

Air Quality Impact Assessment

Site Address:

1 – 3 Coldharbour Lane
Hayes
UB3 3EA

Client

Ashheights Ltd

Report Reference

AQIA-2022-000005

Prepared by

STM Environmental Consultants Ltd

Date

06/10/2022



**CONSULTING GEO-ENVIRONMENTAL
ENGINEERS AND SCIENTISTS**

Phase 1 Contaminated Land Desk Studies, Geo-Environmental Site Investigations, Environmental Due Diligence, Flood Risk Assessments, Surface Water Management Strategies (SuDS), Ecology, Noise and Air Quality Assessments, Environmental Management Systems, GIS & Data Management Systems

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2 DOCUMENT CONTROL



AIR QUALITY IMPACT ASSESSMENT



Site Address:	1 – 3 Coldharbour Lane Hayes UB3 3EA
Site Coordinates:	509921, 179929
Prepared for:	Ashheights Ltd
Report Reference:	AQIA-2022-000005
Version No:	1.0
Date:	06/10/2022
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3 DISCLAIMERS

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STM has exercised such professional skill, care and diligence as may reasonably be expected of a properly qualified and competent consultant when undertaking works of this nature. However, STM gives no warranty, representation or assurance as to the accuracy or completeness of any information, assessments or evaluations presented within this report. Furthermore, STM accepts no liability whatsoever for any loss or damage arising from the interpretation or use of the information contained within this report.

Due to budgetary and physical constraints, sampling and in-situ testing was not possible over the entire site during the ground investigation. Therefore, we can offer no guarantee as to the validity of the data in any areas other than those investigated.

It should also be noted that some of the findings presented in this report are based on information obtained from third parties (i.e. laboratory). Whilst we assume that all information presented is accurate we can offer no guarantee as to the validity.

4 ABBREVIATIONS

Table 1: Abbreviations used in the report

ABBREVIATION	DESCRIPTION
AADT	Annual average daily traffic
AQS	Air Quality Standard
AQMA	Air Quality Management Area
DEFRA	Department of the Environment, Food and Rural Affairs
GLA	Greater London Authority
HDV	Heavy Duty Vehicle
IAQM	Institute of Air Quality Management
LAEI	London Atmospheric Emissions Inventory
LAQM	Local Air Quality Management
LDF	Local Development Framework
LDV	Light Duty Vehicle
LBHC	London Borough of Hillingdon Council
NO ₂	Nitrogen dioxide
NPPF	National Planning Policy Framework
NPPG	National Planning Practice Guidance
PM ₁₀	Particulate matter less than 10 microns in diameter
PM _{2.5}	Particulate matter less than 2.5 microns in diameter
TEB	Transport Emission Benchmark
TfL	Transport for London

5 EXECUTIVE SUMMARY

SECTION	SUMMARY
<p>Site Location And Size</p>	<p>The site is located at 1-3 Coldharbour Lane, Hayes, UB3 3EA and is centred at national grid reference 509921, 179929. The site has an area of approximately 267m².</p>
<p>Current Use</p>	<p>The site currently comprises multiple single storey commercial units.</p>
<p>Proposed Development</p>	<p>The development proposal is for the demolition of the existing buildings and the construction of a new mixed-use development incorporating 2no. retail units with 9no. new residential dwellings above.</p>
<p>Baseline Air Quality</p>	<p>The area in which the site is located was declared an AQMA in 2003 due to exceedances of the air quality objective for NO₂. The site is also located within an Air Quality Focus Area.</p>
<p>Construction Phase Dust Risk Assessment</p>	<p>Fugitive dust emissions from the construction phase were assessed in using the methodology laid out in the Mayor of London's Supplementary Planning Guidance. The main risk of adverse dust impacts was considered to be associated with the demolition phase of the construction. However, provided the mitigation measures laid out in the Mayor's SPG are implemented, any potential air quality impacts from dust are considered likely to be minimal.</p>
<p>Operational Phase Risk Assessment</p>	<p>Potential impacts during the operational phase were assessed. Based on the information available to date and based on the IAQM/EPUK guidance, the air quality impacts resulting from any increase in vehicles movements are likely to be negligible as the development is car-free. No further assessment is therefore required.</p> <p>An assessment was made of the potential operational exposure of future users of the development to air pollutants. The LAEI model data indicates that pollution levels across the majority of the site are below the relevant AQS objectives and that the site can be classified as APEC-A.</p> <p>An Air Quality Neutral Assessment was carried out for the site. As the site is car free and will utilise Electric Air Source Heat Pumps for heating and hot water, both Building and Transport related emissions were shown to be very unlikely to exceed the calculated benchmarks. As such, no mitigation measures are required to offset emissions.</p>
<p>Conclusions</p>	<p>On the basis of the assessment carried out, the proposed development is considered unlikely to adversely affect air quality. As such, it is considered to be in compliance with the local and London-wide planning policies and the NPPF.</p>

6 INTRODUCTION

6.1 Commissioning

STM Environmental Consultants Limited were commissioned by Ashheights Ltd (Client) to undertake an Air Quality Impact Assessment (AQIA) at a site known as 1-3 Coldharbour Lane, Hayes, UB3 3EA (the Site). The works are required to inform the proposed redevelopment of the Site.

6.2 Development Proposal

The development proposal is for the demolition of the existing buildings and the construction of a new mixed-use development incorporating 2no. retail units and 9no. new residential dwellings.

The Planning Decision Notice and drawings of the proposed development are available in [Appendix 1](#).

6.3 Report Objectives

The aim of this report is to assess the potential impacts of the proposed development on local air quality.

7 SITE DESCRIPTION

7.1 Site Location and Context

The site is located at 1-3 Coldharbour Lane, Hayes, UB3 3EA and is centred at national grid reference 509921, 179929. It has an area of approximately 267m².

The site lies within the jurisdiction of London Borough of Hillingdon Council in terms of the planning process. Maps showing the location of the site are available in Figure 1 below.

7.2 Site Current Use

The site currently comprises multiple single storey commercial units.

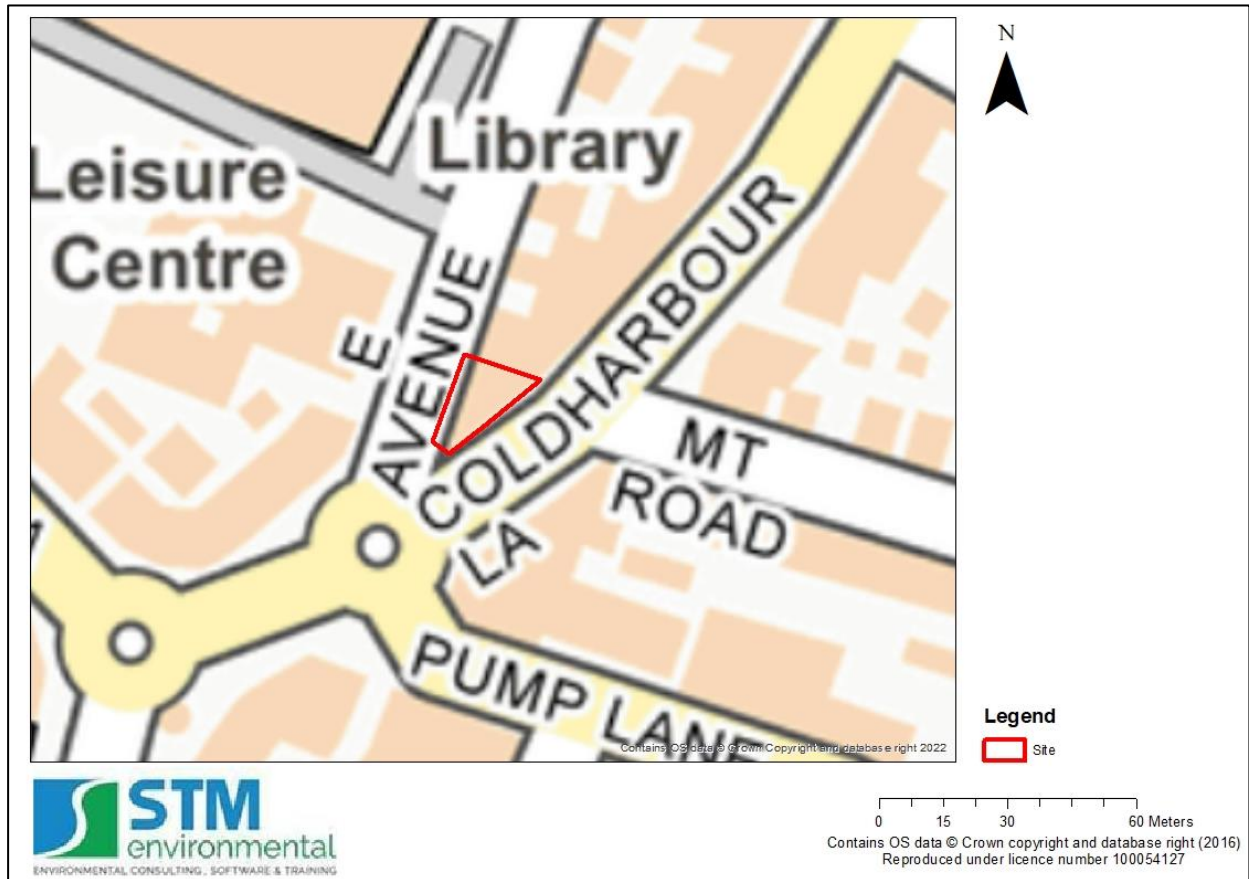
7.3 Surrounding Land Uses

A description of current land uses surrounding the boundaries of the site is given below in Table 1 below.

Table 1: Summary of surrounding land uses

Boundary	Land Use Description
Northern	Commercial
Eastern	Adjacent Road (Coldharbour Lane)/Commercial/Residential
Southern	Roundabout/Commercial/Residential
Western	Adjacent Road (East Avenue)/Commercial/Residential

Figure 1: Maps showing location of site



8 LEGISLATIVE CONTEXT

8.1 Legislative Context

8.1.1 European Directives

Air quality standards are set in European Union (EU) Directive 2008/50/EC on Ambient Air Quality and Cleaner Air for Europe and the Fourth Daughter Directive² (2004/107/EC). These Directives require all Member States to undertake air quality assessment, and to report the findings to the European Commission on an annual basis and also make the information available to the public. The Directives set 'limit values', 'target values' and 'long-term objectives' for ambient concentrations of pollutants.

8.1.2 Environment Act 1995

Part IV of the Environment Act 1995 sets provisions for protecting air quality in the UK and for local air quality management. It requires the Secretary of State to publish a national Air Quality Strategy and established the system of local air quality management (LAQM), for the designation of air quality management areas. The Air Quality Strategy for England, Scotland, Wales and Northern Ireland was first published in March 1997. The Strategy established objectives for eight key air pollutants.

Section 82 of the Environment Act 1995 provides that every local authority shall review the air quality within its area, both at the present time and the likely future air quality. Section 83 requires local authorities to designate an air quality management area where air quality objectives are not being achieved, or are not likely to be achieved within the relevant period, as set out in the Air Quality (England) Regulations 2000 Regulations. Once an area has been designated Section 84 requires the local authority to carry out an assessment and then to develop an Action Plan for the air quality management area that details the measures, they intend to take to reduce air pollution.

Currently, over 700 active AQMAs have been designated across UK local authorities, the majority for Nitrogen Dioxide (NO₂). Action Plans have been put in place to address air quality, including any exceedances. Local Authorities are expected to report on NO₂, PM₁₀ and SO₂ as well as progress with the Action Plans in Annual Status Reports (ASRs). Government does not expect local authorities to report annually on Benzene, 1, 3-butadiene, Carbon Monoxide and Lead as objectives for these pollutants have been met for several years and are well below limit values.

In addition to the objectives set in Regulations, Local Authorities are expected to work towards reducing emissions and concentrations of PM_{2.5}.

8.1.3 Air Quality (England) Regulations 2000

The Air Quality (England) Regulations 2000, as amended by the Air Quality (England) (Amendment) Regulations 2002 set out air quality objectives (i.e. maximum concentrations or limit values) for key pollutants as well as attainment dates for meeting the objectives.

8.1.4 Air Quality (Standards) Regulations 2010

The provisions of the Air Quality Directive and Fourth Daughter Directive were transposed by the Air Quality Standards Regulations 2010 in England, the Air Quality Standards (Scotland) Regulations 2010 in Scotland, the Air Quality Standards (Wales) Regulations 2010 in Wales and the Air Quality Standards Regulations (Northern Ireland) 2017. All the provisions made by the Directives are therefore incorporated into UK legislation. The Air Quality Objectives are listed in Table 2 below.

Table 2: Air quality objectives

Pollutant	Air Quality Objective		Deadline Date	Status
	Concentration (ug/m ³)	Measured As		
Benzene	16.25	Running Annual Mean	31.02.2003	Objective met
	5.0	Annual Mean	31.12.2010	
1,3 Butadiene	2.25	Running Annual Mean	31.12.2003	Objective met
Carbon monoxide	10.0	Maximum daily running 8-hour mean	31.12.2003	Objective met
Lead	0.5	Annual Mean	31.12.2004	Objective met
	0.25	Annual Mean	31.12.2008	
Nitrogen Dioxide (NO ₂)	200 (not to be exceeded more than 18 times a year)	1 hour mean	31.12.2005	Objective not met
	40	Annual mean	31.12.2005	
Particles (PM ₁₀)	50 (not to be exceeded more than 35 times a year)	24 hour mean	31.12.2004	Objective not met
	40	Annual mean	31.12.2004	
Sulphur Dioxide (SO ₂)	350 (not to be exceeded more than 24 times a year)	1 hour mean	31.12.2004	Objective not met
	125 (not to be exceeded more than 3 times a year)	24 hour mean	31.12.2004	
	266 (not to be exceeded more than 35 times a year)	15 minute mean	31.12.2005	

8.1.5 Environmental Permitting (England and Wales) Regulations (2010)

Industrial processes which may range from large industrial plant to dry cleaners and paint spraying workshops are regulated by the Environment Agency (Part A1 processes) and the borough (Part A2 and Part B processes). The planning regime must assume that the permitting regime will ensure the processes comply with their permits and the Act. The planning regime can, however consider whether a land use is appropriate and it must consider the exposure to pollutants. For developments requiring planning applications this is done at the planning application stage, and for existing processes it is an ongoing review through Air Quality Action Planning.

8.1.6 Section 79 of Part III of the Environmental Protection Act (1990)

Section 79 of Part III of the Environmental Protection Act (1990) is used by Local Authorities to control dust, smoke and fumes emanating from premises such as construction and other sites that are not regulated under the Environmental Permitting Regulations. In order for an Authority to be able to enforcement the legislation, the dust smoke or fumes must be prejudicial to health or constitute a statutory nuisance.

9 POLICY CONTEXT

9.1 National Planning Policy Framework

The National Planning Policy Framework (NPPF) The National Planning Policy Framework sets out national planning policies and principles for England and how these are expected to be applied. The Framework includes specific policies in relation to air quality and air quality management areas. It states that:

"Planning policies should sustain compliance with and contribute towards EU limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and the cumulative impacts on air quality from individual sites in local areas. Planning decisions should ensure that any new development in Air Quality Management Areas is consistent with the local air quality action plan."

To support the Framework, [planning practice guidance on air quality](#) has been published which provides guiding principles on how planning should take account of the impact of new development on air quality.

9.2 Local Planning Policy

9.2.1 The London Plan

The London Plan 2021 is the Spatial Development Strategy for Greater London, setting out an integrated economic, environmental, transport and social framework for the development of London over the next 20–25 years. The London Plan policies relating to air quality are set out below.

Policy SI 1 - Improving air quality which is the main policy governing air quality can be found in Chapter 9 (Sustainable Infrastructure). It states as follows:

Policy SI 1 - Improving air quality

A - Development Plans, through relevant strategic, site-specific and area-based policies, should seek opportunities to identify and deliver further improvements to air quality and should not reduce air quality benefits that result from the Mayor's or boroughs' activities to improve air quality.

B - To tackle poor air quality, protect health and meet legal obligations the following criteria should be addressed:

- 1) Development proposals should not:
 - a) lead to further deterioration of existing poor air quality
 - b) create any new areas that exceed air quality limits, or delay the date at which compliance will be achieved in areas that are currently in exceedance of legal limits
 - c) create unacceptable risk of high levels of exposure to poor air quality.

- 2) In order to meet the requirements in Part 1, as a minimum:
 - a) development proposals must be at least Air Quality Neutral
 - b) development proposals should use design solutions to prevent or minimise increased exposure to existing air pollution and make provision to address local problems of air quality in preference to post-design or retro-fitted mitigation measures
 - c) major development proposals must be submitted with an Air Quality Assessment. Air quality assessments should show how the development will meet the requirements of B1
 - d) development proposals in Air Quality Focus Areas or that are likely to be used by large numbers of people particularly vulnerable to poor air quality, such as children or older people should demonstrate that design measures have been used to minimise exposure.

C - Masterplans and development briefs for large-scale development proposals subject to an Environmental Impact Assessment should consider how local air quality can be improved across the area of the proposal as part of an air quality positive approach. To achieve this a statement should be submitted demonstrating:

- 1) how proposals have considered ways to maximise benefits to local air quality, and
- 2) what measures or design features will be put in place to reduce exposure to pollution, and how they will achieve this.

D - In order to reduce the impact on air quality during the construction and demolition phase development proposals must demonstrate how they plan to comply with the Non-Road Mobile Machinery Low Emission Zone and reduce emissions from the demolition and construction of buildings following best practice guidance*.

E - Development proposals should ensure that where emissions need to be reduced to meet the requirements of Air Quality Neutral or to make the impact of development on local air quality acceptable, this is done on-site. Where it can be demonstrated that emissions cannot be further reduced by on-site measures, off-site measures to improve local air quality may be acceptable, provided that equivalent air quality benefits can be demonstrated within the area affected by the development.

* The Control of Dust and Emissions During Construction and Demolition SPG

Other policies in the plan that are relevant to air quality include:





- Planning for Good Growth Policy GG3(F) - To improve Londoners' health and reduce health inequalities, those involved in planning and development must seek to improve London's air quality, reduce public exposure to poor air quality and minimise inequalities in levels of exposure to air pollution.
- Policy SD2 Collaboration in the Wider South East (WSE) - The Mayor will work with WSE partners to find solutions to shared strategic concerns such as: barriers to housing and infrastructure delivery (including 'smart' solutions – see also paragraph 9.6.9); factors that influence economic prosperity; the need to tackle climate change (including water management and flood risk); improvements to the environment (including air quality, biodiversity and green infrastructure), waste management, and the promotion of Circular Economies; wider needs for freight, logistics and port facilities; and scope for the substitution of business and industrial capacity where 8 mutual benefits can be achieved.
- Policy SD4 The Central Activities Zone (CAZ) - Taking account of the dense nature of the CAZ, practical measures should be taken to improve air quality, using an air quality positive approach where possible (Policy SI 1 Improving air quality) and to address issues related to climate change and the urban heat island effect.
- Policy D1 London's form, character and capacity for growth - Boroughs should undertake air quality area assessments to define the characteristics, qualities and value of different places within the plan area.

The Mayor is committed to making air quality in London the best of any major world city, which means not only achieving compliance with legal limits for Nitrogen Dioxide as soon as possible and maintaining compliance where it is already achieved, but also achieving World Health Organisation targets for other pollutants such as Particulate Matter.

The aim of this policy is to ensure that new developments are designed and built, as far as is possible, to improve local air quality and reduce the extent to which the public are exposed to poor air quality. This means that new developments, as a minimum, must not cause new exceedances of legal air quality

standards, or delay the date at which compliance will be achieved in areas that are currently in exceedance of legal limits.

For major developments, a preliminary Air Quality Assessment should be carried out before designing the development to inform the design process. The aim of a preliminary assessment is to assess:

-  The most significant sources of pollution in the area
-  Constraints imposed on the site by poor air quality
-  Appropriate land uses for the site
-  Appropriate design measures that could be implemented to ensure that development reduces exposure and improves air quality.

For large scale developments, development design teams should identify opportunities to deliver an air quality positive development in combination with addressing other requirements of London Plan policies at an early stage, such as those relating to transport and energy.

9.2.2 The Control of Dust and Emissions During Construction and Demolition SPG

The Control of Dust and Emissions During Construction and Demolition SPG requires that the developer produces a Dust Risk Assessment (DRA) as part of the Air Quality Assessment.

9.2.3 London Borough of Hillingdon Council Local Plan

London Borough of Hillingdon Councils (LBHC)'s Local Plan, adopted in November 2012, was split into two parts titled 'Part 1 - Strategic Policies' and 'Part 2 - Development Management Policies'.

Relevant policies with the Local Plan include:

Policy EM1: Climate Change Adaptation and Mitigation

The Council plans to ensure that climate change mitigation is addressed at every stage of the development process by:

1. Prioritising higher density development in urban and town centres that are well served by sustainable forms of transport.
2. Promoting a modal shift away from private car use and requiring new development to include innovative initiatives to reduce car dependency.
3. Ensuring development meets the highest possible design standards whilst still retaining competitiveness within the market.
4. Working with developers of major schemes to identify the opportunities to help provide efficiency initiatives that can benefit the existing building stock.
5. Promoting the use of decentralised energy within large scale development whilst improving local air quality levels.
6. Targeting areas with high carbon emissions for additional reductions through low carbon strategies. These strategies will also have an objective to minimise other pollutants that impact on local air quality. Targeting areas of poor air quality for additional emissions reductions.
7. Encouraging sustainable techniques to land remediation to reduce the need to transport waste to landfill. In particular developers should consider bioremediation(39) as part of their proposals.
8. Encouraging the installation of renewable energy for all new development in meeting the carbon reduction targets savings set out in the London Plan. Identify opportunities for new sources of electricity generation including anaerobic digestion, hydroelectricity and a greater use of waste as a resource.

9. Promoting new development to contribute to the upgrading of existing housing stock where appropriate.

Policy EM8: Land, Water, Air, and Noise

- All development should not cause deterioration in the local air quality levels and should ensure the protection of both existing and new sensitive receptors.
- All major development within the Air Quality Management Area (AQMA) should demonstrate air quality neutrality (no worsening of impacts) where appropriate; actively contribute to the promotion of sustainable transport measures such as vehicle charging points and the increased provision for vehicles with cleaner transport fuels; deliver increased planting through soft landscaping and living walls and roofs; and provide a management plan for ensuring air quality impacts can be kept to a minimum.
- The Council seeks to reduce the levels of pollutants referred to in the Government's National Air Quality Strategy and will have regard to the Mayor's Air Quality Strategy. London Boroughs should also take account of the findings of the Air Quality Review and Assessments and Actions plans, in particular where Air Quality Management Areas have been designated.
- The Council has a network of Air Quality Monitoring stations but recognises that this can be widened to improve understanding of air quality impacts. The Council may therefore require new major development in an AQMA to fund additional air quality monitoring stations to assist in managing air quality improvements.

Policy DMEI 14: Air Quality

- A. Development proposals should demonstrate appropriate reductions in emissions to sustain compliance with and contribute towards meeting EU limit values and national air quality objectives for pollutants.
- B. Development proposals should, as a minimum:
 - i) be at least "air quality neutral";
 - ii) include sufficient mitigation to ensure there is no unacceptable risk from air pollution to sensitive receptors, both existing and new; and
 - iii) actively contribute towards the improvement of air quality, especially within the Air Quality Management Area.

9.2.4 London Borough of Hillingdon Council Local Air Quality Action Plan

The latest Air Quality Action Plan (AQAP) outlines the actions the Council will take to improve air quality in Hillingdon between 2019 and 2024. The actions the Council is taking can be listed under seven broad topics:

- **Monitoring and other core statutory duties:** maintaining monitoring networks is critical for understanding where pollution is most acute, and what measures are effective to reduce pollution. There are also several other important statutory duties undertaken by boroughs, such as the regulation of specific industrial processes, which form the basis of action to improve pollution;
- **Emissions from developments and buildings:** emissions from buildings account for about 15% of the NOX emissions across London so are important in affecting NO2 concentrations;
- **Public health and awareness raising:** increasing awareness can drive behavioural change to lower emissions as well as to reduce exposure to air pollution especially amongst those who are most vulnerable;
- **Delivery servicing and freight:** vans and lorries delivering goods and services often have high primary NO2 emissions;

- **Borough fleet actions:** our fleet includes light and heavy duty diesel-fuelled vehicles such as mini buses and refuse collection vehicles with high primary NO₂ emissions. Tackling our own fleet means we will be leading by example;
- **Localised solutions:** these seek to improve the environment of neighbourhoods through a combination of measures; and
- **Cleaner transport:** road transport is the main source of air pollution in London. We need to incentivise a change to walking, cycling and ultra-low emission vehicles (such as electric) as far as possible.

10 SUMMARY OF BASELINE CONDITIONS

10.1 Air Quality Management Area

An AQMA was declared in Hillingdon due to exceedances of objectives for NO₂ in 2003. The AQMA covered the area from the southern boundary north to the border defined by, the A40 corridor from the western borough boundary, east to the intersection with the Yeading Brook north until its intersection with the Chiltern-Marylebone railway line. The emissions were considered to be mainly associated with road traffic.

Air quality problems in the Borough continue to be most severe around Heathrow Airport and the major road network that goes through the Borough, reflecting the largest sources of nitrogen oxide (NO_x) emissions within the AQMA which covers the southern half of the Borough, as seen in Figure 2 below. The possible inclusion of areas in the north of the Borough has been kept under review by the Council.

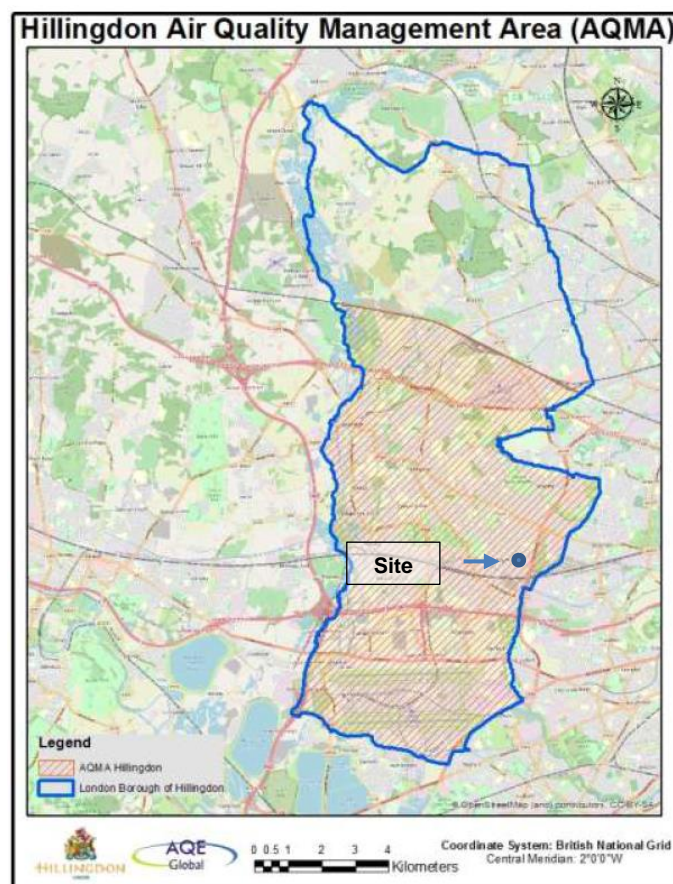


Figure 2: Hillingdon's AQMA

The proposed scheme is therefore located within the AQMA and could therefore adversely impact local air quality. There is also the potential for air quality impacts during the construction and operational

phases of the proposals. As such, an Air Quality Assessment is required to determine baseline conditions and consider potential impacts as a result of the proposed scheme.

10.2 Air Quality Monitoring

LBHC Council undertakes monitoring of pollutant concentrations using continuous and periodic techniques throughout the borough.

A review of the most recent Air Quality Annual Status Report (ASR) indicated that the closest continuous monitoring station (HIL5) is located approximately 1.1km south of the proposed development site. The continuous monitoring results for 2020 indicate an annual mean concentration of 31µg/m³ for NO₂ at this location, which is below the air quality objective (AQO) of 40µg/m³.

LBHC also undertook passive diffusion tube monitoring of NO₂ at 44no. sites during 2020. The closest diffusion tube monitoring stations are HILL27 (Botwell House RC Primary School) and HILL17 (49 Silverdale Gardens, Hayes) which are located 151m west and 422m east of the site respectively. During 2020, the annual mean NO₂ concentration at HILL27 and HILL17 were 24.5µg/m³ and 24.7µg/m³ respectively, which also fall below the AQO. A summary table is presented Table 3 below.

Table 3: Summary of monitoring stations within AQMA 3.

Site ID	Monitoring Type	Concentration of NO ₂ in 2019 (µg/m ³)	Approx. Distance and Direction from Site
HIL5 – North Hyde Gardens, Hayes, UB3 4QR	Continuous	31	1100m S
HILL27 - Botwell House RC Primary School	Diffusion Tubes	24.5	151m W
HILL17 - 49 Silverdale Gardens, Hayes	Diffusion Tubes	24.7	422m E

10.3 Air Quality focus Areas

Air Quality Focus Areas (AQFAs) are areas identified by Transport for London (TfL) and GLA as locations that exceed the AQS Objective annual mean for NO₂ where there are sensitive receptors. AQFAs allow those local authorities with borough-wide NO₂ based AQMAs to identify air quality hotspots. 17no. Air Quality Focus Areas have been identified in Hillingdon. These are listed below.

- A4 Corridor Focus Area;
- A40 – Swakeleys Road Focus Area;
- A40 – Long Lane Focus Area;
- A40 – South Ruislip Focus Area;
- Eastcote Village Focus Area;
- Harlington Focus Area;
- Hayes Focus Area;
- Hillingdon Hospital Focus Area;
- M4 Corridor Area;
- Northwood East Focus Area;
- Northwood West Focus Area;
- Ossie Garvin Focus Area;
- Ruislip Town Centre Focus Area;
- Sipson Focus Area;
- Uxbridge Focus Area;
- Uxbridge Road Focus Area; and
- West Drayton/Yiewsley Focus Area.

A map showing the location of the air quality focus areas is available in Figure 3 below. As can be seen, the site is located within the Hayes Focus Areas.

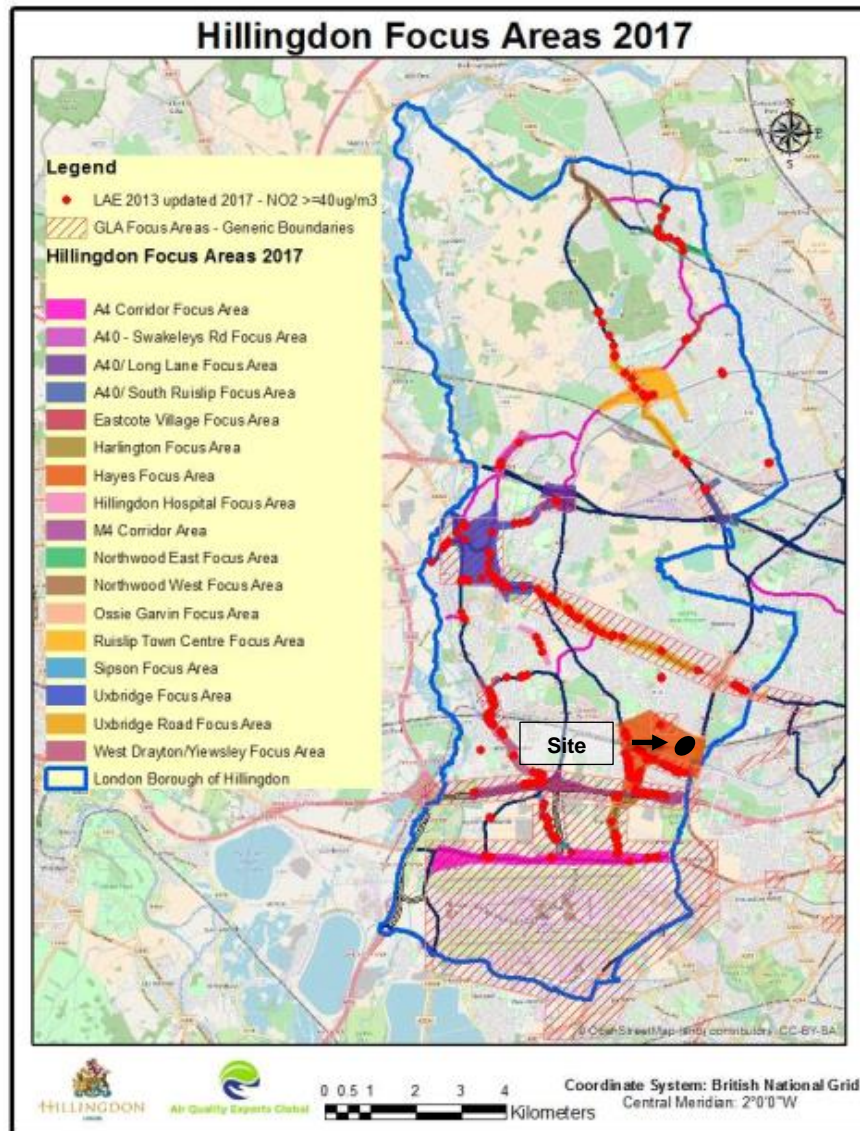


Figure 3: Map showing Air Quality Focus Areas

10.4 Background Pollutant Concentrations

DEFRA has made available [modelled background concentration maps](#) for a reference year and projected future years for a range of pollutants including oxides of nitrogen (NO_x), nitrogen dioxide (NO₂) and particulate matter (PM₁₀ and PM_{2.5}).

The definition of the “background concentration” is the concentration that would remain if all the local sources of pollutants (i.e. roads, industrial emissions, chimneys) were removed, leaving only pollutants that are derived from sources that are outside of the district.

These indicate that the NO₂ concentration at the site is 25.7µg/m³. This value is projected to reduce to 21µg/m³ by 2030.

11 CONSTRUCTION PHASE DUST RISK ASSESSMENT

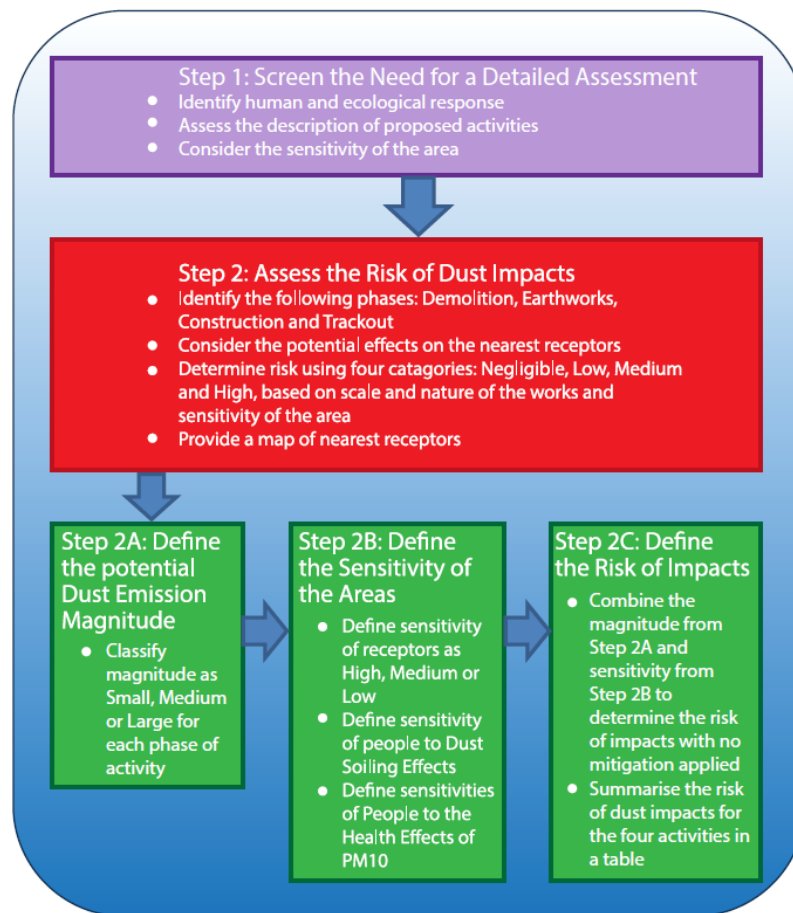
The Mayor of London's Control of Dust and Emissions During Construction and Demolition Supplementary Planning Guidance' provides a methodology for undertaking a construction phase Dust Risk Assessment (DRA) and for determining mitigation measures where necessary.

An AQDRA should include:

- A risk assessment for each phase of works (demolition, earthworks, construction, trackout), which evaluates risk and identifies suitable mitigation measures.
- Identification of whether each phase of activity on-site represents a low, medium or high risk.

The methodology is summarised in Figure 4 below.

Figure 4: Dust Risk Assessment Methodology



11.1 Step 1: Screening of the Need for a Detailed Assessment

Construction phase activities such as demolition, excavation, ground works and heavy vehicle movements have the potential to generate fugitive dust emissions which could impact both neighbouring residents as well as pedestrians.

The site is directly adjacent to residential dwellings on both the southern and western boundaries and is also on a relatively busy main road. As such it is considered that a detailed Dust Risk Assessment is required.

11.2 Step 2: Assessment of the Risk of Dust Impacts

Step 2 involves an assessment of the risk of potential dust impacts based on the scale and nature of the works, and the sensitivity of the area to dust impacts.

The dust emission magnitude (Step 2a) and receptor sensitivity assessment (Step 2b) for the proposed development are summarised in Table 4 below.

Table 4: Step 2a and 2b - Assessment of Impacts of Potential Dust Emissions

Activity	Dust Emission Magnitude	Comments	Receptor Sensitivity Dust Soiling	Receptor Sensitivity Human Health	Receptor Sensitivity Ecological
Demolition	SMALL	Total volume of building to be demolished <20,000m ³ . Construction material with low potential for dust release (e.g. metal cladding or timber). Demolition activities <10m above ground demolition during wetter months.	HIGH Approx. 10 -100 Residential dwellings within properties within 20m of site boundary.	HIGH 10 – 100 Residential Properties within 20m of site boundary. Annual Mean PM10 Concentration 24-28 µg/m3	LOW No ecological receptors identified
Earthworks	SMALL	Total site area <2,500m ² . <5 heavy earth moving vehicles active at any one time, formation of stockpile enclosures <4m in height. Total material moved <10,000 tonnes.			
Construction	SMALL	Total building volume <25,000m ³ ,			
Trackout	SMALL	<10 HDV (>3.5t) trips in any one day. Surface material with low potential for dust release. Unpaved road length <50 m.			

Table 5 below provides a summary of the risks of the potential impacts in the absence of mitigation measures. This is derived by combining the magnitude of the potential hazard with the sensitivity of the potential receptor.

Table 5: Summary Construction Phase Dust Risk Assessment

Potential Impact	Risk			
	Demolition	Earthworks	Construction	Trackout
Dust Soiling	Medium	Low	Low	Low
Human Health	Medium	Low	Low	Low
Ecological	Negligible	Negligible	Negligible	Negligible

12 OPERATIONAL PHASE IMPACTS

12.1 Impacts of Increase in Road Traffic Vehicular Movements on Local Air Quality

Given that the proposed development will introduce 9no. new residential dwellings, it could result in an increase in vehicle movements in the area which may impact upon local air quality. This potential impact was assessed using guidance contained in the document entitled 'Land-Use Planning & Development Control: Planning for Air Quality' by Institute of Air Quality Management and Environmental Protection UK (IAQM/EPUK).

The document suggests a two-stage approach with the first stage being intended to screen out smaller development and/ or developments where impacts can be considered to have insignificant effects. If the answers to any of the standard questions apply then it is necessary to proceed to stage 2.

The second stage relates to specific details regarding the proposed development and the likelihood of air quality impacts. Again, standard questions are asked and depending on the answers to these, a further more detailed assessment may or may not be required.

A summary of the questions and responses to the Stage 1 and Stage 2 standard questions is given in the tables below.

Table 6: Summary of Results Stage 1 Operational Air Quality Impact Assessment

Question No.	Question/Criteria	Answer	Comments	Next Step
1	Does the proposed development involve 10 or more residential units or a site area of more than 0.5ha?	No.	It involves 9no. new residential units.	No Further Action.
2	Does the proposed development involve more than 1,000 m ² of floor space for all other uses or a site area greater than 1ha	Yes	The total floor space for the proposed development is 1014.13m ² .	No Further Action.
3	Will the development have more than 10 parking spaces	No.	The scheme will be car free.	No Further Action.

Table 7: Summary of Results Stage 2 Operational Air Quality Impact Assessment

Question/Criteria	Answer	Next Step
Will the development cause a change of LDV flows of: - more than 100 Annual Average Daily Traffic (AADT) within or adjacent to an AQMA - more than 500 AADT elsewhere.	No.	No Further Action.
Will the development cause a change of HDV flows of: - more than 25 AADT within or adjacent to an AQMA - more than 100 AADT elsewhere.	No.	No Further Action.
Will the development require realignment of roads where the change is 5m or more and the road is within an AQMA	No.	No Further Action.
Will the development require the introduction of a new junction or removal of an existing junction near to relevant receptors?	No.	No Further Action.

Based on the information available to date and based on the IAQM/EPUK guidance, the air quality impacts resulting from any increase in vehicles movements are likely to be negligible and therefore no further assessment is required.

12.2 Future Exposure

There is the potential for future residents to be exposed to exceedances of the annual mean AQS objective for NO₂ as a result of road traffic exhaust emissions from surrounding busy roads.

This risk has been assessed using the London Atmospheric Emissions Inventory (LAEI) modelled concentrations data. Using the 2016 modelled concentrations is considered to be a conservative approach as given the action plans currently in place, air quality is likely to continuously improve in coming years.

The LAEI maps are available in Figure 5 below. These indicate that the onsite NO₂ concentrations in majority of the site range between 34.8 µg/m³ and 35.5 µg/m³. The average NO₂ concentration across the site was calculated to be 34.9 µg/m³.

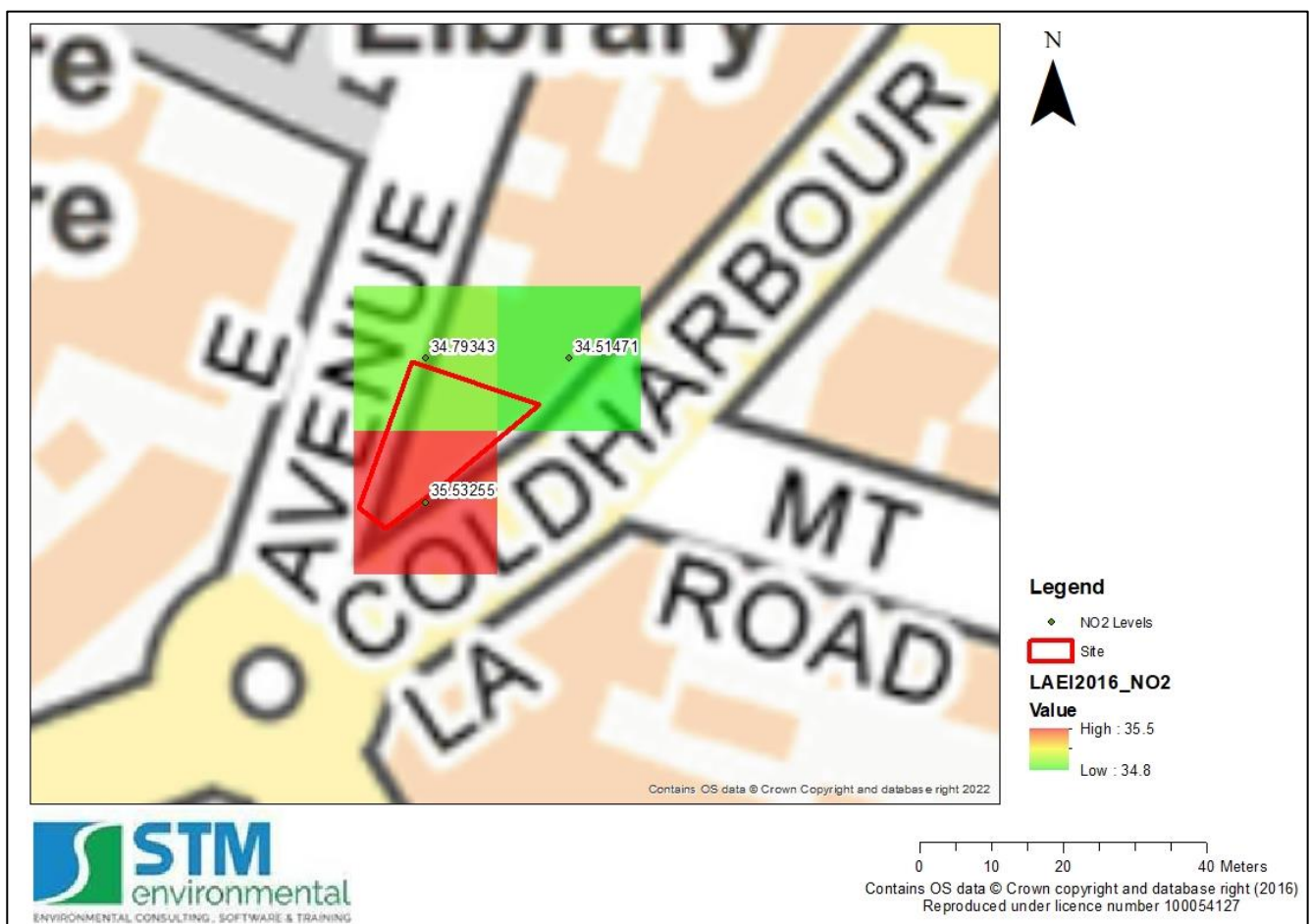


Figure 5: LAEI Modelled Concentrations

The average concentrations of NO₂ at the site would therefore be greater than 5% below the annual mean AQO. As such the site falls into the APEC – A category in accordance with the London Councils Air Quality Guidance developed by the London Air Pollution Planning and the Local Environment (APPLE) working group (see Table 7 below). As such there should be no air quality grounds for refusal; however, mitigation of any emissions should be considered.

Table 8: Air Pollution Exposure Criteria (APEC)

Category	Applicable Range Nitrogen Dioxide Annual Mean	Applicable Range PM10	Recommendation
APEC - A	Below 5% of the annual mean AQO	Annual Mean: > 5% below national objective 24 hr: > 1-day less than national objective	No air quality grounds for refusal; however mitigation of any emissions should be considered
APEC - B	Between 5% below or above the annual mean AQO	Annual Mean: Between 5% above or below national objective 24 hr: Between 1-day above or below national objective.	May not be sufficient air quality grounds for refusal, however appropriate mitigation must be considered e.g. maximise distance from pollutant source, proven ventilation systems, parking considerations, winter gardens, internal layout considered and internal pollutant emissions minimised
APEC - C	Above 5% of the annual mean AQO	Annual Mean: > 5% above national objective 24 hr: > 1-day more than national objective.	Refusal on air quality grounds should be anticipated, unless the LA has a specific policy enabling such land use and ensure best endeavours to reduce exposure are incorporated. Worker exposure in commercial/industrial land uses should be considered further. Mitigation measures must be presented with air quality assessment, detailing anticipated outcomes of mitigation measures

12.3 Air Quality Neutral Assessment

In accordance with the London Plan, all major developments in Greater London must comply with the Air Quality Neutral policy (AQNP). Major developments are defined as:

- For 10 or more residential dwellings (or where the number is not given, the site area is greater than 0.5ha); or
- For all other uses, where the floor space is 1,000m² or more (or the site area is 1ha or more).

Although the proposed scheme comprises less than 10no. residential units, the total floor space is 1014.13m², which is marginally above the 1000m² limit. Therefore, the Air Quality Neutral policy does apply.

Under the policy, Developers must calculate the potential NO_x and/or PM10 emissions from the buildings and transport elements of their developments and compare them to benchmarks devised to ensure that developments do not lead to an incremental increase in background concentrations in London. Where schemes do not meet the 'air quality neutral' benchmarks, after mitigation measures have been implemented onsite, the developer will be required to off-set emissions off-site.

The benchmarks for buildings and transport have been calculated based on the type and magnitude of the land use classes the proposed development comprises of. The benchmarks are laid out in Table 14 and Table 15 in [Appendix 4](#). The relevant criteria are outlined in below.

It is understood that the current proposed development will comprise of a new mixed-use development incorporating 2no. retail units with 9no. new residential dwellings above

The gross internal floor areas of each of the main proposed land uses were calculated from plans and are summarised in Table 9 below.

Table 9: Internal Areas of Main Land Uses Associated with the Proposed Development

Location	Land Use Class	Gross Internal Area (m ²)	Comments
Ground Floors	Class E	162.40	2no. retail units
1 st , 2 nd , 3 rd and 4 th floors	Class C3	631.13	9no. residential units

12.3.1 Building Emissions

The main emissions from the building will be associated with the heating plant. It is understood that the heating is proposed to be provided to each flat via thermodynamic heating panels and electric Air Source Heat Pumps (ASHPs). ASHPs extract energy from the ambient air and transfer it to an indoor space via the wet central heating systems to heat radiators and provide domestic hot water.

Thermodynamic panels are similar to ASHPs and work like refrigerators in reverse. The panels absorb heat from the atmosphere to convert a refrigerant into a gas. That then passes through a compressor – which boosts its temperature – and is used to heat water.

ASHPs offer a considerable advantage through improving the air quality problems faced by many areas, since they do not emit any NO_x, SO_x or particulate matter (PM) locally. In addition to this, heat pumps are considered to one of the most carbon efficient methods of supplying heating and hot water with CO₂ emissions equivalent to approximately 0.01 kg/kWh.

The building emission benchmarks were calculated as shown in Table 9 below. PM₁₀ emissions were not included as, per guidance, they only be considered for oil and solid fuel use.

Table 10: Calculated Building Emission Benchmarks

Land Use Class	Description	No. of Dwellings/ Gross Area (m ²)	NO _x Building TEB (g/m ²) / (g/dwelling/annum)	Total NO _x Building TEB (kg NO _x / Annum)
Class C3	Residential Dwellings	9	558	5.02
Class E	Retail Units	162.4	219	35.57

The following equation taken from the BREEAM technical manual can be used to determine the contributing NO_x emissions from a heat pump:

$$M_{Heat} = \frac{M_{Elec}}{EER}$$

Where:

M_{Heat} NO_x emission per unit of heat generated in mg/kWh_{Heat}

M_{Elec} NO_x emissions from UK grid electricity mg/kWh, this should be assumed to be 750mg/kWh_{Elec}

EER Energy Efficiency Ratio (also referred to as Co-efficient of Performance). The EER is the ratio of the level of cooling, divided by the amount of electricity used. The higher the EER, the more efficient the system is. Heat pumps with a minimum EER of 12.5 will be used.

$$M_{Heat} = M_{Elec}/EER = \frac{750\text{mg}/\text{KWh}_{Elec}}{12.5} = 60\text{mg NO}_x/\text{KWh}_{Elec}$$

According to the Government document “Energy consumption in new domestic buildings 2015 – 2017 (England and Wales)” Average consumption is different for each property type. For properties built in

2017, the average house or flat used approximately 120 kWh/m². Therefore, the total NO_x produced by the development was calculated as follows:

$$\text{Total NO}_x = 60\text{mg NO}_x/\text{KWh}_{\text{Elec}} * 120 \text{ kWh/m}^2 * 631.13\text{m}^2 = 4.54\text{kgNO}_x/\text{Annum}$$

It should be noted that the NO_x emissions referred to above will be generated at the source of the electricity generation rather than locally.

The calculated Building Emissions were compared with the Total Building Emission Benchmarks as shown in Table 11.

Table 11: Comparison of Calculated Building Emissions with Benchmarks

	NO _x Emissions (kg / annum)
Total Calculated Building Emissions	4.54
Total Buildings Emissions Benchmark (TEB)	5.02
DIFFERENCE	0.48

As can be seen the calculated building emissions from the proposed development are less than the TEB. Therefore, no additional mitigation is required in order to offset NO_x emissions.

12.3.2 Transport Emissions

The proposed development will be 'car free' and no other off-site vehicular parking is available for residents. As such, Total Transport Emissions will be insignificant and therefore do not need to be calculated.

13 AIR QUALITY MITIGATION MEASURES

13.1 Construction Phase Measures

The risks associated with potential construction phase dust impacts were considered to range from low to medium indicating that the implementation of some form of dust mitigation is required. The Mayor of London's Control of Dust and Emissions During Construction and Demolition SPG provides examples of measures that can be taken to reduce the potential construction phase dust impacts. The measures outlined include the following:

- Good site management – ensuring that the site is responsibly managed during the demolition and construction phases of the development. Involving stakeholders in planning and ensuring a responsible person can be contacted on site at all times.
- Good site layout - ensuring that dust generating activities are as much as possible kept away from sensitive receptors and installing solid screens or barriers around dust generating activities.
- Good site maintenance – Regular checks of buildings within 100m of the site boundary should be carried out to check for soiling due to dust. Regularly cleaning hoardings, fencing, barriers and scaffolding using wet methods. Implementing real-time dust and air quality pollutant monitors across the site and ensure they are checked regularly.
- Preventing spillages
- Reducing emissions from site vehicles - All vehicles associated with the demolition / construction should comply with the standards of the London Low Emission Zone. Keeping vehicle idling to a minimum.
- Planning Logistics to avoid congestions and delays
- Development of workplace travel plans which aim to reduce the emissions from workers and visitors travelling to and from the site.
- Use of renewable, mains or battery powered plant items
- Avoiding where possible, cutting, grinding and sawing by using prefabricated materials
- Use best available techniques in accordance with the Process Guidance note PG 3/16 (04)12 if intending on bringing mobile crushers onto the site.
- Avoid bonfires and burning of waste materials.

- Wash and clean vehicles – in particular wheels – before leaving the site.
- Ensure that hard surfaces or paving are used for all haul routes, even if routes are temporary.
- All vehicles carrying dusty materials should be securely covered before leaving the site.
- Keep an accurate log of complaints from the public, and the measures taken to address any complaints, where they were required
- Consider if monitoring of PM10 is necessary on site or at location of sensitive receptors.

The above list and the SPG will be reviewed prior to the commencement of construction works and if required a Construction Environmental Management Plan, will be implemented.

13.2 Operational Phase Measures

As described above, based on the Council's monitoring results for NO₂, the Site is classified as APEC – A, which indicates that the Site is considered suitable for residential use without the requirement for mitigation measures.

14 CONCLUSIONS

STM was instructed by Ashheights Ltd to prepare an Air Quality Impact Assessment for a proposed development located at 1-3 Coldharbour Lane, Hayes, UB3 3EA in Hillingdon. The assessment was required to support a planning application for the demolition of the existing buildings and the construction of a new mixed-use development incorporating 2no. retail units and 9no. new dwellings.

The site lies within an AQMA which was declared in 2003 due to exceedance of AQO for NO₂. Given the location and size of the proposed development, the proposals were considered to have the potential to expose future users to an area of poor air quality and to result in adverse impacts on local air quality both during construction and operation. An Air Quality Assessment was therefore undertaken with the objective of assessing the potential negative air quality impacts associated with the development.

Fugitive dust emissions from the construction phase were assessed in using the methodology laid out in the Mayor of London's Supplementary Planning Guidance. The main risk of adverse dust impacts was considered to be associated with the demolition phase of the construction. These were considered to be Medium. Risks associated with Earthworks, Construction and Trackout were considered to be Low. However, provided the mitigation measures laid out in the Mayor's SPG are implemented, any potential air quality impacts from dust are considered likely to be minimal.

As the proposed development is a car free development, the number of additional vehicle trips anticipated to be generated by the proposals are considered to be very low and the potential air quality impacts are predicted to be negligible.

An assessment was made of the potential exposure of future users of the development to air pollutants. The LAEI model data indicates that pollution levels across the vast majority of the site are below the relevant AQS objectives and that the site can be classified as APEC A. As such, the location is considered to be suitable for proposed residential use without the requirement for air quality mitigation measures.

An Air Quality Neutral Assessment was carried out for the site. This found that building related emissions are very unlikely to exceed the calculated benchmarks and that therefore no mitigation measures are required to offset emissions. The proposed development will be 'car free' and no other off-site vehicular parking is available for residents. As such, Total Transport Emissions will be insufficient and do not require to be calculated.

On this basis we consider the development to be in compliance with the local and London-wide planning policies and the NPPF.

15 APPENDICES

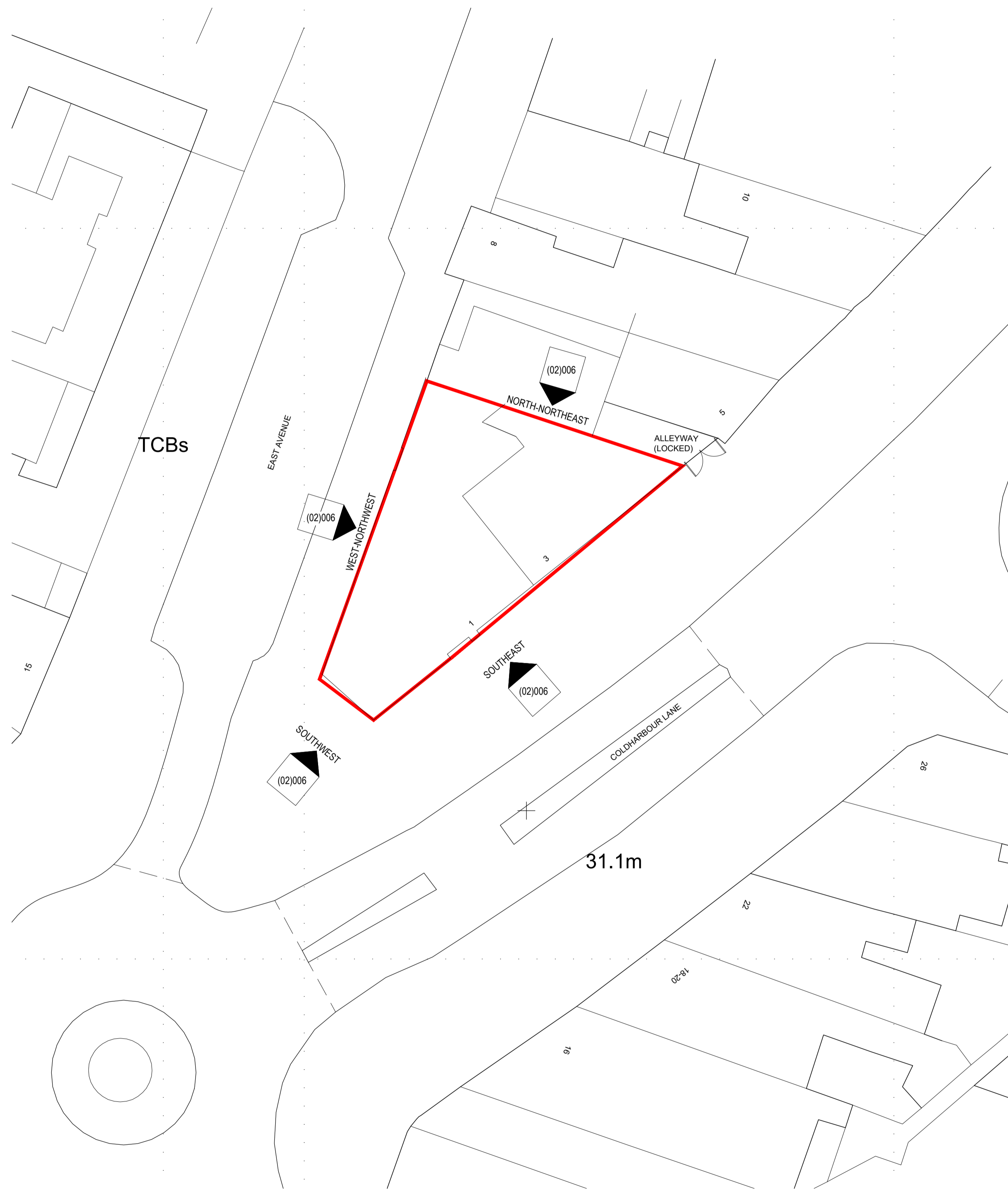
15.1 Appendix 1 – Details of Proposed Development

15.1.1 Proposed Plans

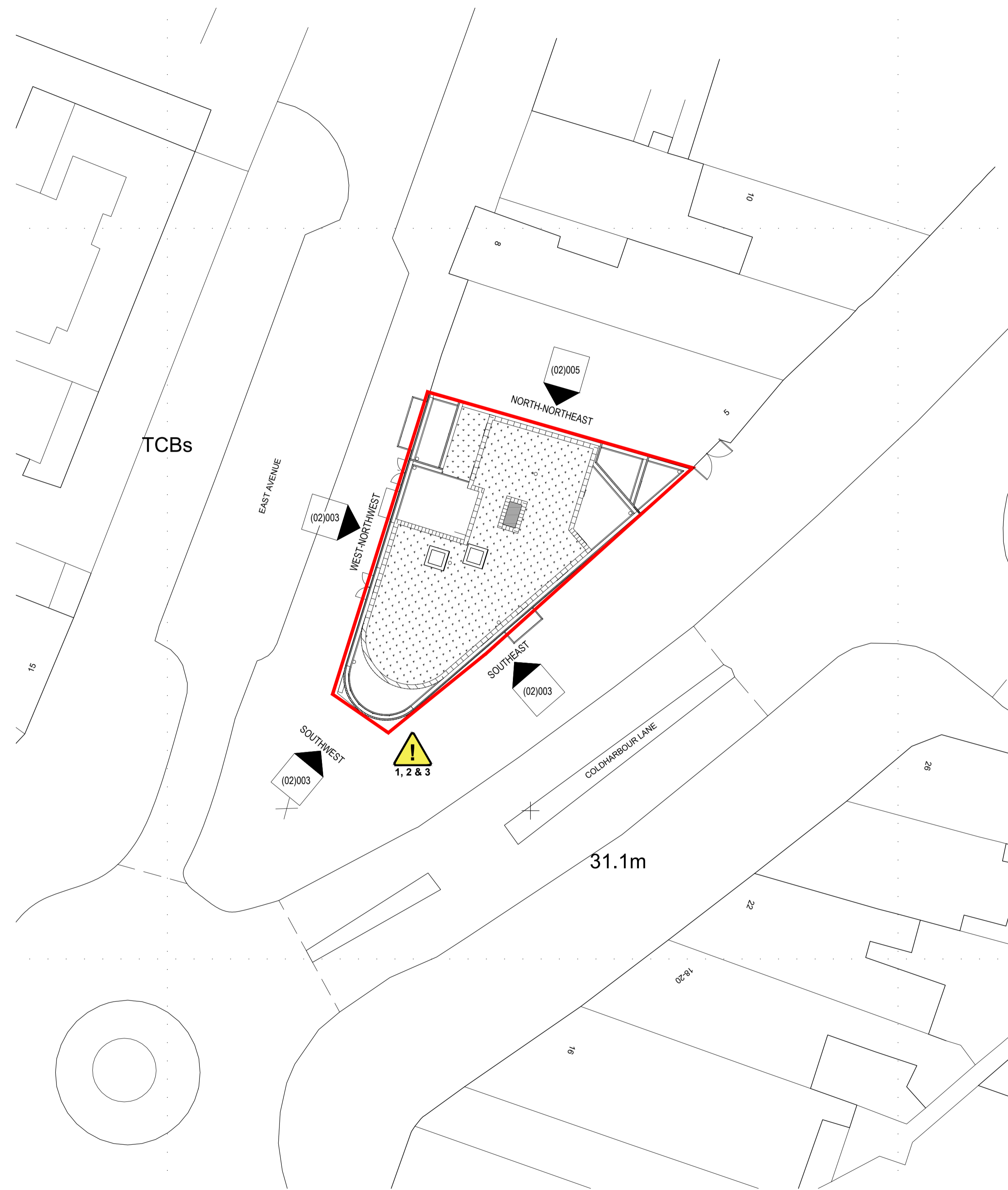
- NOTES
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0 1m 2m 5m 10m
Scale 1:200 @ A1



01 EXISTING SITE PLAN
Scale 1:200 @ A1



02 PROPOSED SITE PLAN
Scale 1:200 @ A1

- Health and Safety Information:**
- Existing Structure: demolition work proposed. Care to be taken when demolishing / dismantling existing structures and chimney stacks.
 - Materials Hazard: Potential for asbestos containing materials (ACMs); Client / Principal Contractor to arrange asbestos refurbishment and demolition survey prior to construction to identify ACMs for removal.
 - Construction adjacent the public highway. Construction management plan to be prepared prior to the Construction Phase detailing hoarding, site entrance and compound.

rev	date	drawn	checked
A	29/09/22	JSE	SW

Drawings issued for planning approval.

drawing stage **PLANNING**

drawing status **APPROVAL**

client
SHAILESH PATEL

project
**1-3 COLDHARBOUR LANE
HAYES TOWN, UB3 3EA**

drawing title
EXISTING & PROPOSED SITE PLANS

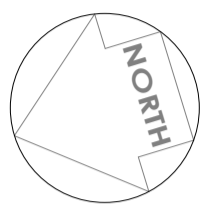
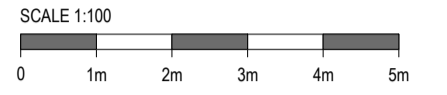
date **22/08/22** drawn **JSE**
scale **1:200 @ A1** checked **SW**



Job No **215/02** DWG No **(02)007** Rev **A**

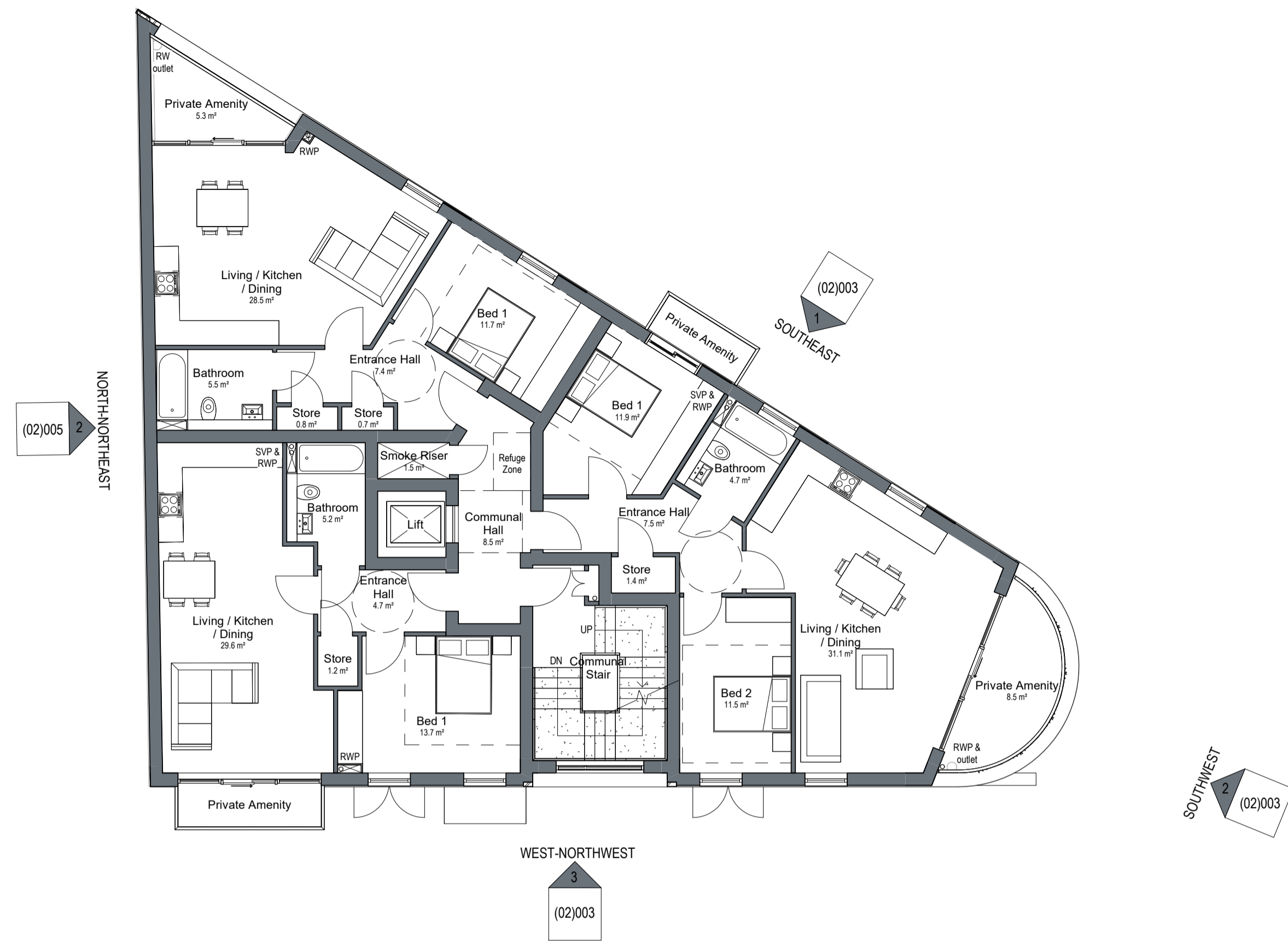
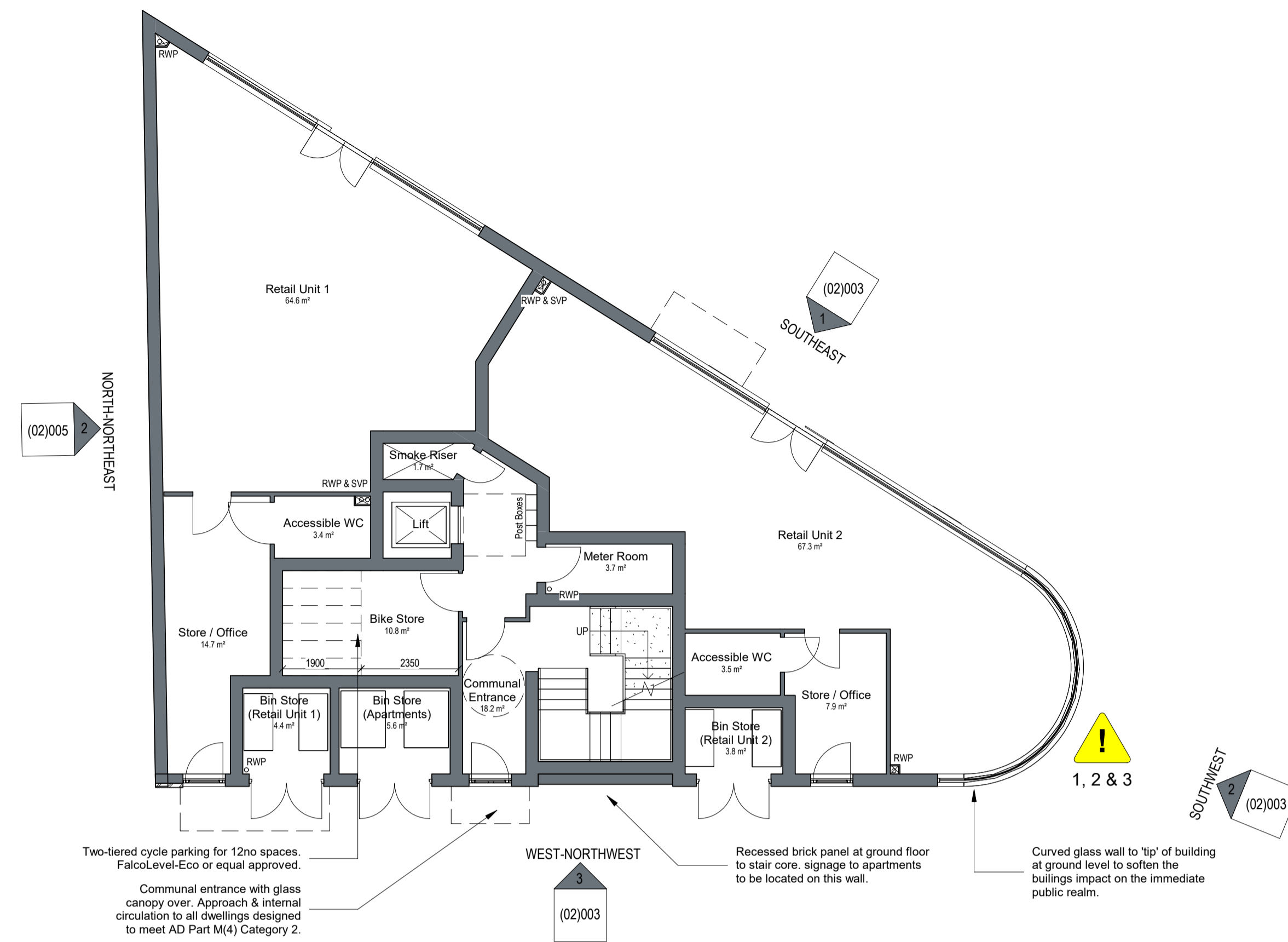
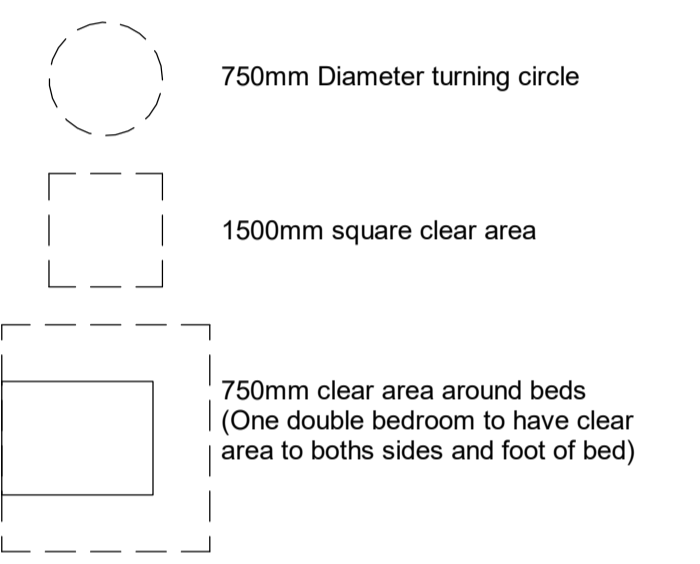
NOTES

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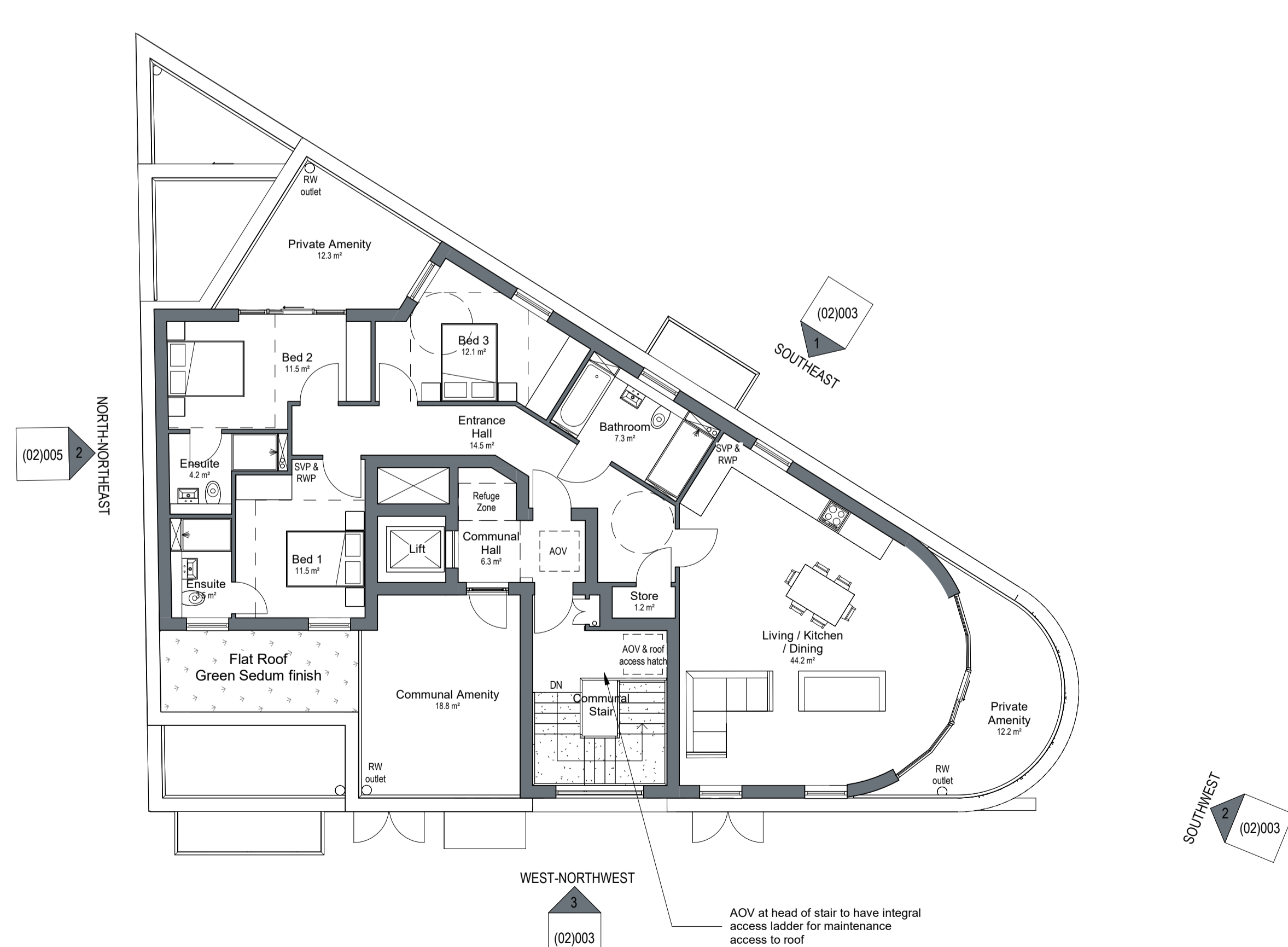
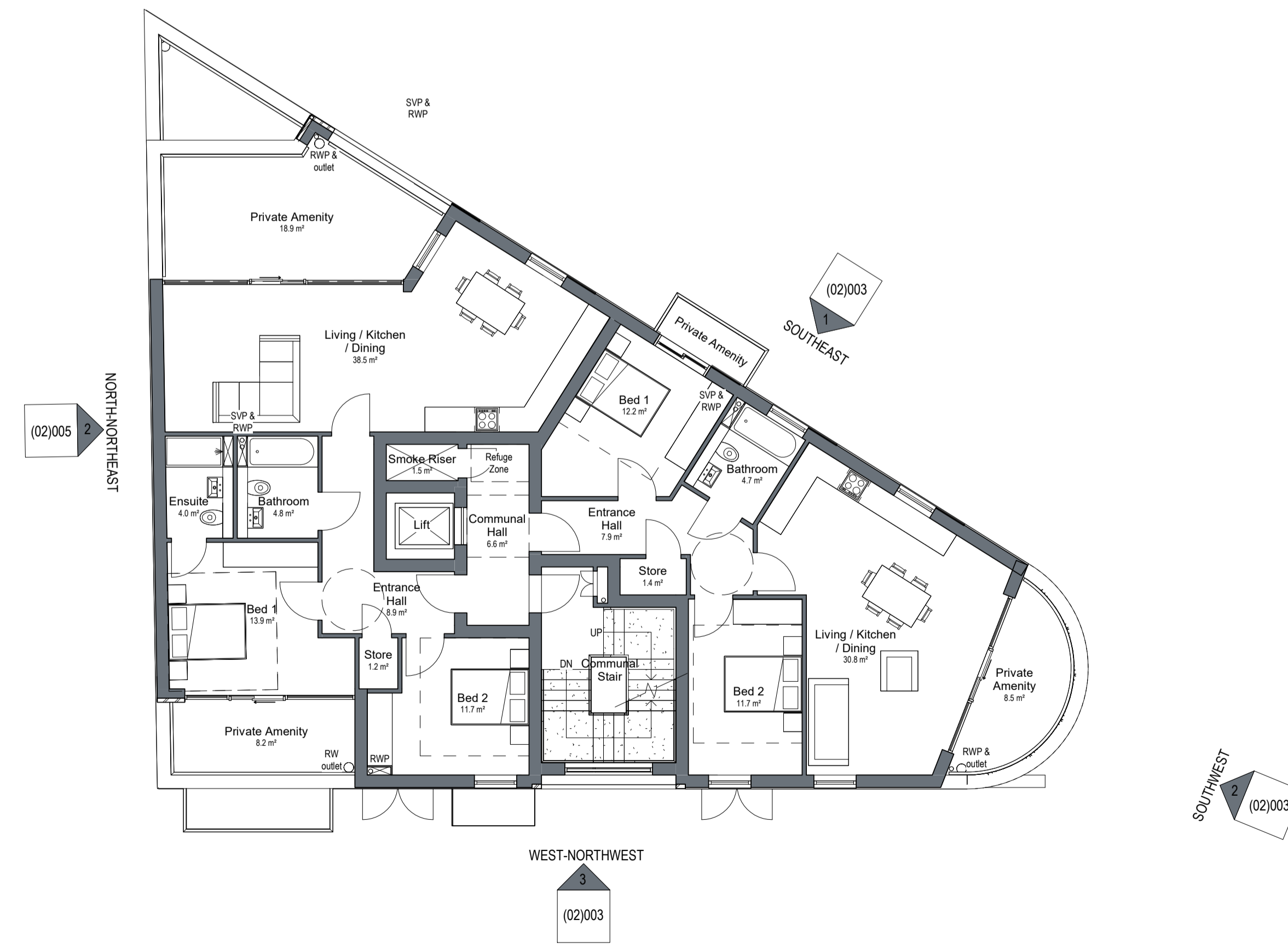
Accommodation Schedule

Retail Units	2
1-bed (2p)	4
2-bed (4p)	4
3-bed (6p)	1
Total	9 Dwellings



1 Proposed Ground Floor Plan
1 : 100

2 Proposed First & Second Floor Plan
1 : 100



3 Proposed Third Floor Plan
1 : 100

4 Proposed Fourth Floor Plan
1 : 100

Health and Safety Information:

- Existing Structure; *demolition work proposed; Care to be taken when demolishing / dismantling existing structures and chimney stacks*
- Materials Hazard; *Potential for asbestos containing materials (ACM's); Client / Principal Contractor to arrange asbestos refurbishment and demolition survey prior to construction to identify ACMs for removal.*
- Construction adjacent the public highway; *Construction management plan to be prepared prior to the Construction Phase detailing hoarding, site entrance and compound.*

rev	description	drawn	date	check
F	Drawings issued for planning approval	JSE	29/09/2022	6
E	Drawings amended following consultant review	JSE	26/09/2022	5
D	Drawings issued for consultant review	JSE	22/08/2022	4
C	Layouts and elevations updated in line with client comments	JSE	15/07/2022	3
B	Layouts and elevations updated.	JSE	12/07/2022	2
A	Layouts revised	JSE	20/06/2022	1

drawing stage	Planning		
client	Shailesh Patel		
project	1-3 Coldharbour Lane, Hayes Town, UB3 3EA		
drawing title	Proposed Floor Plans		
date	01/06/2022	drawn	JSE
scale	1 : 100 @ A1	checked	SW



15.2 Appendix 2 – Monitoring Results

Table 12: NO₂ Continuous Monitor Results: Annual Mean NO₂ Monitoring Results (µg m³)

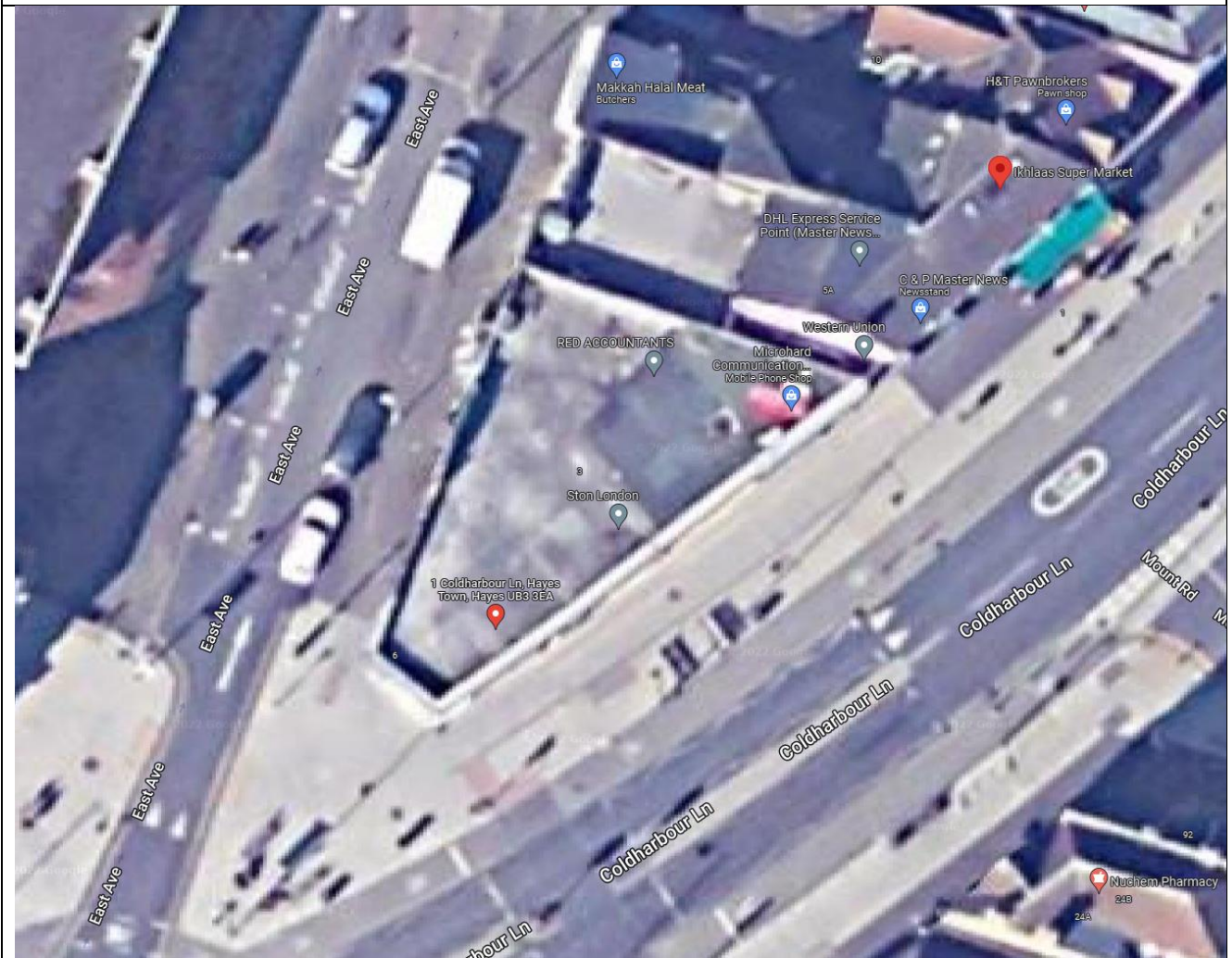
Site ID	Location	Number of Hourly Means >200µg/m ³						
		2014	2015	2016	2017	2018	2019	2020
HIL5	North Hyde Gardens, Hayes, UB3 4QR	52.9	46.2	45.9	47	43	41	31

Table 13: NO₂ Diffusion Tube Monitor Results: Annual Mean NO₂ Monitoring Results (µg m³)

Site ID	Location	Number of Hourly Means >200µg/m ³						
		2014	2015	2016	2017	2018	2019	2020
HILL27	Botwell House Primary School	38.9	30.7	30.8	33.8	32.5	33.2	24.5
HILL17	49 Silverdale Gardens, Hayes	35.5	26.7	26.1	32.7	31	31.6	24.7

15.3 Appendix 3 – Site Photographs





15.4 Appendix 4 – Air Quality Neutral benchmarks

Table 14: Air Quality Neutral' Emissions Benchmarks For Buildings

Land Use Class	Description	NO _x (g/m ²)	PM ₁₀ (g/m ²)
Class A1	Retail - Shops and retail outlets	22.6	1.29
Class A3 - A5	Restaurants - Food and drink/ hot food and takeaway.	75.2	4.32
Class A2 and Class B1*	Financial/Professional services/ business	30.8	1.77
Class B2 - B7	General & Special industrial use	36.6	2.95
Class B8	Storage or distribution centre	23.6	1.90
Class C1	Hotels, boarding houses, guest houses	70.9	4.07
Class C2	Residential Institutions - hospitals and nursing/care homes, Schools, colleges or training centres, care homes	68.5	5.97
Class C3	Residential Dwellings	26.2	2.28
D1 (a)	Medical and health services - Clinics, health centres	43.0	2.47
D1 (b)	Crèche/day nurseries, day centres	75.0	4.30
Class D1 (c -h)	Schools, libraries	31.0	1.78
Class D2 (a-d)	Assembly and Leisure - Cinemas, theatres	90.3	5.18
Class D2 (e)	Swimming pools, gymnasiums or areas for indoor or outdoor sports and recreations etc	284	16.3

*B1 was revoked and replaced by E in September 2020

Table 15: Air Quality Neutral' Emissions Benchmarks For Transport

Land use	Central Activity Zone (CAZ) & Canary Wharf	Inner	Outer
NO_x (g/m²/annum)			
Retail (A1)	169	219	249
Office (B1/E)	1.27	11.4	68.5
NO_x (g/dwelling/annum)			
Residential (C3)	234	558	1553
PM₁₀ (g/m²/annum)			
Retail (A1)	29.3	39.3	42.9
Office (B1/E)*	0.22	2.05	11.8
PM₁₀ (g/dwelling/annum)			
Residential (C3,C4)	40.7	100	267

*B1 was revoked and replaced by E in September 2020

Table 16: Average Distance Travelled by Car per Trip

Land Use	Distance (km)		
	CAZ	Inner	Outer
Retail (A1)	9.3	5.9	5.4
Office (B1/E)*	3.0	7.7	10.8
Residential (C3)*	4.3	3.7	11.4

*B1 was revoked and replaced by E in September 2020

*Based on the LTDS destination.

Note these distances are based on a straight line between the origin and destination of a trip, not the actual trip lengths.

Table 17: Emission Factors

Pollutant	g/vehicle (km)		
	CAZ	Inner	Outer
NOx	0.4224	0.370	0.353
PM10	0.0733	0.0665	0.0606

16 REFERENCES

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6. Local Plan: Part 1 – Strategic Policies, Adopted November 2012 – London Borough of Hillingdon Council
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8. Air Quality Annual Status Report for 2020, May 2021 - London Borough of Hillingdon
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