is likely at the development façade and it can be inferred that there will no exceedances of the 1-hour objective on the first, second, third and fourth floors and at all potential site exposures on Knowsley Street.



Construction Phase Impacts

As a location on the edge of Manchester city centre, **Step 1** screening determines that an assessment of construction emissions is required because there will be a human receptor within 350m of the site boundary (**Appendix 4**).

At Step 2A and with reference to **Appendix 4 Table A4A**, it is determined that the development site is 'small' because the building volume is below the IAQM Dust Guidance criterion of <25,000m³, and will require the use of non-dusty material such as metal cladding or timber.

High sensitivity receptors are likely within 20m of the site for human health impacts (**Appendix 4 Table A4Ba** and dust soiling (**Appendix 4 Table A4Bb**). Therefore, when combining the construction phase emission magnitude with site sensitivity with reference to **Appendix 4 Table A4C**, it is determined that the risk of adverse human health and amenity impacts due to construction is low.

Mitigation

The assessment has determined that there is no need for specific mitigation to be incorporated into the design or applied to the design to minimise the impact of local air pollution emission sources at the development site during operation.

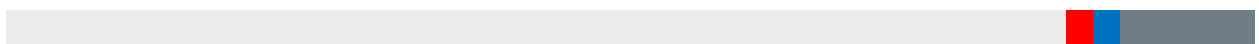
During construction, the risk of adverse impacts on human health and amenity have been assessed as low. However, this does not preclude the application of best practice mitigation to minimise emissions. **Appendix 5** provides a summary of mitigation measures that should be applied to minimise emissions as recommended in the IAQM Dust Guidance.

Significance

The evidence presented in this assessment which has been used to inform the judgement of significance is as follows:

- Predicted concentrations of key pollutants NO₂ and PM₁₀ made using existing and future estimated traffic flows under conservative conditions, indicate no exceedances of the short-term NO₂ and PM₁₀ objectives at the development site up to 2030.
- A worst-case screening calculation using estimated traffic generation from the development site shows that any increase in air pollution to the AQMA will not occur because no traffic generation is anticipated.
- To prevent the under-estimation of NO₂ concentrations due to the uncertainty in the rate of reduction in roadside concentrations, a highly conservative approach has been taken to the assessment.

It is concluded therefore that the site is a suitable location for the development and the effects of the development on local air quality will not be significant in the operational phase.

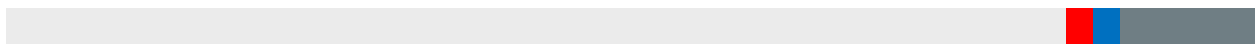


For the construction phase, the proper application of the mitigation measures described in **Appendix 5** which correspond to low risk sites for construction emissions, will render the residual effect of the development as negligible. The impact from construction phase emissions is therefore assessed as not significant.

Policy Check

Although air quality adjacent to the application site is relatively poor inside the AQMA, it is considered that the application is compliant with the NPPF PPG because the impacts from the application are likely to be negligible as demonstrated by the design which incorporates zero parking provision. By definition, the design therefore encourages walking, public transport and private hire vehicles as the only means of accessing the development. These private hire vehicles and buses used by patrons from 2021, are increasingly likely to comply with the latest emissions standards on implementation of the CAZ in Greater Manchester.

Therefore, it is highly unlikely that the application will adversely impact upon the implementation of air quality strategies and Greater Manchester Combined Authority AQAP or lead to a new or continued breach of national or European legislation.

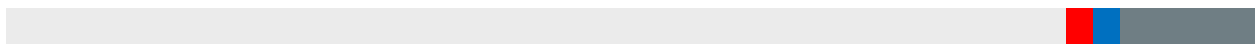


Conclusion

It has been demonstrated through semi-quantitative analysis that the site is a suitable location for the development and the effects of the application on local air quality will not be significant. For these reasons no further mitigation is proposed other than that considered to be best practice for the construction of a small commercial, residential scheme such as is proposed.

Although air quality adjacent to the development site is relatively poor inside the AQMA, it is considered that the application is compliant with the NPPF PPG because the impacts from the development are likely to be imperceptible as demonstrated by the estimated traffic volumes and impact screening assessment. The collated evidence indicates that it is highly unlikely that the development will adversely impact upon the implementation of air quality strategies and Greater Manchester Combined Authority AQAP or lead to a new or continued breach of national or European legislation.

Therefore, in our professional opinion there is no reason for refusal of the application because of poor air quality at the development site or the impact on the development on local receptors and the AQMA.

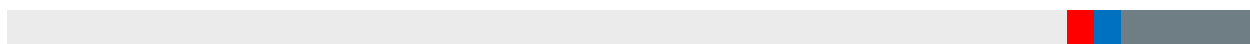


Appendices

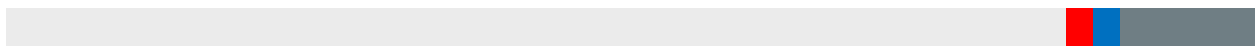
Appendix 1 – National Air Quality Strategy Objectives

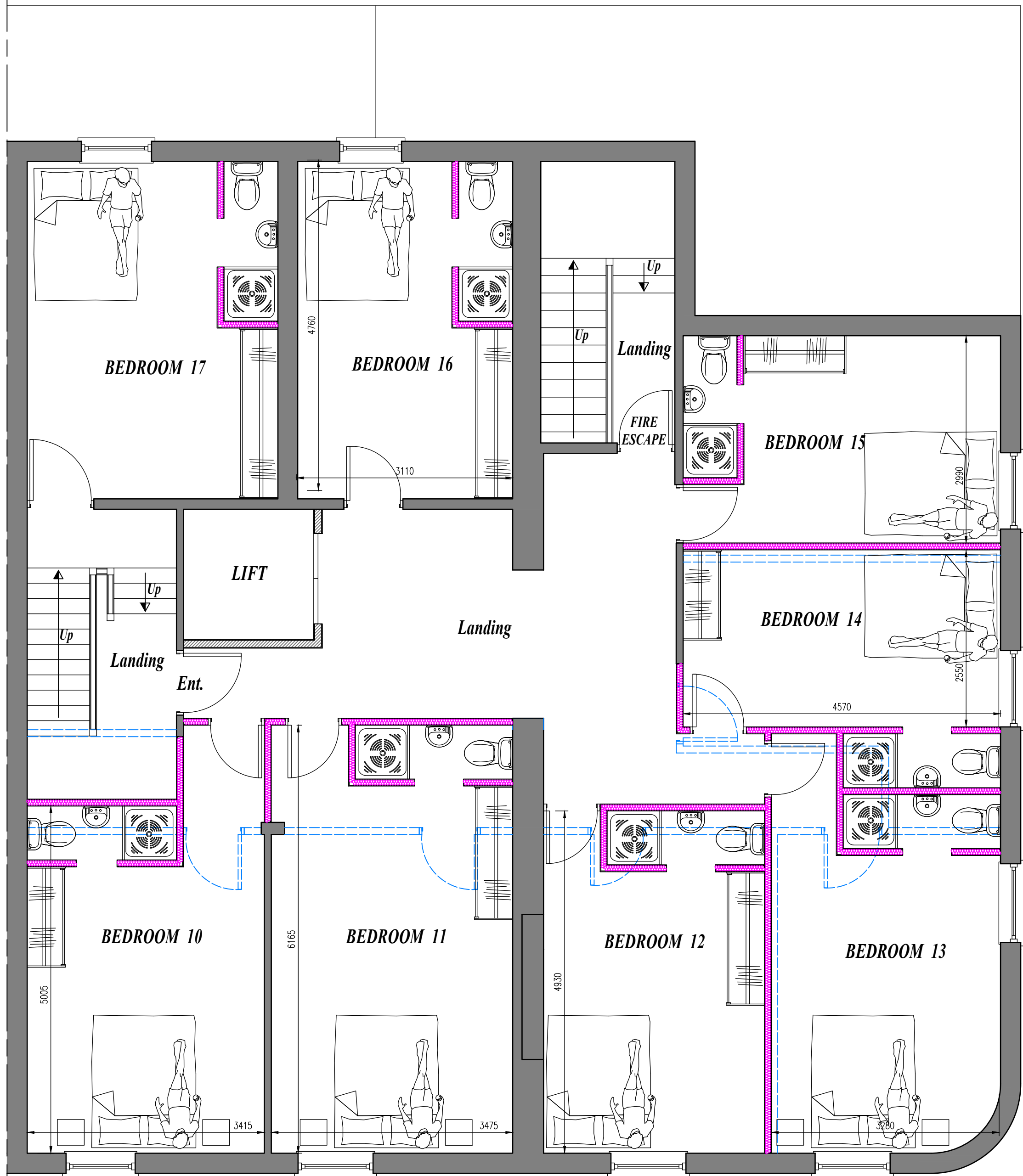
Table A1 - National Air Quality Strategy Objectives

National Air Quality Objectives and European Directive Limit Values for the Protection of Human Health						
Pollutant	Applies to	Objective	Measured as	Date to be achieved by and maintained thereafter	European Obligations	Date to be achieved by and maintained thereafter
Nitrogen dioxide (NO ₂)	UK	200µg/m ³ not to be exceeded more than 18 times a year	1-hour mean	31.12.2005	200µg/m ³ not to be exceeded more than 18 times a year	01.01.2010
	UK	40µg/m ³	annual mean	31.12.2005	40µg/m ³	01.01.2010
Particulate Matter (PM ₁₀) (gravimetric) [†]	UK (except Scotland)	40µg/m ³	annual mean	31.12.2004	40µg/m	01.01.2005
	UK (except Scotland)	50µg/m ³ not to be exceeded more than 35 times a year	24-hour mean	31.12.2004	50µg/m ³ not to be exceeded more than 35 times a year	01.01.2005
Particulate Matter (PM _{2.5})	UK (except Scotland)	25µg/m ³	annual mean	2020	Target value 25µg/m ³	2010

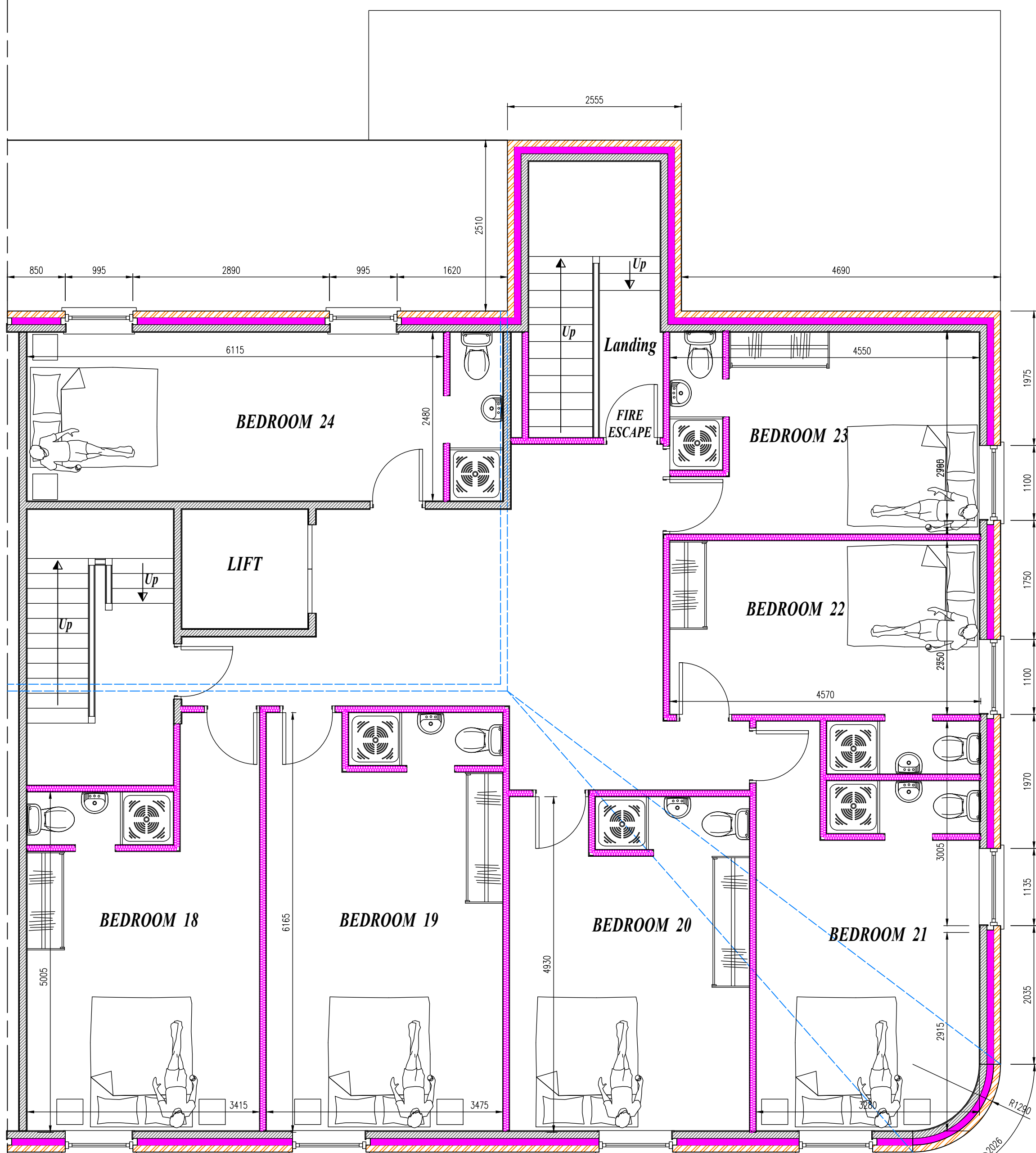


Appendix 2 – Development Drawings





PROPOSED SECOND FLOOR PLANscale 1:50



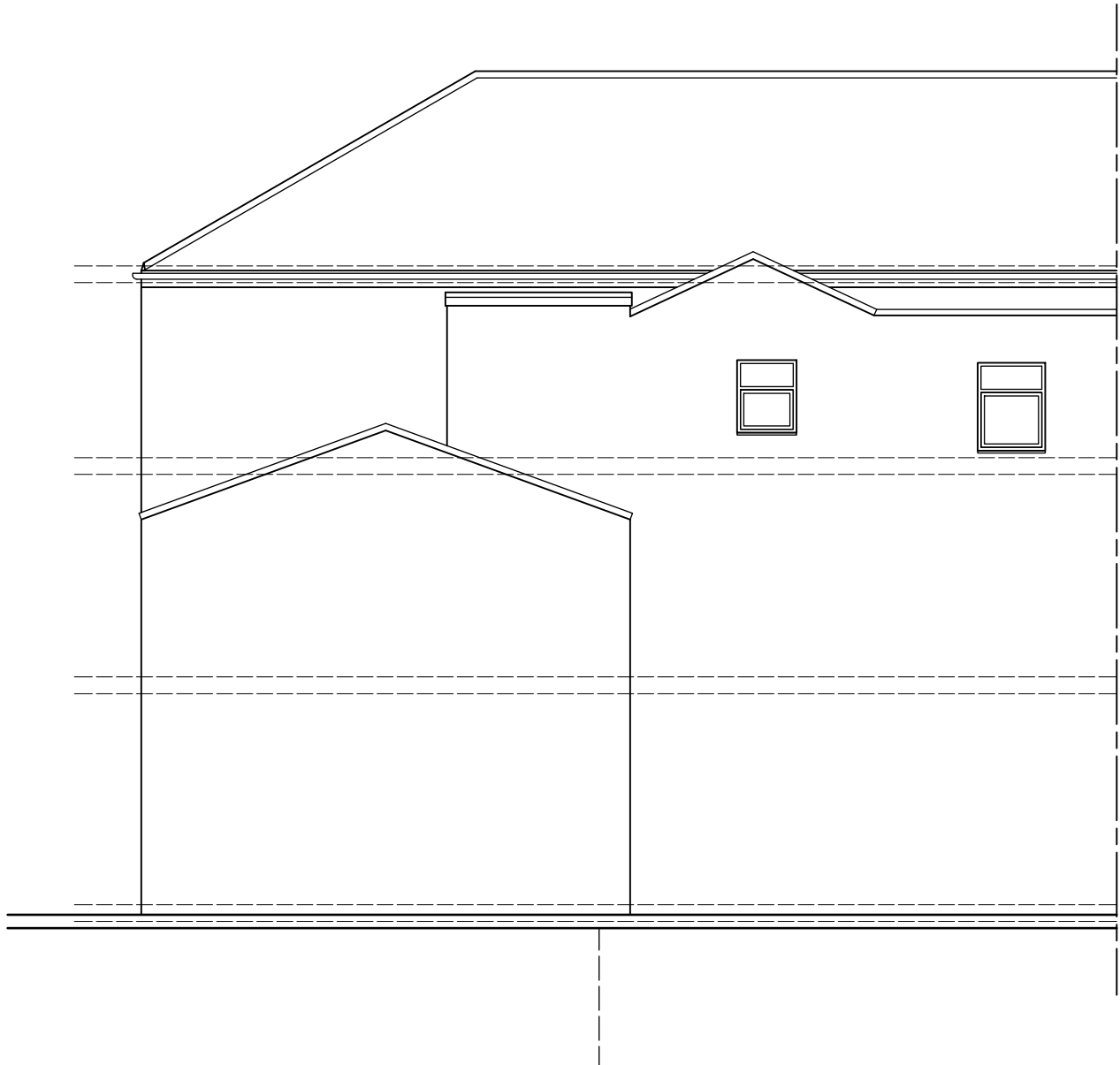
PROPOSED THIRD FLOOR PLANscale 1:50



EXISTING FRONT ELEVATIONscale 1:100



EXISTING SIDE ELEVATIONscale 1:100



EXISTING REAR ELEVATIONscale 1:100

GENERAL NOTES

1. FOUNDATIONS 225mm min thickness, step foundations to project 150mm min either side of supported wall. Provide 750mm min cover to foundations. Foundations to be min 800mm to bottom of step footing and taken down to level below invert of any drains passing under or immediately adjacent to the building. Although step foundations have been shown on the drawing, these may not be appropriate and are for illustrative purposes only. Foundations to suit conditions to the satisfaction of the Local Authority once the hole has been dug. Alternative Foundations to be designed by Structural Engineer. Concrete mixes to be in accordance with BS 8500 - 1.

CONDITIONS RELATING TO THE GROUND

These should not be:

- a. non-engineered fill (as described in BRE Digest 427) or wide variation in ground conditions within the loaded area, nor
- b. weaker or more compressible ground at such a depth below the foundation as could impair the stability of the structure.

2. Where new foundations arise in vicinity of old foundations, existing should be fully grouted up and new foundations laid at least the same depth.

3. All exposed timbers to be treated with a suitable preservative to BS 1295:1975.

4. All new cavities to be closed with 8mm supalux, all new cavities to be linked with existing.

5. All new drains to be Hopworth supervised and to be bedded and surrounded in min. 150mm pea gravel. 100mm diameter drains to fall 1 in 40. 150mm diameter drains to fall 1 in 60. New drains to be encased in 150mm concrete where they pass under new buildings. All existing drains found not to be in use to be capped and sealed in concrete. 150mm pre-cast concrete inserts inserted where new drains pass through external walls. Soil and vent pipes to be 100mm P.V.C. 40mm diameter U.P.V.C. waste pipes to showers, sinks and baths with 40mm diameter to basins. S.V.P. to be taken up to a ridge terminal or roof vent the outlet of otherwise as noted on the plans. Provide ridding eyes or removable traps to give access to all runs of the soil system. All traps are to be 75mm deep sealed air-vent traps. All the plumbing installations are to comply with BS 6772. All tracing in for concealed service pipes should be sealed at floor and ceiling levels, and service pipes which penetrate or project into hollow constructions or voids. (Refer to Item D of diagram 4 of the Approved Document L1). Deep flow heads and 64 / 75 mm diameter P.V.C. rainwater pipes.

6. Insulated D.p.c. inserted to all head, joints and cills of new external openings or thermoplastic doors.

7. 75 x 100mm wadings to be applied to all 2m centres with 38 x 8mm mild steel straps.

10. Opening lights to be min 1200mm total floor plan area.

11. All glazing to critical zones to be toughened or laminated to BS 6206. I.e. glass to doors within 1500mm of finished floor level and within 300mm of either side of doors and where greater than 200mm wide max 0.5mm in doors, and to screens windows within 1500mm of finished floor level.

12. Steelwork as noted on plan to comply with BS449, BS5960 & be encased in 2 layers of 12.5mm plasterboard with angle beads and 3mm plaster coat to give 12 hour fire resistance. Linels to have minimum 150mm end bearings at each end or as specified by Structural Engineer or lintel manufacturer.

13. D.p.c.s to outer leaf to be min 1500mm above ground level and at slab/floor level to inner leaf.

14. Facing brickwork/stonework to extend min 2 courses below ground level.

15. New concrete lintels over new openings to BS597 Part 2 1986 (100mm or 250mm) deep where shown.

16. Stainless steel wall ties to be spaced at 750mm centres horizontally staggered and 450mm centres vertically. Wall ties to comply with BS 1234:1978 and to have proprietary Upvc retaining clips to secure the insulation to the inner leaf. Joints to be built out by retaining the blockwork onto 50mm wide vertical U.P.V.C. Provide additional wall ties at 225mm vertical centres around all window openings and to movement joints. Cavities be closed or leaves left to comply with Building Regulations.

17. Notches and holes to inner joists to be within the following limits: notches - no deeper than 1/25 times depth of joist and not cut closer than 0.17 of the span, nor further away than 1/25 times the span. Holes - should be no greater diameter than 0.25 times the depth of joist should be drilled at the neutral axis, and should be not less than 3 diameters' centre to centre apart, and be located between 0.25 and 0.4 times span from the support.

No notches or holes to be cut in roof rafters, other than supports where the latter may be laminated/rodded to a depth not exceeding 0.33 of their depth.

18. All pipework incorporated in the water / heating system, that is situated in an unheated space is to be surrounded in 40mm of insulating material (min conductivity 0.045W/mK).

19. All masonry work to comply with BS 5628: P3.

20. Clay bricks to BS 3921. Engineering bricks to BS 3921.

21. Concrete bricks to BS 6073. Manufactured stone complying with BS 6457.

22. Mortar: Selection of mortar used below d.p.c. to be in accordance with BS 5628: Part 3.

Sulphate-resisting cement to be used where recommended by brick manufacturer and where sulphates are present in the ground.

23. D.P.M below slabs to BS 6915: when the membrane is located below the slab a blinding layer of sand should be provided. The continuity of the membrane as follows:

laps in polythene should be 300mm and joints sealed, where necessary, membranes between slabs should link with wall d.p.c.

22. STAIRCASE Equal treads (Max rise 220mm) Equal risers (Min going 220mm) Min Going to Tapered treads of 50mm. 2000mm headroom to stair measured along pitch line. Max pitch of stair 42 degrees. Handrail between 900mm and 1000mm above pitch line. No gap in balustrading to allow the passage of 100 diameter sphere.

23. Floors (if applicable)

Floor blocks to be inserted into inner leaf of external wall in locations shown on plans. Floor line with max. 45 degree (30 degree preferred), offset at base, bedded in cement mortar grout to comply with B.S. 1181:1971. All floor and roof timbers will be trimmed 40mm clear from the outer face of chimneys and flues.

24. Chases

Vertical chases should not be deeper than 1/3 of the wall thickness or, in cavity walls, 1/3 of the thickness of the leaf.

Horizontal chases should not be deeper than 1/6 of the thickness of the leaf of the wall.

Chases should not be so positioned as to impair the stability of the wall, particularly where hollow blocks are used.

25. All workmanship and materials to comply with Building Regulations, British Standards, Codes of Practice requirements. All materials to be fixed, applied or mixed in accordance with manufacturers instructions or specifications. All materials shall be suitable for their purpose. The contractor shall take into account everything necessary for the proper execution of the works, to the satisfaction of the 'Inspector' whether or not indicated on the drawing. Sample of external materials to be submitted to Local Authority for approval.

26. The Builder is entirely responsible for all temporary works and for maintaining stability of the new and existing structures during work.

27. Contractor to visit site prior to commencement of work and check all dimensions and familiarise himself with the site conditions. This drawing must then be checked and verified by the contractor prior to work commencing on site. No Encroachment by the building over the neighbouring boundary line. Client to obtain written permission from relevant bodies for any encroachment whatsoever if unavoidable.

28. Tackle Ventilation

Replacement windows, background ventilators to be provided as follows: Habitable rooms - 5000mm² equivalent area Kitchen, Utility room and bathroom - 2500mm² equivalent area Addition of a habitable Room (not including a conservatory) to an existing building

Background ventilators to be provided to new windows as follows: If the Additional room is connected to an existing room that has no window opening to external air, the room can be ventilated through another room or conservatory (background ventilation is provided with ventilators - 8000mm² equivalent area to opening between rooms and to new windows, and Purge ventilation is provided comprising of 1 or more openings with min total floor area as follows: Windows - hinged or pivot window that opens 30° or more, or the Height x width of the opening part should be at least 1/10 of the room floor area. For a hinged or pivot window that opens less than 30° opening part should be at least 1/10 of the room floor area.

External doors the Height x width of opening part should be at least 1/10 of the room floor area.

If the room contains a combination of at least 1 external door and at least 1 external window, the opening parts may be added to achieve at least 1/10 of the room floor area.

Note: Background ventilation should be located at least 1700mm above floor level and need not be within the door frame.

Openings between habitable rooms and conservatories must be closed.

29. Unusable material

Vegetable matter such as turf and roots should be removed from the ground to be covered by the building at least to a depth to prevent later growth. The effects of roots close to the building also need to be assessed. Where mature trees are present on sites with shrinkable clays the potential damage arising from ground heave to services and floor slabs and overall concrete should be assessed. Reference should be made to BRE Digest 2982. Where soils and vegetation type would require significant quantities of soil to be removed, reference should be made to BRE Digests 34123 and 2424, and to the FBE (Foundation for the Built Environment) report25.

Construction Design And Management Regulations 1994. (CDM REGULATIONS) And Health and Safety at Work etc. Act 1974

Designers CDM Statement

The Client is respectfully reminded of the role and duties under the above act and referred to the Health and Safety Executive's Guidance note 39 'The Role of the Client'.

The Designers encompassed on this drawing are classed as simple construction using traditional methods and materials available to general builders. As such they do not present any unusual circumstances in their execution or risks which a competent builder could not be reasonably expected to know.

For alteration work requiring new openings in walls or the removal of existing walls, the builder is to follow the guidance in the Building Research Establishment Good Building Guide Nos 15 & 20 providing temporary support during work on openings in external walls and removing internal load bearing walls in other dwellings.

1. The Contractor shall ensure that all the visitors to site are fully aware of these regulations and ensure full compliance with same and shall include for all necessary documentation.

2. Contractor to provide all necessary scaffolding with edge protection to prevent persons falling or falling sides. Also to provide protection to adjoining properties along site boundary.

3. All necessary safety precautions to be taken when working at high level. i.e. using safety harness.

4. Contractor to investigate possible fire or redundant services within the site and any hazardous material that may be present. Refer to Avoiding danger from underground services. HSG 47. Control of Asbestos at Work Regulations 2002. Control of Substances Hazardous to Health Regulations 2002 and Dangerous Substances and Explosive Atmospheres Regulations 2002.

5. All persons entering site to have all necessary protective clothing and head protection compliant with health and safety. Refer to Personal Protective Equipment at Work Regulations 1992 (as amended).

6. Clearing of windows to be accessible from inside if they are unable to be accessed from exterior.

7. All necessary propping and support required for excavation of trenches, retaining walls and underpinning to be installed in accordance with a structural engineers details and specification.

8. Contractor to provide all necessary support to maintain stability of existing or neighbouring structures.

9. Danger of collapse to trenches caused by heavy machinery, working above or near.

10. Danger of persons falling into trenches.

11. Use of power tools and equipment. Refer to Provision and Use of Work Equipment Regulations 1998 and Electricity at Work Regulations 1989.

12. Avoid changing of walls for Services.

13. Risk of working with glass. Risks of working at height and from falling objects.

14. Risk of working with dust (cement) - protective gear/breathing protection to be used. Refer to Control of Substances Hazardous to Health Regulations 2002.

15. Precautions to be taken when lifting heavy materials objects and beams into position above 20g - see Adequate Work machinery. Refer to Lifting Operations and Lifting Equipment Regulations 1998. Manual Handling Operations Regulations 1992.

16. Covering of roofs. All work to be carried out with due regard to health and safety regulations.

17. Risk of overhead power cables within and around the site.

18. Insulation and use of flammable materials. Refer to Fire Precautions (Workplace) Regulations 1997.

19. Access into and out of site - traffic management into and out of site. Refer to Driving at Work - Managing work-related road safety. HSG 262.

20. Precautions to be taken when Working in confined spaces. Refer to Confined Spaces Regulations 1997 And Safe work in confined spaces.

Approved Code of Practice. Regulations and Guidance. 1.10.

THE CONTRACTOR IS ADVISED OF THE FOLLOWING REGULATIONS APPLICABLE:

21. New Roads and Street Works Act 1991

22. Construction Health Safety and Welfare Regulations 1996

23. Health & Safety (First Aid) Regulations 1981

24. Health and Safety (Training) Regulations 1997

25. Personal Safety Regulations 1999

26. Management of Health and Safety at Work Regulations 1999

27. Noise at Work Regulations 1989

28. Pressure Systems Regulations 1999

29. Pressure Systems Safety Regulations 2000

30. Reporting of Injuries Diseases and Dangerous Occurrences Regulations 1995

31. Supply of Machinery (Safety) Regulations 1992 (as amended)

32. Workplace (Health, Safety and Welfare) Regulations 1992

33. Managing Health and Safety in Construction. Approved Code of Practice and Guidance. HSG 224

34. Succession of Health and safety management. HSG 65

Vibration Solutions. HSG 170

What does the Part wall Act say I want to build up against or outside the boundary line?

If you plan to build a party wall or party fence wall outside the boundary line, you must inform the Adjoining Owner by serving a notice.

You must also inform the Adjoining Owner by serving a notice if you plan to build a wall wholly on your own land but up against the boundary line.

The Act contains no enforcement procedures for failure to serve a notice. However, if you start work without having first given notice in the proper way, Adjoining Owners may seek to stop your work through a court injunction, or seek other legal redress.

At least one month before the planned starting date for building the wall, the notice is only valid for a year, so do not serve it too long before you wish to start.

What happens after I serve notice about building outside the boundary line?

If the Adjoining Owner agrees within 14 days to the building of a new wall outside the boundary line, the work (as agreed) may go ahead. The expense of building the wall may be shared between the owners where the benefits and use of that wall will be shared. The agreement must be in writing and should record details of the location of the wall, the allocation of costs and any other agreed conditions.

If the Adjoining Owner does not reply in writing within 14 days, to the proposed new wall outside the boundary line, you must build the wall wholly on your own land, and wholly of your own expense. However, you have a right to place necessary footings for the new wall under your neighbour's land subject to compensating for any damage caused by building the wall or laying the foundations. There is no right to place reinforced concrete under your neighbour's land without their express written consent.

You may start work one month after your notice was served. What does the Act say if I want to excavate near neighbouring buildings?

If you plan to excavate, or excavate and construct foundations for a new building or structure, within 3 metres of a neighbouring owner's building or structure, where that work will go deeper than the neighbour's foundations; or excavate, or excavate for and construct foundations for a new building or structure, within 6 metres of a neighbouring owner's building or structure, where that work will cut a line down downwards at 45° from the bottom of the neighbour's foundations, you must inform the Adjoining Owner or owners by serving a notice.

'Adjoining Owners' may include your next-but-one neighbour if they have foundations within 6 metres. The notice must state whether you propose to strengthen or safeguard the foundations of the building or structure belonging to the Adjoining Owner. Plans and sections showing the location and depth of the proposed excavation or foundation and the location of any proposed building also accompany the notice.

The Act contains no enforcement procedures for failure to serve a notice. However, if you start work without having first given notice in the proper way, Adjoining Owners may seek to stop your work through a court injunction, or seek other legal redress.

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NOTE: THE CLIENT IS ADVISED TO READ THE PARTY WALL ACT 1996 FULLY FOR EXAMPLES OF NOTICES SERVED AND FOR FURTHER INFORMATION WITH REGARDS TO THE ABOVE.

Approved Document P (Electrical Safety)

All Electrical Work to which the Requirements of Part P (Electrical Safety) apply, will be designed, installed, inspected and tested by a person competent to do so. Prior to completion of works the Local Authority must be satisfied that either: An Electrical Installation Certificate issued under a 'Competent Persons' scheme has been issued or appropriate certificates and terms defined in BS 7671 (as amended) have been submitted that confirm that the work has been inspected and tested by a 'competent person'. A 'competent person' will have a sound knowledge and suitable experience relevant to the nature of the work undertaken and to the technical standards set out in BS 7671, be fully versed in the inspection and testing procedures contained in the regulations and employ adequate testing equipment.

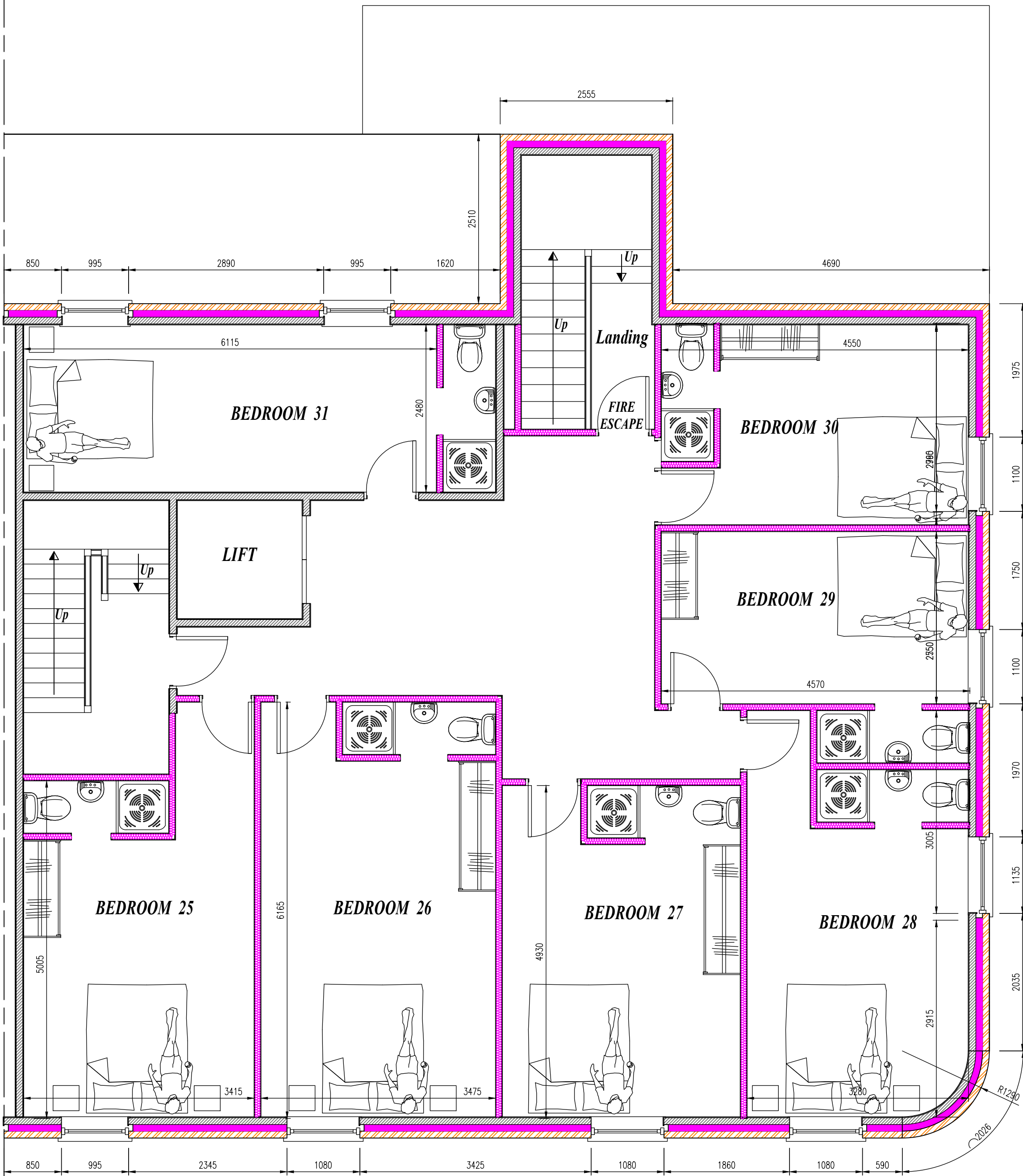
NOTE: THE ELECTRICAL LAYOUT SHOWN IS FOR BUILDING REGULATIONS SUBMISSION ONLY.

THE BUILDING INSPECTOR MUST BE INFORMED OF ANY CHANGES TO THE LAYOUT PRIOR TO WORKS COMMENCING AND WORKS TO BE CARRIED OUT BY A COMPETENT PERSON AS DESCRIBED ABOVE.

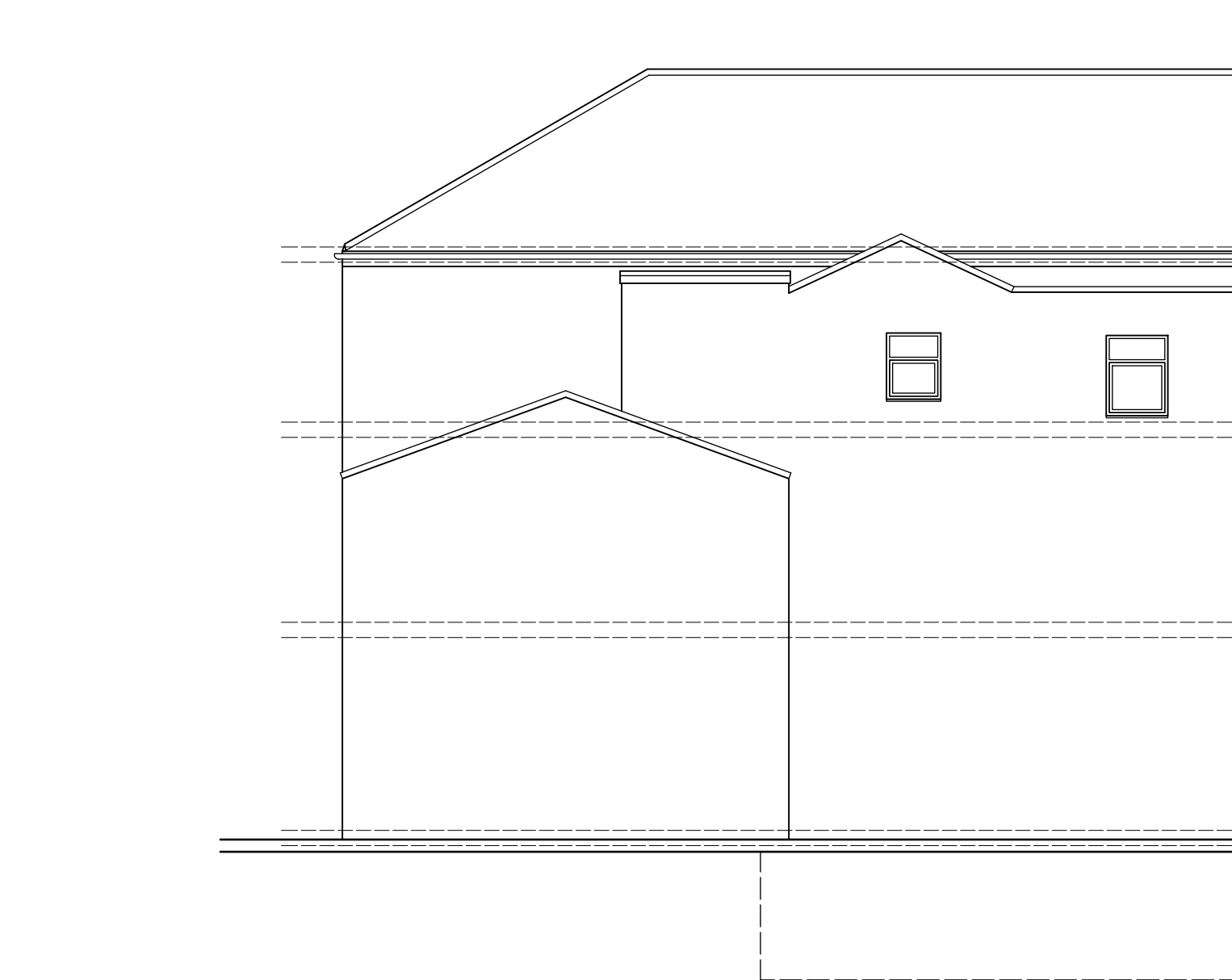
CONTRACTOR TO AGREE POSITION OF ELECTRICAL ITEMS AND RADIATORS WITH CLIENT PRIOR TO WORK COMMENCING.

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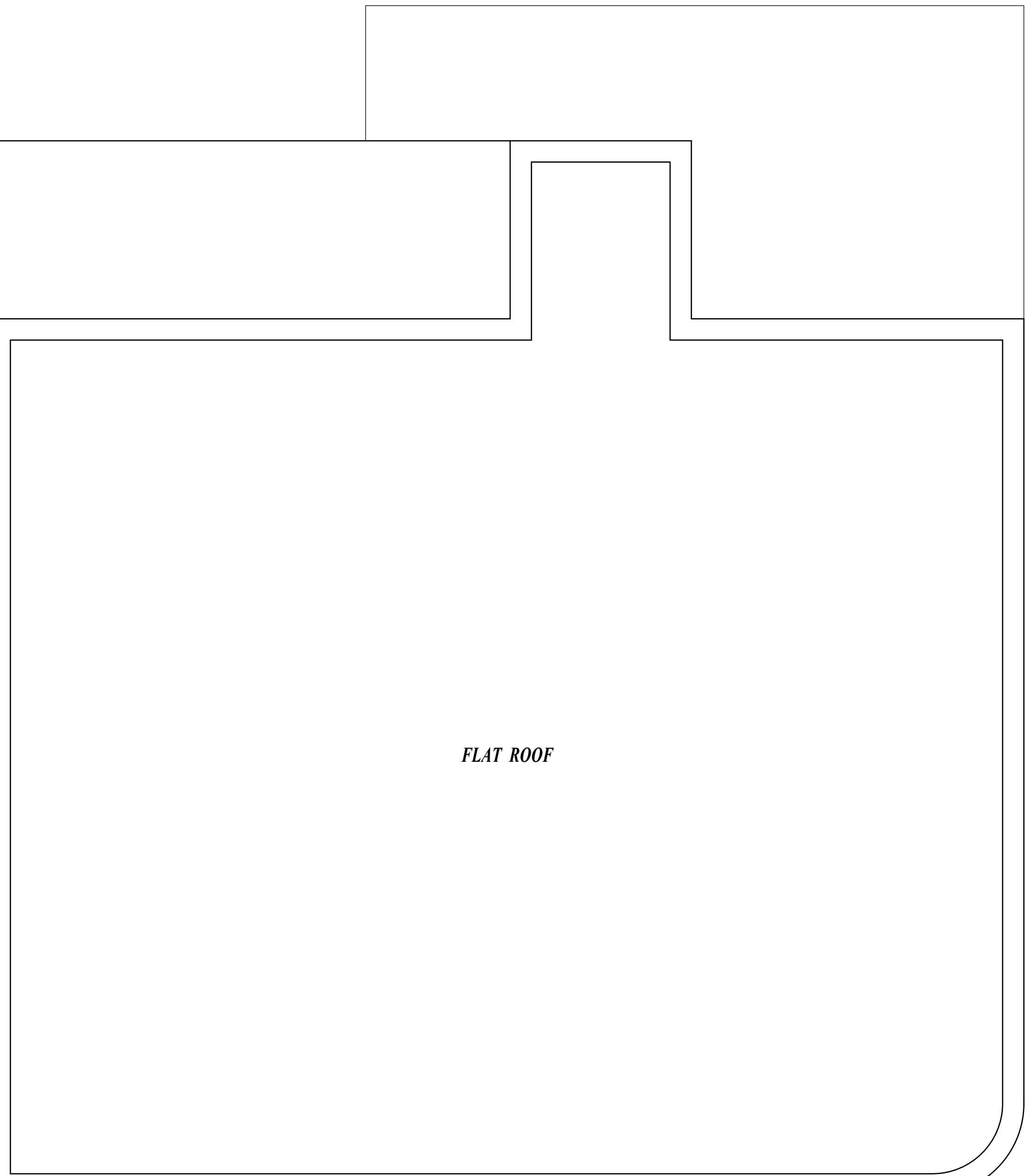
TDM ARCHITECTURAL LTD Mob : 07905060652 Mob : 07707109501 e-mail: tdmesign@live.co.uk Web site www.tdmarch.co.uk	
Client:	MR KHAN
Address:	103-104 CHEETHAM HILL ROAD, CHEETHAM HILL, MANCHESTER
Project:	PROPOSED CHANGE OF USE INTO BUDGET HOTEL WITH REMOVAL OF ROOF AND INSTALLATION OF 2x ADDITIONAL FLOORS
Dwg Title:	PLANNING PROPOSED PLANS & EXISTING ELEVATIONS
Date:	JANUARY 2019
Job No:	01.19.234
Drawn:	D.L
Scale:	1 : 50 / 100
Dwg No:	PL02
Checked:	D.L



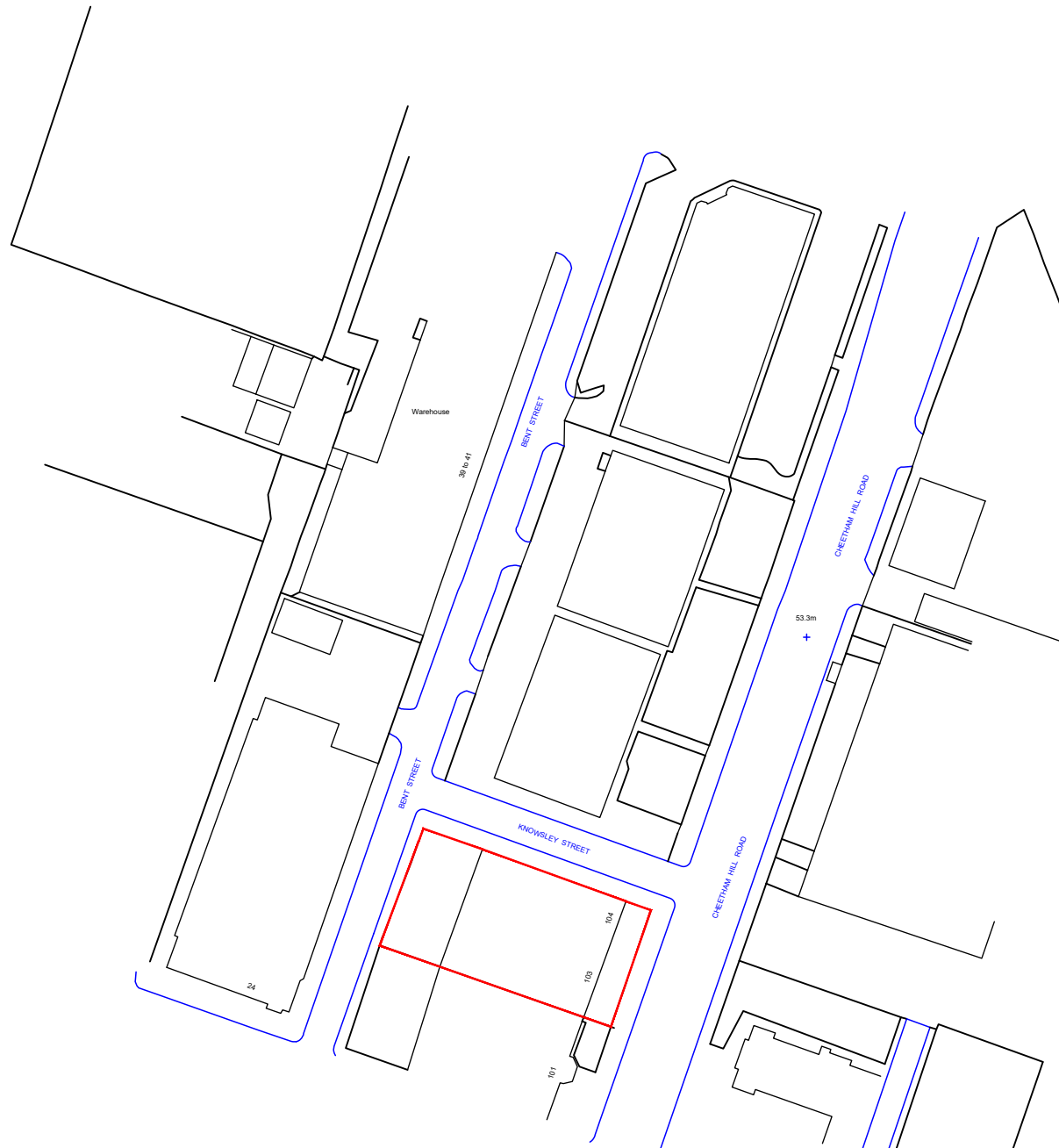
PROPOSED FOURTH FLOOR PLAN scale 1:50



EXISTING SIDE ELEVATION scale 1:100



PROPOSED ROOF PLAN scale 1:50



LOCATION PLAN scale 1:1250

NOTES

1. FOUNDATIONS 225mm min thickness, step foundations to project 150mm min either side of supported wall. Provide 750mm min cover to foundations. Foundations to be min 800mm to bottom of step footing and taken down to level below invert of any drains passing under or immediately adjacent to the building. Although strip foundations have been shown on the drawing, these may not be appropriate and are for illustrative purposes only. Foundations to suit conditions to the satisfaction of the Local Authority once the hole has been dug. Alternative Foundations to be designed by Structural Engineer. Concrete mixes to be in accordance with BS 8500 - 1.

CONDITIONS RELATING TO THE GROUND

These should not be:

- a non-engineered fill (as described in BRE Digest 427) or wide variation in ground conditions within the loaded area, nor
- weaker or more compressible ground at such a depth below the foundation as could impair the stability of the structure.
- When new foundations arise in vicinity of old foundations, existing should be fully grouted up and new foundations laid at least the same depth.
- All exposed timbers to be treated with a suitable preservative to BS 1362:1975.
- All new cavities to be closed with 8mm supalux, all new cavities to be linked with existing.
- All new drains to be Hopworth superelevate and to be bedded and surrounded in min. 150mm pea gravel. 100mm diameter drains to fall 1 in 40. 150mm diameter drains to fall 1 in 60. New drains to be encased in min 150mm concrete where they pass under new buildings. All existing drains found not to be in use to be capped and sealed in concrete. 150mm pre-cast concrete inlets inserted where new drains pass through external walls. Soil and vent pipes to be 100mm U.P.V.C. 40mm diameter U.P.V.C. waste pipes to showers, sinks and baths with 40mm diameter to basins. S.V.P. to be taken on to a ridge terminal or roof vent the outlet of otherwise as noted on the plans. Provide ridding eyes or removable traps to give access to all runs of the soil system. All traps are to be 75mm deep seated air-vent traps. All the plumbing installations are to comply with BS 6772. All housing in for concealed service pipes should be sealed at floor and ceiling levels, and service pipes which penetrate or project into hollow constructions or voids. (Refer to Item D of diagram 4 of the Approved Document L). Deep flow gutters and 64 / 75 mm diameter P.V.C. rainwater pipes.
- Insulated D.p.c.s inserted at all head, jambs and sills of new external openings or thermatec doors.
- All new rain water pipes to be trapped gutters.
- 75 x 100mm wadpiles to strapped to wall at 2m centres with 38 x 6mm mild steel straps.
- Opening lights to be min 120mm total floor plan area.
- All glazing to critical zones to be toughened or laminated to BS 6206. I.e glass to doors within 1500mm of finished floor level and within 300mm of either side of doors and where greater than 250mm wide max 0.5sq in doors, and to screens windows 1500mm of finished floor level.
- Steelwork as noted on plan to comply with BS449, BS5960 & be encased in 2 layers of 12.5mm plasterboard with angle beads and 3mm plaster coat to give 12 hour fire resistance. Linings to have minimum 150mm end bearings at each end or as specified by Structural Engineer or lintel manufacturer.
- Cavity tray to be fixed to lintels in external wall where stop ends and weepholes at each end and @ 900mm c/s. Loadbearing internal walls to be 100mm concrete blockwork.
- D.p.c.s to outer leaf to be min 150mm above ground level and at slab/floor level to inner leaf.
- Facing brickwork to extend min 2 courses below ground level.
- New concrete lintels over new openings to BS5977 Part 2: 1986 (100mm or 225mm deep where shown).
- Slabless steel wall ties to be spaced at 750mm centres horizontally staggered and 450mm centres vertically. Wall ties to comply with BS 1234:1978 and to have proprietary Upvc retaining clips to secure the insulation to the inner leaf. Jambos to be built solid by retaining the blockwork onto 150mm wide vertical U.P.C. Provide additional wall ties at 225mm vertical centres around door / window openings and to movement joints. Cavities be closed at eaves level to comply with Building Regulations.
- Notches and holes to timber joists to be within the following limits: notches - no deeper than 1/25 times depth of joist and not cut closer than 0.17 of the span, not further away than 0.25 times the span. Holes - should be no greater diameter than 0.25 times the depth of joist should be drilled at the neutral axis, and should be not less than 3 diameters (centre to centre) apart, and be located between 0.25 and 0.4 times span from the support.
- No notches or holes to be cut in roof rafters, other than supports where the rafter may be braced to a depth not exceeding 0.33 the rafter depth.
- All pipework incorporated in the water / heating system, that is situated in an unheated space is to be surrounded in 40mm of insulating material (min conductivity 0.045W/mK).
- Clay bricks to BS 3821. Engineering bricks to BS 3921.
- Concrete bricks to BS 6073. Manufactured stone complying with BS 6457.
- Mortar: Selection of mortar used below dpc to be in accordance with BS 5620: Part 3.
- Sulphate-resisting cement to be used where recommended by brick manufacturer and where sulphates are present in the ground.
- CPM below slab to BS 6915 when the membrane is located below the slab a blinding layer of sand should be provided. The continuity of the membrane as follows:
- Joints in polythene should be 300mm and joints sealed, where necessary.
- Members between slab should link with wall dpc's.
- STAIRCASE Equal treads (Max rise 220mm) Equal risers (Min going 220mm) Min Going to Tapered treads of 50mm. 2000mm headroom to stair measured along pitch line. Max pitch of stair 42 degrees. Handrail between 900mm and 1000mm above pitch line. No gap in balustrading to allow the passage of 100 diameter sphere.
- Flats (if applicable)
- Flats (if applicable) to be inserted into inner leaf of external wall in locations shown on plans. Flat line with max. 45 degree (30 degree preferred), offset at base, bedded in cement mortar grout to comply with B.S. 1181: 1971. All floor and roof timbers will be trimmed 40mm clear from the outer face of chimneys and flues.
- Chases
- Vertical chases should not be deeper than 1/3 of the wall thickness or, in cavity walls, 1/3 of the thickness of the leaf.
- Horizontal chases should not be deeper than 1/6 of the thickness of the leaf of the wall.
- Chases should not be so positioned as to impair the stability of the wall, particularly where hollow blocks are used.
- All workmanship and materials to comply with Building Regulations, British Standards, Codes of Practice requirements. All materials to be fixed, applied or mixed in accordance with manufacturers instructions or specifications. All materials shall be suitable for their purpose. The contractor shall take into account everything necessary for the proper execution of the works, to the satisfaction of the "Inspector" whether or not indicated on the drawing. Sample of external materials to be submitted to Local Authority for approval.
- The Builder is entirely responsible for all temporary works and for maintaining stability of the new and existing structures during work.
- Contractor to visit site prior to commencement of work and check all dimensions and familiarise himself with the site conditions. This drawing must then be checked and verified by the contractor prior to work commencing on site. No Encroachment by the building over the neighbouring boundary line. Client to obtain written permission from relevant bodies for any encroachment whatsoever if unavoidable.
- Trade Ventilation
- Replacement windows, background ventilators to be provided as follows: Habitable rooms - 5000mm² equivalent area. Kitchen, Utility room and bathroom - 2500mm² equivalent area. Addition of a habitable Room (not including a conservatory) to an existing building.
- Background ventilators to be provided to new windows as follows: If the Additional room is connected to an existing room that has no window opening to external air, the room can be ventilated through another room or conservatory if background ventilation is provided with ventilators - 8000mm² equivalent area to opening between rooms and to new windows, and Purge ventilation is provided comprising of 1 or more openings with min total floor area as follows: Windows - hinged or pivot window that opens 30° or more, or the Height x width of the opening part should be at least 1/10 of the room floor area. For a hinged or pivot window that opens less than 30° opening part should be at least 1/10 of the room floor area.
- External doors the Height x width of opening part should be at least 1/10 of the room floor area.
- If the room contains a combination of at least 1 external door and at least 1 external window, the opening parts may be added to achieve at least 1/10 of the room floor area.
- Note: Background ventilation should be located at least 1700mm above floor level and need not be within the door frame.
- Openings between habitable rooms and conservatories must be closed.

26. Unusable material
Vegetable matter such as turf and roots should be removed from the ground to be covered by the building at least to a depth to prevent later growth. The effects of roots close to the building also need to be assessed. Where mature trees are present on sites with shrinkable clays the potential damage arising from ground heave to services and floor slabs and concrete concrete should be assessed. Reference should be made to BRE Digest 2982. Where soils and vegetation type would require significant quantities of soil to be removed, reference should be made to BRE Digests 34123 and 2424, and to the FBE (Foundation for the Built Environment) report25.

Construction Design And Management Regulations 1994. (CDM REGULATIONS) And Health and Safety at Work etc. Act 1974
Designers CDM Statement

The Client is respectfully reminded of his or her duties under the above act and referred to the Health and Safety Executive's Guidance note 39 "The Role of the Client".

The Design encompassed on this drawing are classed as simple construction using traditional methods and materials available to general builders. As such they do not present any unusual circumstances in their execution or risks which a competent builder could not be reasonably expected to know. For alteration work requiring new openings in walls or the removal of existing walls, the builder is to follow the guidance in the Building Research Establishment Good Building Guide Nos 15 & 26 providing temporary support during work on openings in external walls and removing internal load bearing walls in other dwellings.

1. The Contractor shall ensure that he and his visitors to site are fully aware of these regulations and ensure full compliance with same and shall include for all necessary documentation.

2. Contractor to provide all necessary scaffolding with edge protection to prevent persons falling or falling debris. Also provide protection to adjoining properties along site boundary.

3. All necessary safety precautions to be taken when working at high level. I.e using safety harness.

4. Contractor to investigate possible live or redundant services within the site and any hazardous material that may be present. Refer to Avoiding danger from underground services. HSG 47. Control of Asbestos at Work Regulations 2002. Control of Substance Hazardous to Health Regulations 2002 and Dangerous Substances and Explosive Atmospheres Regulations 2002.

5. All persons entering site to have all necessary protective clothing and head protection compliant with health and safety. Refer to Personal Protective Equipment at Work Regulations 1992 (as amended).

6. Clearing of windows to be accessible from inside if they are unable to be accessed from exterior.

7. All necessary propping and support required for excavation of trenches, retaining walls and underpinning to be installed in accordance with a structural engineers details and specification.

8. Contractor to provide all necessary support to maintain stability of existing or neighbouring structures.

9. Danger of collapse to trenches caused by heavy machinery, working above or near.

10. Danger of persons falling into trenches.

11. Use of power tools and equipment. Refer to Provision and Use of Work Equipment Regulations 1998 and Electricity at Work Regulations 1989.

12. Avoid danger of falls from Services.

13. Risk of working with glass. Risks of working at height and from falling objects.

14. Risk of working with dust / cement - protective gear/breathing protection to be used. Refer to Control of Substance Hazardous to Health Regulations 2002.

15. Precautions to be taken when lifting heavy materials objects and beams into position above 20kg - use Adequate lifting machinery. Refer to Lifting Operations and Lifting Equipment Regulations 1998. Manual Handling Operations Regulations 1992.

16. Covering of roofs. All work to be carried out with due regard to health and safety regulations.

17. Risk of overhead power cables within and around the site.

18. Installation and use of flammable materials. Refer to Fire Precautions (Workplace) Regulations 1997.

19. Access into and out of site - traffic management into and out of site. Refer to Driving at Work - managing work-related road safety. HSG 382.

20. Precautions to be taken when Working in confined spaces. Refer to Confined Spaces Regulations 1997 And Safe work in confined spaces.

Approved Code of Practice. Regulations and Guidance. 1:101
THE CONTRACTOR IS ADVISED OF THE FOLLOWING REGULATIONS
APPLICABLE.

21. New Roads and Street Works Act 1991

22. Construction Health Safety and Welfare Regulations 1996

23. Health & Safety (First Aid) Regulations 1981

24. Health and Safety (Training) Regulations 1997

25. Lifting Operations Regulations 1998

26. Management of Health and Safety at Work Regulations 1999

27. Noise at Work Regulations 1989

28. Pressure Systems Regulations 1999

29. Pressure Systems Safety Regulations 2000

30. Reporting of Injuries Diseases and Dangerous Occurrences Regulations 1995

31. Supply of Machinery (Safety) Regulations 1992 (as amended)

32. Workplace (Health, Safety and Welfare) Regulations 1992

33. Managing Health and Safety in Construction. Approved Code of Practice and Guidance. HSG 224

34. Successful health and safety management. HSG 65
Vibration Solutions. HSG 170

What does the Part wall Act say I want to build up against
or outside the boundary line?

If you plan to build a party wall or party fence wall outside the boundary line, you must inform the Adjoining Owner by serving a notice.

You must also inform the Adjoining Owner by serving a notice if you plan to build a wall wholly on your own land but up against the boundary line.

The Act contains no enforcement procedures for failure to serve a notice. However, if you start work without having first given notice in the proper way, Adjoining Owners may seek to stop your work through a court injunction or seek other legal redress.

How long a notice do I have to serve the notice?

At least one month before the planned starting date for building the wall. The notice is only valid for one year, so do not serve it too long before you wish to start.

What happens after I serve notice about building the boundary line?

If the Adjoining Owner agrees within 14 days to the building of a new wall outside the boundary line, the work (as agreed) may go ahead. The expense of building the wall may be shared between the owners where the benefits and use of that wall will be shared.

The agreement must be in writing and should record details of the location of the wall, the allocation of costs and any other agreed conditions.

If the Adjoining Owner does not agree, the notice is valid for 14 days, to the proposed new wall outside the boundary line, you must build the wall wholly on your own land.

and wholly of your own expense. However, you have a right to place necessary footings for the new wall under your neighbour's land subject to compensating for any damage caused by building the wall or laying the foundations. There is no right to place reinforced concrete under your neighbour's land without their express written consent.

You may start work one month after your notice was served. What does the Act say if I want to excavate near neighbouring buildings?

If you plan to excavate, or excavate and construct foundations for a new building or structure, within 6 metres of a neighbouring owner's building or structure, where that work will go deeper than the neighbour's foundations, or excavate, or excavate for and construct foundations for a new building or structure, within 6 metres of a neighbouring owner's building or structure, where that work will cut a line down downwards at 45° from the bottom of the neighbour's foundations, you must inform the Adjoining Owner or owners by serving a notice.

"Adjoining Owners" may include your next-but-one neighbour if they have foundations within 6 metres. The notice must state whether you propose to strengthen or safeguard the foundations of the building or structure belonging to the Adjoining Owner. Plans and sections showing the location and depth of the proposed excavation or foundation and the location of any proposed building also accompany the notice.

The Act contains no enforcement procedures for failure to serve a notice. However, if you start work without having first given notice in the proper way, Adjoining Owners may seek to stop your work through a court injunction or seek other legal redress.

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CONTRACTOR TO AGREE POSITION OF ELECTRICAL ITEMS AND RADIATORS WITH CLIENT PRIOR TO WORK COMMENCING.

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Project:	PROPOSED CHANGE OF USE INTO BUDGET HOTEL WITH REMOVAL OF ROOF AND INSTALLATION OF 2x ADDITIONAL FLOORS
Dwg Title:	PLANNING PROPOSED PLANS & EXISTING ELEVATIONS
Date:	JANUARY 2019
Job No:	01-19-234
Drawn:	D.L.
Checked:	D.L.

Appendix 3 – Model Validation

An adjustment factor of 2.6 was applied to the road-NO_x predictions from the DMRB screening tool results at Bury New Road (A65) and Rochdale Road (A664) to optimise the model predictions. A summary of the pre and post-adjustment model performance is shown in **Table A3**, **Figure A3A** and **Figure A3B**.

Table A3 – Model Performance Summary

Condition	NO ₂		NO _x	
	Root Mean Square Error	Fractional Bias	Root Mean Square Error	Fractional Bias
Pre-adjustment of road-NO _x	2.7	0.3	5.9	0.3
Post-adjustment of road-NO _x	0.7	-0.01	1.7	-0.01

Table A3 shows that the model performance was improved after adjustment because the root-mean square error reduced from 5.9 to 1.7µg/m³.

A comparison between **Figure A3A** and **Figure A3B** shows that this is a strongly performing model after adjustment because all predictions at the monitors were within 10%.

Figure A3A – Total NO₂ pre-adjustment

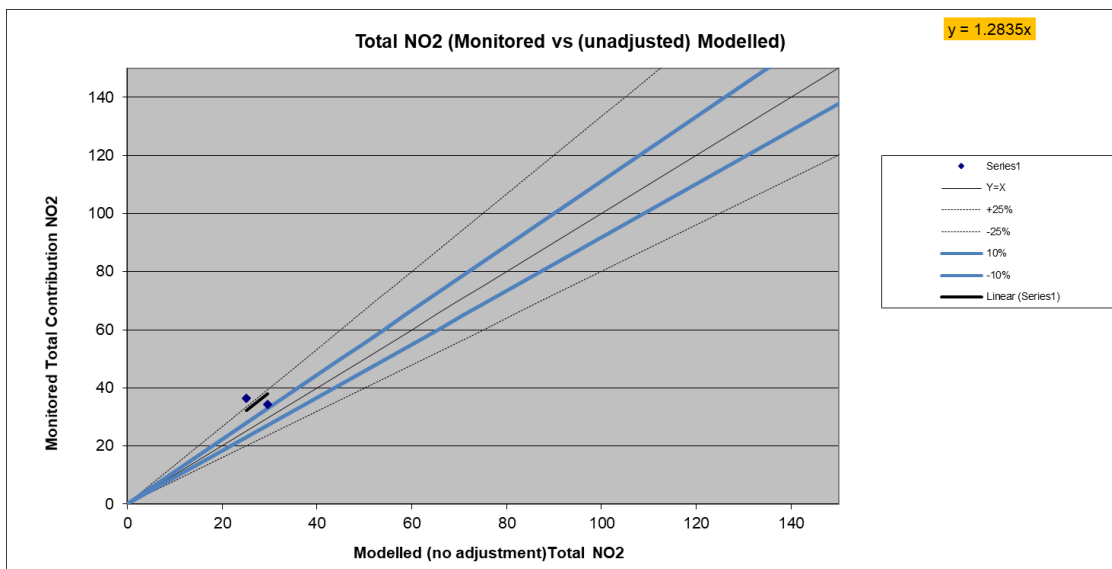
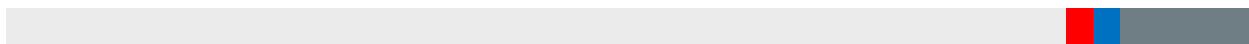
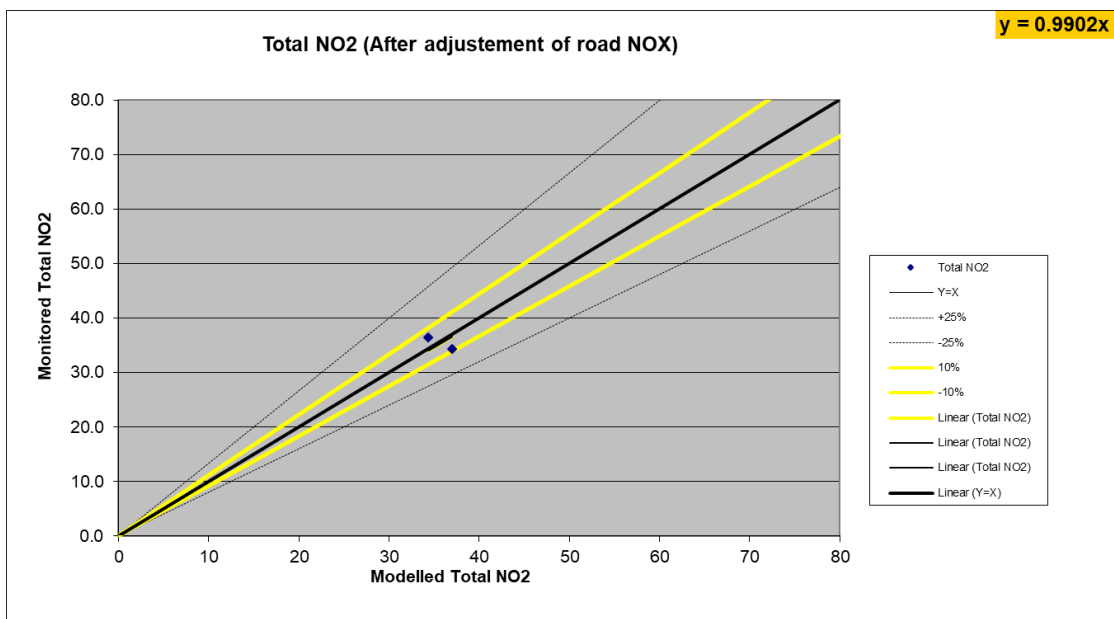


Figure A3B – Total NO₂ post-adjustment



Appendix 4 – IAQM Dust Guidance Methodology

STEP 1 – SCREENING THE NEED FOR A DETAILED ASSESSMENT

An assessment will normally be required where there are:

- 'Human receptors' within 350m of the site boundary; or within 50m of the route(s) used by construction vehicles on the public highway, up to 500m from the site entrance(s); and/or
- 'Ecological receptors' within 50m of the site boundary; or within 50m of the route(s) used by construction vehicles on the public highway, up to 500m from the site entrance(s).

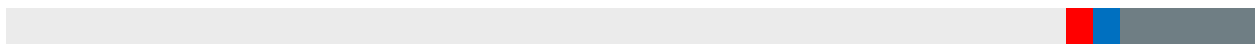
Where the need for a more detailed assessment is screened out, it can be concluded that the level of risk is “negligible”.

STEP 2A – DEFINE THE POTENTIAL DUST EMISSION MAGNITUDE

The following are examples of how the potential dust emission magnitude for different activities can be defined. (Note that not all the criteria need to be met for a particular class). Other criteria may be used if justified in the assessment.

Table A4A: Examples of Human Receptor Sensitivity to Construction Phase Impacts

Dust Emission Magnitude	Activity
Large	Demolition >50,000m ³ building demolished, dusty material (e.g. concrete), on-site crushing/screening, demolition >20m above ground level
	Earthworks >10,000m ² site area, dusty soil type (e.g. clay), >10 earth moving vehicles active simultaneously, >8m high bunds formed, >100,000 tonnes material moved
	Construction >100,000m ³ building volume, on site concrete batching, sandblasting
	Trackout >50 HDVs out / day, dusty surface material (e.g. clay), >100m unpaved roads



Dust Emission Magnitude	Activity
Medium	Demolition 20,000 - 50,000m ³ building demolished, dusty material (e.g. concrete) 10-20m above ground level
	Earthworks 2,500 - 10,000m ² site area, moderately dusty soil (e.g. silt), 5-10 earth moving vehicles active simultaneously, 4m - 8m high bunds, 20,000 - 100,000 tonnes material moved
	Construction 25,000 - 100,000m ³ building volume, dusty material e.g. concrete, on site concrete batching
	Trackout 10 - 50 HDVs out / day, moderately dusty surface material (e.g. clay), 50 - 100m unpaved roads
Small	Demolition <20,000m ³ building demolished, non-dusty material (e.g metal cladding), <10m above ground level, work during wetter months
	Earthworks <2,500m ² site area, soil with large grain size (e.g. sand), <5 earth moving vehicles active simultaneously, <4m high bunds, <20,000 tonnes material moved, earthworks during wetter months
	Construction <25,000m ³ , non-dusty material (e.g. metal cladding or timber)
	Trackout <10 HDVs out / day, non-dusty soil, < 50m unpaved roads

STEP 2B – DEFINE THE SENSITIVITY OF THE AREA

The tables below present the IAQM assessment methodology to determine the sensitivity of the area to dust soiling, human health and ecological impacts respectively. The IAQM Dust Guidance provides guidance to allow the sensitivity of individual receptors to dust soiling and health effects to assist in the assessment of the overall sensitivity of the study area.

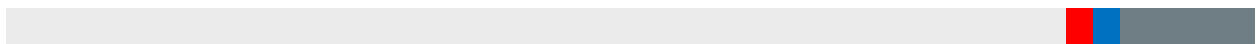
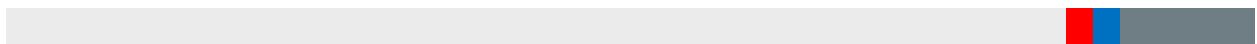


Table A4Ba: Sensitivity of the Area to Dust Soiling Effects

Receptor Sensitivity	Number of Receptors	Distance from the Source (m)			
		<20	<50	<100	<350
High	>100	High	High	Medium	Low
	10-100	High	Medium	Low	Low
	1-10	Medium	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	>1	Low	Low	Low	Low

Table A4Bb: Sensitivity of the Area to Human Health Impacts

Receptor Sensitivity	Annual Mean PM ₁₀ Concentration (µg/m ³)	Number of Receptors	Distance from the Source (m)				
			<20	<50	<100	<200	<350
High	>32	>100	High	High	High	Medium	Low
		10-100	High	High	Medium	Low	Low
		1-10	High	Medium	Low	Low	Low
	28-32	>100	High	High	Medium	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	High	Medium	Low	Low	Low
	24-28	>100	High	Medium	Low	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	<24	>100	Medium	Low	Low	Low	Low
		10-100	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low



Medium	>32	>10	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	28-32	>10	Medium	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	24-28	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	<24	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Low	-	>1	Low	Low	Low	Low	Low

Table A4Bc: Sensitivity of the Area to Ecological Impacts

Receptor Sensitivity	Distance from the Sources (m)	
	<20	<50
High	High	Medium
Medium	Medium	Low
Low	Low	Low

STEP 2C – DEFINE THE RISK OF IMPACTS

The dust emissions magnitude determined at Step 2A should be combined with the sensitivity of the area determined at Step 2B to determine the risk of impacts without mitigation applied. For those cases where the risk category is 'negligible' no mitigation measures beyond those required by legislation will be required.

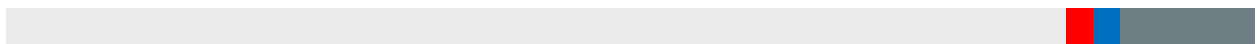


Table A4C: Risk of Dust Impacts

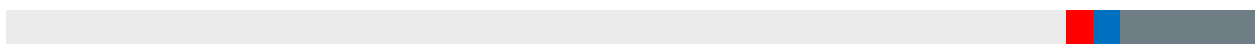
Sensitivity of surrounding area	Dust Emission Magnitude		
	Large	Medium	Small
Demolition			
High	High Risk	Medium Risk	Medium Risk
Medium	High Risk	Medium Risk	Low Risk
Low	Medium Risk	Low Risk	Negligible
Earthworks and Construction			
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible
Trackout			
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Low Risk	Negligible
Low	Low Risk	Low Risk	Negligible

STEP 3 –SITE SPECIFIC MITIGATION

Having determined the risk categories for each of the four activities it is possible to determine the site-specific measures to be adopted. These measures will be related to whether the site is considered to be a low, medium or high-risk site. The IAQM Dust Guidance details the mitigation measures required for high, medium and low risk sites as determined in Step 2C.

STEP 4 – DETERMINE SIGNIFICANT EFFECTS

Once the risk of dust impacts has been determined in Step 2C and the appropriate dust mitigation measures identified in Step 3, the final step is to determine whether there are significant effects arising from the construction phase. For almost all construction activities, the application of effective mitigation should prevent any significant effects occurring to sensitive receptors and therefore the residual effect will normally be negligible.



Appendix 5 – Recommended Construction Phase Mitigation Measures

General Communication

- The name and contact details of person(s) accountable for air quality and dust issues should be displayed on the site boundary. This may be the environment manager/engineer or the site manager.
- Display the head or regional office contact information.

General Dust Management

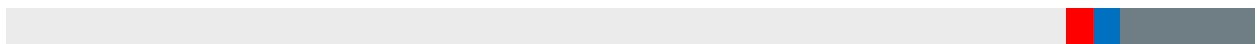
- The requirement for a Dust Management Plan (DMP), which may include measures to control other emissions, in addition to the dust and PM₁₀ mitigation measures given in this report, should be discussed with MCC. The DMP may include a requirement for monitoring of dust deposition, dust flux and/or visual inspections

Site Management

- All dust and air quality complaints should be recorded, and causes identified. Appropriate remedial action should be taken in a timely manner with a record kept of actions taken including of any additional measures put in-place to avoid reoccurrence.
- The complaints log should be made available to the local authority on request.
- Any exceptional incidents that cause dust and/or air emissions, either on- or offsite should be recorded, and then the action taken to resolve the situation recorded in the logbook.

Monitoring

- Frequent on-site and off-site inspections should be undertaken, where receptors (including roads) are nearby to monitor dust. The inspection results should be recorded and made available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window-sills within 100m of site boundary, with cleaning to be provided if necessary.
- Regular site inspections to monitor compliance with the DMP should be carried out, inspection results recorded, and an inspection log made available to the local authority when asked.
- The frequency of site inspections should be increased when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.



Preparing and Maintaining the Site

- Plan the site layout so that machinery and dust causing activities are located away from receptors, as far as is practicable.
- Where practicable, erect solid screens or barriers around dusty activities or the site boundary.
- Where practicable, fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period.
- Avoid site runoff of water or mud.
- Keep site fencing, barriers and scaffolding clean using wet methods.
- Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover appropriately.

Operating Vehicle/Machinery and Sustainable Travel

- Ensure all vehicle operators switch off engines when stationary - no idling vehicles.
- Avoid the use of diesel or petrol-powered generators and use mains electricity or battery powered equipment where practicable.

Operations

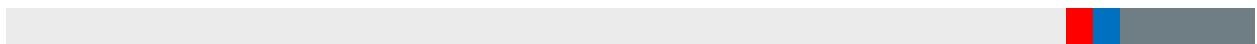
- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.
- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
- Use enclosed chutes and covered skips.
- Minimise drop heights from loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
- Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.

Waste management

- Avoid bonfires and burning of waste materials.

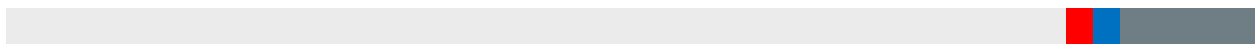
Measures Specific to Construction

- Avoid scabbling (roughening of concrete surfaces) if possible.
- All construction plant and equipment should be maintained in good working order and not left running when not in use.



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- Ref. 18** INSTITUTE OF AIR QUALITY MANAGEMENT (2014). Guidance on the assessment of dust from demolition and construction. Version 1.1.

