

Construction Management Plan, Abbey Area phase 2

Contents

Revisions	3
Introduction	4
Timeframe	6
<u>Contact</u>	7
<u>Site</u>	9
<u>Community liaison</u>	12
<u>Transport</u>	14
<u>Environment</u>	26
<u>Agreement</u>	31

Revisions & additional material

Please list all iterations here: This CMP will be regularly monitored and reviewed on a monthly basis and if the CMP requires amending will be revised and issued for approval to Camden council .

Date	Version	Produced by
26.3.2020	1	T. Lucey
13.5.2020	2	T. Lucey
22.5.2020	3	T. Lucey
22.10.2020	4	T. Lucey
27.11.2020	5	T. Lucey
02.12.2929	6	T. Lucey

Additional sheets

Please note – the review process will be quicker if these are submitted as Word documents or searchable PDFs.

Introduction

The purpose of the **Construction Management Plan (CMP)** is to help developers to minimise construction impacts and relates to all construction activity both on and off site that impacts on the wider environment.

It is intended to be a live document whereby different stages will be completed and submitted for application as the development progresses.

The completed and signed CMP must address the way in which any impacts associated with the proposed works, and any cumulative impacts of other nearby construction sites, will be mitigated and managed. The level of detail required in a CMP will depend on the scale and nature of development. Further policy guidance is set out in Camden Planning Guidance (**CPG**) 6: Amenity and (**CPG**) 8: Planning Obligations.

This CMP follows the best practice guidelines as described in the [Construction Logistics and Community Safety \(CLOCS\)](#) Standard and the [Guide for Contractors Working in Camden](#).

Camden charges a [fee](#) for the review and ongoing monitoring of CMPs. This is calculated on an individual basis according to the predicted officer time required to manage this process for a given site.

The approved contents of this CMP must be complied with unless otherwise agreed with the Council in writing. The project manager shall work with the Council to review this CMP if problems arise during construction. Any future revised plan must also be approved by the Council and complied with thereafter.

It should be noted that any agreed CMP does not prejudice or override the need to obtain any separate consents or approvals such as road closures or hoarding licences.

If your scheme involves any demolition, you need to make an application to the Council's Building Control Service. Please complete the "[Demolition Notice](#)."

Please complete the questions below with additional sheets, drawings and plans as required. The boxes will expand to accommodate the information provided, so please provide as much information as is necessary. It is preferable if this document, and all additional documents, are completed electronically and submitted as Word files to allow comments to be easily documented. These should be clearly referenced/linked to from the CMP. Please only provide the information requested that is relevant to a particular section.

(Note the term 'vehicles' used in this document refers to all vehicles associated with the implementation of the development, e.g. demolition, site clearance, delivery of plant & materials, construction etc.)

Revisions to this document may take place periodically.

IMPORTANT NOTICE: If your site falls within a Cumulative Impact Area (as of 03/02/2020 to 03/08/2020 there is only one established CIA for the Central London area) you are required to complete the CIA Checklist and circulate as an appendix to the CMP and included as part of any public consultation – a CMP submission will not be accepted until evidence of this has been supplied.

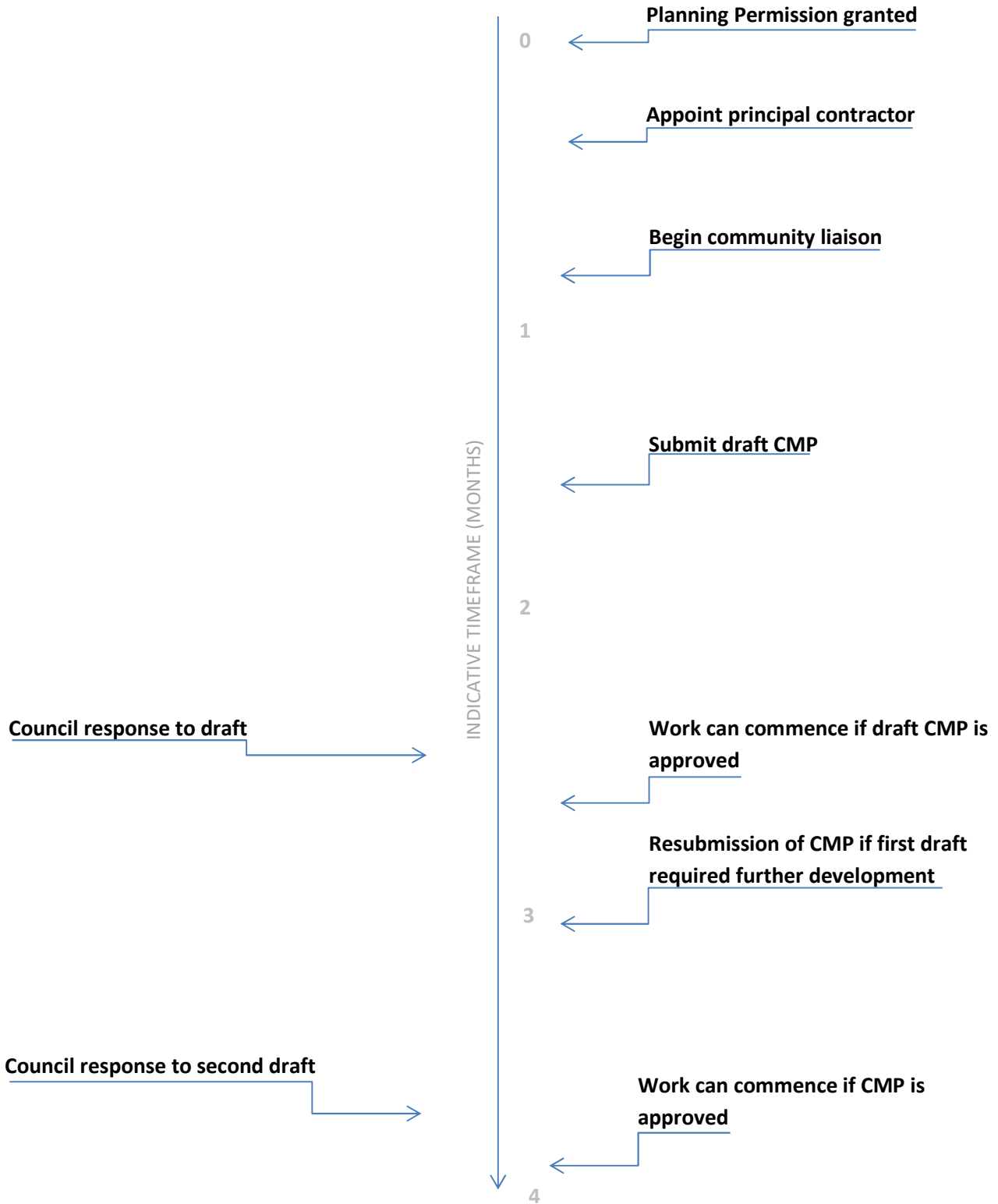
The CIA Checklist can be found at <https://www.camden.gov.uk/about-construction-management-plans#sumf>



Timeframe

COUNCIL ACTIONS

DEVELOPER ACTIONS



Contact

1. Please provide the full postal address of the site and the planning reference relating to the construction works.

Address: 170 – 184 Belsize Park NW6 4 AE

Planning reference number to which the CMP applies: 2020/2486/P

2. Please provide contact details for the person responsible for submitting the CMP.

Name: Tony Lucey

Address: Wates House, Station Approach, Leatherhead, KT22 75W

Email: tony.lucey@wates.co.uk

Phone: 07540 147047

3. Please provide full contact details of the site project manager responsible for day-to-day management of the works and dealing with any complaints from local residents and businesses.

Name: Tony Lucey

Address: Wates House, Station Approach, Leatherhead, KT22 75W

Email: tony.lucey@wates.co.uk

Phone: 07540 147047

4. Please provide full contact details of the person responsible for community liaison and dealing with any complaints from local residents and businesses if different from question 3. In the case of Community Investment Programme (CIP), please provide contact details of the Camden officer responsible.

As Question 3

5. Please provide full contact details including the address where the main contractor accepts receipt of legal documents for the person responsible for the implementation of the CMP.

Name: Tony Lucey

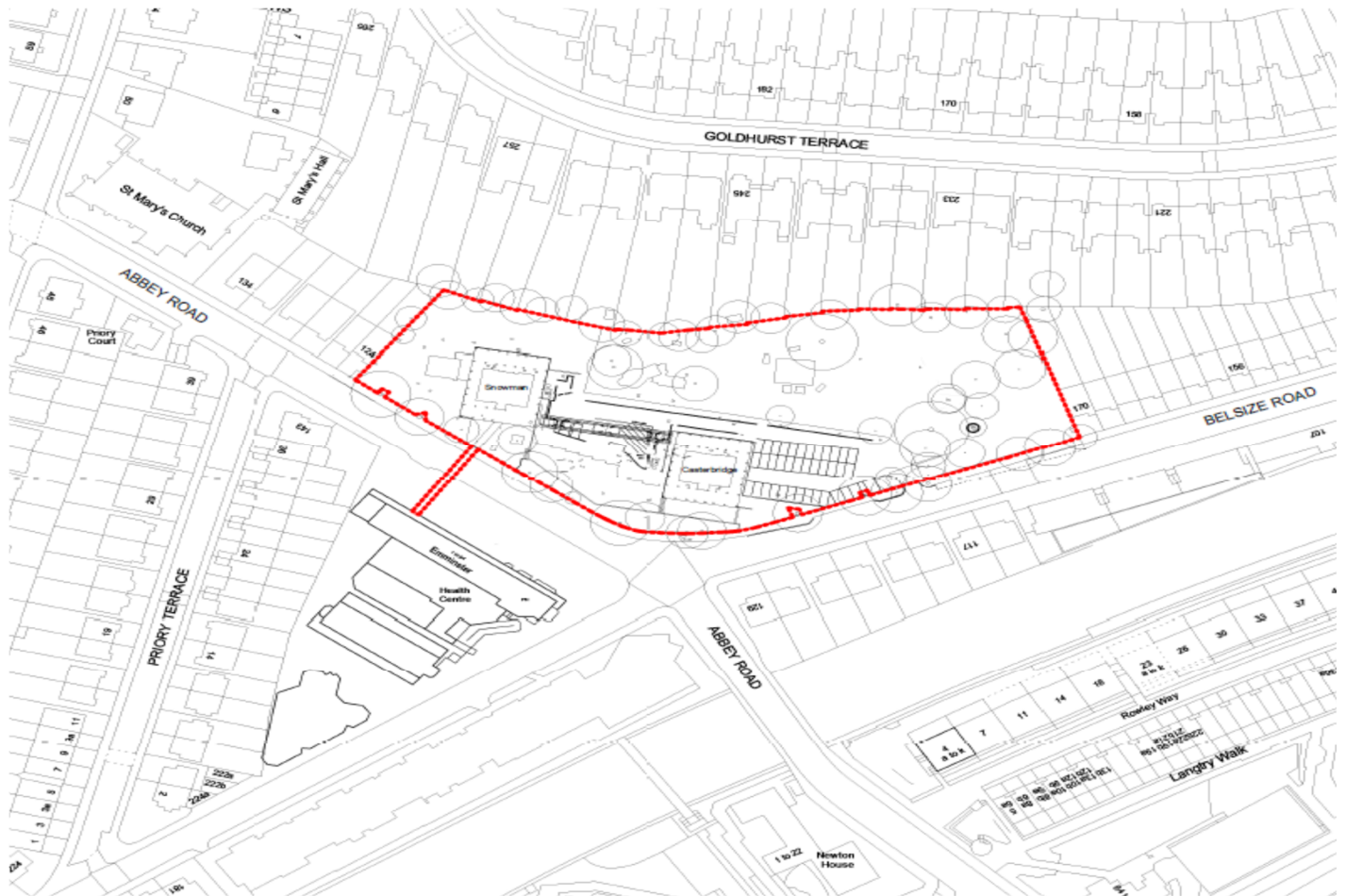
Address: Wates House, Station Approach, Leatherhead, KT22 75W

Email: tony.lucey@wates.co.uk

Phone: 07540 147047

Site

6. Please provide a site location plan and a brief description of the site, surrounding area and development proposals for which the CMP applies.



The Abbey Road Redevelopment site is located within the Kilburn Ward of the London Borough of Camden. It is located around the junction of Abbey Road and Belsize Road, close to the boundary with Westminster and falls broadly between West Hampstead, Swiss Cottage and St John's Wood.

The site is currently occupied by two 19 storey tower blocks built in the late 1960s called Snowman and Casterbridge House. The towers are accessible to vehicles via an access road connected to Belsize Road.

The eastern portion of the site is Designated Private Open Space (Local Plan Policy A2) and to the west and north of the tower blocks is open space.

The space is predominantly grass with some mature trees and a children's play area with dedicated play equipment and is predominantly used by residents of Snowman and Casterbridge House.

Redevelopment

The proposed site for the Community and Health Centre is in the north east corner of the site.

The Health Centre is located on the first floor of the building, access for users is provided via a principal stair core which includes two lifts, one of which is suitable for trolleys. In addition one utility staircase and 2 external staircases to meet fire escape requirements .

The Community Centre will be provided on the ground floor of the building to allow for outdoor facilities to the Crèche and direct access to the Community Garden, as well as catering for occasions where a large number of people, some with mobility issues, use the Centre at the same time.

7. Please provide a very brief description of the construction works including the size and nature of the development and details of the main issues and challenges (e.g. narrow streets, close proximity to residential dwellings etc).

The project consists of a 2 storey steel framed building, housing the relocated Community Centre on the ground floor and the Health Centre on the 1st. Each floor is approximately 1000m², with approximately 200 m² of the roof being used to house plant and p/vs. The existing car park will be relocated from the south of the site, along Belsize Road in between the two towers.

The project is flanked by a 3-storey private terrace of houses to the east and is backed on to by private residential gardens to the north. To the west, the existing residential tower blocks and grounds pertaining to them form the second flank. Immediately to the south of the proposed building is Belsize Road and beyond that are residential properties, including Abbey Road Phase 1.

This CMP is a live document and whilst COVID 19 remains a risk, the CMP will be reviewed and updated as and when the industry receive updated direction from the government, at the time of writing we will ensure that working practises and welfare set up are Covid compliant in line with the construction industry guidelines and a Covid Action Plan will be in place prior to us commencing on site in February.

Wates will ensure the CMP is reviewed on a monthly basis and reissued to the LPA/ dedicated officer when appropriate.

8. Please provide the proposed start and end dates for each phase of construction as well as an overall programme timescale. (A Gantt chart with key tasks, durations and milestones would be ideal).

The Gantt chart can be found within appendix 1

9. Please confirm the standard working hours for the site, noting that the standard working hours for construction sites in Camden are as follows:

- 8.00am to 6pm on Monday to Friday
- 8.00am to 1.00pm on Saturdays
- No working on Sundays or Public Holidays

The site working hours are summarised below

- 08:00 to 18:00 hours Monday to Friday
- 08:00 to 13:00 hours Saturday

Deliveries to site are likely to be restricted to site at peak times from 07.30 to 9.30 and 4.00 – 5.00

All works will be undertaken within the agreed hours stated within the planning approval, unless in the event of unforeseen or exceptional circumstances such as:

- Health and safety issues which require continuation of the works.
- Completion of operations that would otherwise cause greater interference to the environment or members of the public if not completed.
- Completion of concrete pours due to unforeseen overruns such as batching plant delays or traffic delays.
- Delivery of abnormal loads which will require specific transport notification
- Operations that need to be undertaken outside of standard working hours which include mobile crane erection and removal will be agreed in advance with Camden Council.

Community Liaison

A neighbourhood consultation process must have been undertaken prior to submission of the CMP first draft.

This consultation must relate to construction impacts, and should take place following the granting of planning permission in the lead up to the submission of the CMP. A consultation process specifically relating to construction impacts must take place regardless of any prior consultations relating to planning matters. This consultation must include all of those individuals that stand to be affected by the proposed construction works. These individuals should be provided with a copy of the draft CMP, or a link to an online document. They should be given adequate time with which to respond to the draft CMP, and any subsequent amended drafts. Contact details which include a phone number and email address of the site manager should also be provided.

Significant time savings can be made by running an effective neighbourhood consultation process. This must be undertaken in the spirit of cooperation rather than one that is dictatorial and unsympathetic to the wellbeing of local residents and businesses.

These are most effective when initiated as early as possible and conducted in a manner that involves the local community. Involving locals in the discussion and decision making process helps with their understanding of what is being proposed in terms of the development process. **The consultation and discussion process should have already started, with the results incorporated into the CMP first draft submitted to the Council for discussion and sign off.** This communication should then be ongoing during the works, with neighbours and any community liaison groups being regularly updated with programmed works and any changes that may occur due to unforeseen circumstances through newsletters, emails and meetings.

Please note that for larger sites, details of a construction working group may be required as a separate S106 obligation. If this is necessary, it will be set out in the S106 Agreement as a separate requirement on the developer.

Cumulative impact

Sites located within high concentrations of construction activity that will attract large numbers of vehicle movements and/or generate significant sustained noise levels should consider establishing contact with other sites in the vicinity in order to manage these impacts.

The Council can advise on this if necessary.

10. Sensitive/affected receptors

Please identify the nearest potential receptors (dwellings, business, etc.) likely to be affected by the activities on site (i.e. noise, vibration, dust, fumes, lighting etc.).

Residents of Belsize road to the east and south of the project, the properties backing onto the project in Goldhurst terrace, Residents of Both residential tower blocks Casterbridge and Snowman, residents to the west of the site [to a far lesser extent] on Abbey road.

11. Consultation

The Council expects meaningful consultation. For large sites, this may mean two or more meetings with local residents **prior to submission of the first draft CMP**.

Evidence of who was consulted, how the consultation was conducted and a summary of the comments received in response to the consultation should be included. Details of meetings including minutes, lists of attendees etc. should be appended.

In response to the comments received, the CMP should then be amended where appropriate and, where not appropriate, a reason given. The revised CMP should also include a list of all the comments received. Developers are advised to check proposed approaches to consultation with the Council before carrying them out. If your site is on the boundary between borough's then we would recommend contacting the relevant neighbouring planning authority.

Please provide details of consultation of draft CMP with local residents, businesses, local groups (e.g. residents/tenants and business associations) and Ward Councillors:

Wates and Camden will hold an initial CMP consultation event on 17th December 2020, the CMP will be made available online for public review prior to this event. Invitations/ flyers will be sent out to residents week commencing 11th December 2020. A second consultation session has also been arranged for 11th January 2021.

Flyers with an invitation to the virtual consultation will be on display at the lobbies of Snowman House & Casterbridge, Abbey Road Cross, and Hinstock & Emminster and will also be mailed out to residents who own/occupy nearby buildings in close proximity to the development including the following roads/blocks:

- Abbey Road
- Belsize Road
- Goldhurst Terrace
- Abbey Road Cross
- Snowman House & Casterbridge
- Hinstock & Emminster

The flyer will include the date, time and location (MS Teams or Zoom) of the consultation along with contact details of the project team from Wates and Camden for residents who are unable to attend the consultation or may not want to provide feedback in a public forum to get in touch with. The flyer will ask for the residents to RSVP if they wish to attend the consultation via emailing the project team. From there a link to the MS Teams / Zoom consultation event will be emailed to the resident/s to join the meeting. If there is a high number of RSVPs then two events will be held.

The consultation agenda will be an introduction to the project team from Wates and Camden hosting the meeting, followed by an overview of the project, the construction process, and construction impacts to the site and neighbouring properties, if any. This will be followed by a Q&A session.

It is also important to note that Wates attended a Camden organised virtual community consultation event on 20/07/20, this meeting was arranged to give an update on the scheme design and some aspects of the construction/ logistics were discussed with residents.

12. Construction Working Group

For particularly sensitive/contentious sites, or sites located in areas where there are high levels of construction activity, it may be necessary to set up a construction working group.

If so, please provide details of the group that will be set up, the contact details of the person responsible for community liaison and how this will be advertised to the local community, and how the community will be updated on the upcoming works i.e. in the form of a newsletter/letter drop, or weekly drop in sessions for residents.

A Construction Working Group (CWG) will be set up following the initial consultation sessions (referred to in section 11 above) an Expression of Interest (EOI) form will also be mailed out to those who own/occupy nearby buildings in close proximity to the development (a draft EOI has been appended to this document see addendum 7) , ward councillors, Abbey Co-Op Tenant Management Organisation (TMO), and businesses in the locality. The EOI form will provide a brief of the development, what the CWG is and what is required of them if they wish to be part of the CWG.

Following receiving the EOIs, depending on how many are received, an invitation letter will be sent to the selected applicants detailing the next steps and when the first meeting will be. The selected representatives will need to sign a Terms of Reference and Code of Conduct agreement prior to joining the CWG. The selection process is based on ideally having one representative from the following:

- Snowman & Casterbridge
- Hinstock & Emminster
- Abbey Road Cross
- Abbey Co-Op TMO
- Ward Councillor
- Abbey Community Centre
- Belsize Priory Health Centre
- Resident from either Belsize Road and/or Goldhurst Terrace

Meetings will be hosted by the project team from Camden and Wates and held monthly, with notifications of upcoming meetings sent via email and/or letter box.

Due to the current pandemic and in line with the government guidance the CWG meetings will be held virtually via MS Team / Zoom until further notice.

13. Schemes

Please provide details of your Considerate Constructors Scheme (CCS) registration. Please note that Camden requires [enhanced CCS registration](#) that includes CLOCS monitoring. Please provide a CCS registration number that is specific to the above site.

Contractors will also be required to follow the [Guide for Contractors Working in Camden](#). Please confirm that you have read and understood this, and that you agree to abide by it.

The site will be registered with the CCS and the project will comply with the “code of considerate practice”. The project will seek to achieve scores of greater than 40/50 from the regular CCS site inspections.

Wates are an associate member of the CCS scheme with average scores of greater than 40, which places us within the top 10% of UK contractors.

Monitoring of site standards will be continuous throughout the project by internal reporting and CCS inspections. We will actively engage with the CCS “Best Practice Hub”

We will adhere to a Code of Practice that includes the following principles:

- Be environmentally aware in the selection of resources. Pay particular attention to pollution avoidance and waste management. Use local resources wherever possible and keep to a minimum at all times noise from construction site activity;
- Be considerate of the needs of all those affected by the construction process and of its impact on the environment. Special attention to be given to the needs of those with sight, hearing or mobility difficulties;
- Be a good neighbour by undertaking full and regular consultation with neighbours regarding site activity from prestart to final handover. Provide site information and viewing facilities where practical;
- Promote respectable and safe standards of behaviours and dress. Derogatory behaviours shall not be tolerated under threat of the strongest possible disciplinary action;
- Be safe. All construction operations and vehicle movements to be carried out with care of the safety of passers-by, neighbours and site personnel;
- Be accountable to the public by providing site contact details and be available to deal with their concerns and develop good local relations;
- All contractors will be required to adhere to the requirements of the code of practice. Information about the scheme will be provided to all personnel at induction and as well as tool box talks as appropriate.
- The scheme will also be publicised to local residents by the use of appropriate banners and posters with contact details posted at the boundary of the site

14. Neighbouring sites

Please provide a plan of existing or anticipated construction sites in the local area and please state how your CMP takes into consideration and mitigates the cumulative impacts of construction in the vicinity of the site. The council can advise on this if necessary.

There are no significant construction works ongoing in the vicinity of the project so far as we are aware, there are small residential projects ongoing in Belsize Road that will have no significant effect on this project.

Transport

This section must be completed in conjunction with your principal contractor. If one is not yet assigned, please leave the relevant sections blank until such time when one has been appointed.

Camden is a CLOCS Champion and is committed to maximising road safety for Vulnerable Road Users (VRUs) as well as minimising negative environmental impacts created by motorised road traffic. As such, all vehicles and their drivers servicing construction sites within the borough are bound by the conditions laid out in the CLOCS Standard.

This section requires details of the way in which you intend to manage traffic servicing your site, including your road safety obligations with regard to VRU safety. It is your responsibility to ensure that your principal contractor is fully compliant with the terms laid out in the CLOCS Standard. It is your principal contractor's responsibility to ensure that all contractors and sub-contractors attending site are compliant with the terms laid out in the CLOCS Standard.

Checks of the proposed measures will be carried out by CCS monitors as part of your enhanced CCS site registration, and possibly council officers, to ensure compliance. Please refer to the CLOCS Standard when completing this section.

Please contact CLOCS@camden.gov.uk for further advice or guidance on any aspect of this section.

15. Name of Principal contractor:

Wates Construction

Address: Wates House, Station Approach, Leatherhead, KT22 75W

16. Please submit the proposed method for checking operational, vehicle and driver compliance with the CLOCS Standard throughout the duration of the contract (please refer to our [CLOCS Overview document](#) and [Q18 example response](#)).

Ensuring compliance with the CLOCS Standard for the project commences with the inclusion of specific clauses for compliance within the sub-contracts and inclusion of the following CLOCS Standards and Toolkits within enquiry documents and contracts sent to all proposed sub-contractors for pricing of the scheme:

CLOCS Standard for Construction Logistics: Managing Work Related Road Risk .

CLOCS Toolkit: Managing Collision Reporting and Analysis

CLOCS Guide: Vehicle Safety Equipment

CLOCS Guide: Managing Driver Training and Licensing,

In the first instance, we have used Wates Construction's established supply chain partners who are experienced in working to and meeting these requirements with FORS accreditation, vehicle safety features & driver training all will be required prior to subcontractor selection where above terms apply and will be made a mandatory deliverable on the sub-contractor or supplier.

The CLOCS supplier self-certification will be used for this purpose and will also equally apply to sub-suppliers. Wates will also make it incumbent upon any potential new sub-contractor to register with CLOCS in order that they stay up to date with the latest information.

Wates will provide training to its Site Management and TrafficMarshalls as to how to undertake spot checks on vehicle compliance and driver competency, as well as report non-conformances.

All deliveries will be pre-booked. The system is designed such that the insertion of FORS accreditation details for the specific company making the delivery is mandatory.

17. Please confirm that you as the client/developer and your principal contractor have read and understood the CLOCS Standard and included it in your contracts.

Wates confirm that they have read and understood the CLOCS Standard and confirm they will ensure that all sub – contractors employed directly on the scheme will have CLOCS standards requirements included within their works orders.

Please contact CLOCS@camden.gov.uk for further advice or guidance on any aspect of this section.

Site Traffic

Sections below shown in blue directly reference the CLOCS Standard requirements. The CLOCS Standard should be read in conjunction with this section.

18. Traffic routing: *“Clients shall ensure that a suitable, risk assessed vehicle route to the site is specified and that the route is communicated to all contractors and drivers. Clients shall make contractors and any other service suppliers aware that they are to use these routes at all times unless unavoidable diversions occur.”* (P19, 3.4.5)

Routes should be carefully considered and risk assessed, taking into account the need to avoid where possible any major cycle routes and trip generators such as schools, offices, stations, public buildings, museums etc.

Consideration should also be given to weight restrictions, low bridges and cumulative impacts of construction (including neighbouring construction sites) on the public highway network. The route(s) to and from the site should be suitable for the size of vehicles that are to be used.

Please show vehicle approach and departure routes between the site and the Transport for London Road Network (TLRN). Please note that routes may differ for articulated and rigid HGVs.

Routes should be shown clearly on a map, with approach and departure routes clearly marked. If this is attached, use the following space to reference its location in the appendices.

Please refer to appendix 2 for the route map for vehicles

b. Please confirm how contractors and delivery companies will be made aware of the route (to and from the site) and of any on-site restrictions, prior to undertaking journeys.

A logistics management company will be employed to ensure our impact on the local road network is controlled and managed and will be used to control the volume of deliveries to site. This will work by identifying the volume of 'resources' required on site and the volume the site can comfortably service in any 30-minute intervals. Delivery numbers and limits will then be set to the defined capacity.

All sub-contractors and their hauliers will be required to book in all deliveries being made to site a minimum of 48-hours in advance. This is in order that an available delivery slot may be allocated and deliveries that cannot be accommodated can be declined.

All sub-contractors and suppliers will be issued with a copy of the Wates Traffic Management plan prior to placement of orders.

A strict no parking policy will be enforced throughout the project. All visitors, staff and operated will be advised to use the close public transport network.

19. Control of site traffic, particularly at peak hours: *"Clients shall consider other options to plan and control vehicles and reduce peak hour deliveries"* (P20, 3.4.6)

Construction vehicle movements should be restricted to the hours of 9.30am to 4.30pm on weekdays and between 8.00am and 1.00pm on Saturdays. If there is a school in the vicinity of the site or on the proposed access and/or egress routes, then deliveries must be restricted to the hours of 9.30am and 3pm on weekdays during term time.

Vehicles may be permitted to arrive at site at 8.00am if they can be accommodated on site. Where this is the case, they must then wait with their engines switched off.

A delivery plan should ensure that deliveries arrive at the correct part of site at the correct time. Instructions explaining such a plan should be sent to all suppliers and contractors.

Please provide details of the types of vehicles required to service the site and the approximate number of deliveries per day for each vehicle type during the various phases of the project.

32t Tipper: 20 muck away deliveries per day during first 8 weeks

Skip loader: 2 deliveries per week during first 10 weeks then 1 nos for the duration of the project

Articulated vehicles: 1 delivery per day maximum

18t flatbed: 6 deliveries per week for duration of project

3.5t van: 6 deliveries per day for duration of project

A dedicated logistics management company will oversee the operational planning and booking of deliveries to site through all the stages of the construction. The general duties of our logistics manager will include but not limited to:

- Produce project outline logistics plans and site signage to ensure monitoring and the smooth operation of all logistical activities.
- Liaison with local police, Emergency Services, adjacent contractors, site wide logistics team and Statutory Authorities as required, providing safety and traffic management control.
- Assist with good neighbour policy in conjunction with the client, with particular emphasis on the employment of local labour.
- Instigate an effective security/access control regime.
- Maintaining a courteous liaison with members of the public.
- Recording of vehicle movements to site; collected through a delivery booking-in system
- Recording and reporting breaches and complaints including
 - Vehicle routing
 - Unacceptable queuing
 - Unacceptable parking
 - Supplier FORS accreditation
- Unauthorised vehicles will not be permitted on site and this will be controlled by the Logistics Manager and the traffic marshals.

Wates will make owners and or occupiers of the residences and businesses in the locality aware of any major operations ahead of time. Notification of such events will be given via the construction working group who will then relay the message to the wider community.

b. Cumulative effects of construction traffic servicing multiple sites should be minimised where possible. Please provide details of other developments in the local area or on the route that might require deliveries coordination between two or more sites. This is particularly relevant for sites in very constrained locations.

We are not aware of any other large-scale developments taking place in the immediate vicinity of the site. We therefore conclude that so far as we are currently aware, we believe this issue to be of no concern at present.

c. Please provide swept path analyses for constrained manoeuvres along the proposed route.

Our delivery routes encounter no constrained movement positions along proposed delivery routes outside of the immediate site.

d. Consideration should be given to the location of any necessary holding areas/waiting points for sites that can only accommodate one vehicle at a time/sites that are expected to receive large numbers of deliveries. Vehicles must not queue or circulate on the public highway. Whilst deliveries should be given set times to arrive, dwell and depart, no undue time pressures should be placed upon the driver at any time.

Please identify the locations of any off-site holding areas or waiting points. This can be a section of single yellow line that will allow the vehicle to wait to phone the site to check that the delivery can be accommodated.

Please refer to question 24 if any parking bay suspensions will be required to provide a holding area.

No holding areas have been identified and will not be required.

e. Delivery numbers should be minimised where possible. Please investigate the use of construction material consolidation centres, and/or delivery by water/rail if appropriate.

The project will not require consolidation centres

f. Emissions from engine idling should be minimised where possible. Please provide details of measures that will be taken to reduce delivery vehicle engine idling, both on and off site (this does not apply to concrete mixers).

All vehicle drivers will be under strict instruction to switch engines off whilst stationary this will be monitored by both the traffic marshals and Wates site management.

20. Site access and egress: *“Clients shall ensure that access to and egress from the site is appropriately managed, clearly marked, understood and clear of obstacles.” (P18, 3.4.3)*

This section is only relevant where vehicles will be entering the site. Where vehicles are to load from the highway, please skip this section and refer to Q23.

Vehicles entering and leaving the site should be carefully managed, using gates that are clearly marked and free from obstacles. Traffic marshals must ensure the safe passage of all traffic on the public highway, in particular pedestrians and cyclists, when vehicles are entering and leaving site, particularly if reversing.

Traffic marshals, or site staff acting as traffic marshals, should hold the relevant qualifications required for directing large vehicles when reversing. Marshals should be equipped with ‘STOP – WORKS’ signs (not STOP/GO signs) if control of traffic on the public highway is required. Marshals should have radio contact with one another where necessary.

a. Please detail the proposed site access and egress points on a map or diagram. If this is attached, use the following space to reference its location in the appendices.

Site access and egress points are shown on addendum 2

b. Please describe how the access and egress arrangements for construction vehicles in and out of the site will be managed, including the number and location of traffic marshals where applicable. If this is shown in an attached drawing, use the following space to reference its location in the appendices.

The site logistics plan is attached addendum 3

Each site entrance and exit will be manned at all operational times with a traffic marshal who will manage the access and egress from site for all Vehicle movements.

The main logistics control will be situated in the site office, all traffic marshals will have radio communications and can be contacted by any of the site team.

c. Please provide swept path drawings for vehicles accessing/egressing the site if necessary. If these are attached, use the following space to reference their location in the appendices.

Not required

d. Provision of wheel washing facilities should be considered if necessary. If so, please provide details of how this will be managed, and any run-off controlled. Please note that wheel washing should only be used where strictly necessary, and that a clean, stable surface for loading should be used where possible.

Vehicles entering site will make use of purpose made temporary haul road topped with concrete. All vehicles will then therefore remain clean whilst on site and require minimal cleaning before being allowed to re-join the public highway.

This haul road will be maintained regularly to avoid debris build up and to minimise any potential dust issues in dry period. A jet wash will be on hand at the exit gate/s to maintain the Road Way, carry out any limited cleaning vehicles may have and to damp down the road surface when required.

Any plant or equipment that has been in contact with the ground will be cleaned prior to being permitted to departure from site.

21. Vehicle loading and unloading: *“Clients shall ensure that vehicles are loaded and unloaded on-site as far as is practicable.” (P19, 3.4.4)*

This section is only relevant if loading/unloading is due to take place off-site on the public highway. If loading is taking place on site, please skip this section.

a. please provide details of the parking and loading arrangements for construction vehicles with regard to servicing and deliveries associated with the site (e.g. delivery of materials and plant, removal of excavated material). This is required as a scaled site plan, showing all points of access and where materials, skips and plant will be stored, and how vehicles will access and egress the site. If this is attached, use the following space to reference its location in the appendices. Please outline in question 24 if any parking bay suspensions will be required.

The main access point to the project will be via the existing car park entrance on Belsize Road. Once on site, vehicles will be directed by Traffic Marshalls to their designated discharge position.

Traffic Marshalls are to be posted at all site entrances and exits.

They will:

Temporarily Stop site works close to vehicles manoeuvring.

Safely stop pedestrians for short periods on the footpath, in both directions, whilst the construction vehicles cross.

Stop any oncoming traffic to allow site vehicles to safely enter or leave the highway.

Trained Traffic Marshalls will provide clear instructions and briefings to all concerned at the point of contact.

As all arrivals will be expected due to the pre booking system in place, the location of storage for the materials being delivered will have been predetermined and as such will ensure the delivery is unloaded efficiently. Once the delivery / collection is complete, the Traffic Marshalls will carry out a visual check of the vehicle and direct the vehicle out of the loading / unloading area to the exit gate and then back onto carriageway.

b. Where necessary, Traffic Marshalls must ensure the safe passage of pedestrians, cyclists and motor traffic in the street when vehicles are being loaded or unloaded. Please provide detail of the way in which marshals will assist with this process, if this differs from detail provided in Q20 b.

No materials will be loaded or unloaded outside the site confines.

Street Works

Full justification must be provided for proposed use of the public highway to facilitate works. Camden expects all options to minimise the impact on the public highway to have been fully considered prior to the submission of any proposal to occupy the highway for vehicle pit lanes, materials unloading/crane pick points, site welfare etc.

Please note that Temporary Traffic Orders (TTOs) and hoarding/scaffolding licenses may be applied for prior to CMP submission but won't be granted until the CMP is signed-off.

Please note that there is a two-week period required for the statutory consultation process to take place as part of a TTO.

If the site is on or adjacent to the TLRN, please provide details of preliminary discussions with Transport for London in the relevant sections below.

If the site conflicts with a bus lane or bus stop, please provide details of preliminary discussions with Transport for London in the relevant sections below.

22. Site set-up

Please provide a scaled plan detailing the local highway network layout in the vicinity of the site. This should include details of on-street parking bay locations, cycle lanes, footway extents, relevant street furniture, and proposed site access locations. If these are attached, use the following space to reference their location in the appendices.

See Addendum 4A and 4B.

The site waste management strategy can be found within addendum 6

23. Parking bay suspensions and temporary traffic orders

Parking bay suspensions should only be requested where absolutely necessary and these are permitted for a maximum of 6 months only. For exclusive access longer than 6 months, you will be required to obtain a [Temporary Traffic Order \(TTO\)](#) for which there is a separate cost.

Please provide details of any proposed parking bay suspensions and/or TTO's which would be required to facilitate the construction - include details of the expected duration in months/weeks. Building materials and equipment must not cause obstructions on the highway as per your CCS obligations unless the requisite permissions are secured.

Information regarding parking suspensions can be found [here](#).

It will be necessary to apply for a road closure to allow for a mobile crane operation to facilitate the removal of the foot bridge crossing Abbey Road.
Wates Construction will make the necessary applications to the Highways Management Team giving the required notice.
This will include specific traffic management proposals for the operation.
It is envisaged that this operation will take place over a weekend to avoid excessive traffic inconvenience to the surrounding residents and road users.

24. Occupation of the public highway

Please note that use of the public highway for storage, site accommodation or welfare facilities is at the discretion of the Council and is generally not permitted. If you propose such use you must supply full justification, setting out why it is impossible to allocate space on-site. We prefer not to close footways but if this is unavoidable, you should submit a scaled plan of the proposed diversion route showing key dimensions.

a. Please provide justification of proposed occupation of the public highway.

Not applicable.

b. Please provide accurate scaled drawings of any highway works necessary to enable construction to take place (e.g. construction of temporary vehicular accesses, removal of street furniture etc). If these are attached, use the following space to reference their location in the appendices.

The new carpark requires the provision of a new bell mouth entrance from Abbey Road detailed drawings will be produced and submitted separately following the granting of planning permission.

25. Motor vehicle and/or cyclist diversions

Where applicable, please supply details of any diversion, disruption or other anticipated use of the public highway during the construction period. Please show locations of diversion signs on drawings or diagrams. If these are attached, use the following space to reference their location in the appendices.

Not applicable.

26. Scaffolding, hoarding, and associated pedestrian diversions

Pedestrians safety must be maintained if diversions are put in place. Vulnerable footway users should also be considered. These include wheelchair users, the elderly, those with walking difficulties, young children, those with prams, the blind and partially sighted. Appropriate ramps must be used if cables, hoses, etc. are run across the footway.

Any work above ground floor level may require a covered walkway adjacent to the site. A licence must be obtained for scaffolding and gantries. The adjoining public highway must be kept clean and free from obstructions, and hoarding should not restrict access to adjoining properties, including fire escape routes. Lighting and signage should be used on temporary structures/skips/hoardings etc.

A secure hoarding will generally be required at the site boundary with a lockable access.

a. Where applicable, please provide details of any hoarding and/or scaffolding that intrudes onto the public highway, describing how pedestrian safety will be maintained through the diversion, including any proposed alternative routes. Please provide detailed, scale drawings that show hoarding lines, gantries, crane locations, scaffolding, pedestrian routes, parking bay suspensions, remaining road width for vehicle movements, temporary vehicular accesses, ramps, barriers, signage, lighting etc. If these are attached, use the following space to reference their location in the appendices.

The forming of the new bell mouth entrance to the car park will be carried out by a Camden approved street works contractor and pedestrian access will be maintained at all times.

This will be developed fully further with the specialist contractor once appointed.

b. Please provide details of any other temporary structures which would overhang/over sail the public highway (e.g. scaffolding, gantries, cranes etc.) If these are attached, use the following space to reference their location in the appendices.

Not applicable.

27. Services

Please indicate if any changes to services are proposed to be carried out that would be linked to the site during the works (i.e. connections to public utilities and/or statutory undertakers' plant). Larger developments may require new utility services. If so, a strategy and programme for coordinating the connection of services will be required. If new utility services are required, please confirm which utility companies have been contacted (e.g. Thames Water, National Grid, EDF Energy, BT etc.) You must explore options for the utility companies to share the same excavations and traffic management proposals. Please supply details of your discussions.

Electrical

Wates have made a payment to UKPN for the works associated with the upgrade to the new substation and High Voltage VH supply.

The HV supply for the new substation will come from Casterbridge residential tower substation via new service ducts laid within the development.

Gas,

No new connections are required.

Water

A new water supply will be required. This service would come from the existing Thames Water main on Belsize road.

The service route is not known at present Thames Water is to be made aware once the service size and proposed route is established by the designers.

Sewerage

The new development will require connections to the existing Thames Water combined along Belsize road this connection will be made within the site boundaries.

Environment

To answer these sections please refer to the relevant sections of **Camden's Minimum Requirements for Building Construction (CMRBC)**.

28. Please list all [noisy operations](#) and the construction method used, and provide details of the times that each of these are due to be carried out.

Noisy operations will be on 2 hours on 2 hours off basis. These works will be in line with Camden's guidance between 8:00am – 10:00am, 12:00pm – 2:00pm and 4:00pm to 6:00pm.

It is not anticipated that internal fit out works once the building envelope is enclosed will cause any noticeable noise disruption to adjacent properties.

Noisy works may include:

Reversing vehicles and plant

Sheet piling

Excavation and ground works

Installation of steel frame

Use of percussion tools for fixing down steel sheeting

Use of percussion tools to affix elements to the steel frame

29. Please confirm when the most recent noise survey was carried out (before any works were carried out) and provide a copy. If a noise survey has not taken place, please indicate the date (before any works are being carried out) that the noise survey will be taking place and agree to provide a copy.

Wates will ensure a noise survey is undertaken in January 2021 and will provide a copy of the associated report to Camden prior to commencing on site.

30. Please provide predictions for [noise](#) and vibration levels throughout the proposed works.

Due to the nature of construction works, it is inevitable that a temporary increase in noise and vibration will be experienced. It is anticipated that there will be noise and vibration level implications for nearby properties but should generally be of expected typical construction levels.

31. Please provide details describing mitigation measures to be incorporated during the construction works to prevent noise and vibration disturbances from the activities on the site, including the actions to be taken in cases where these exceed the predicted levels.

The Best Practicable Means, as defined in Section 72 of the Control of Pollution Act 1974, shall be employed at all times to reduce and control noise and vibration, with reference to the general principles contained in British Standard BS5228: 2009 'Noise and Vibration Control on Construction and Open Sites', including:

The quietest / lowest impact processes that are reasonably practicable will be employed on site to carry out the demolition and construction works.

The quietest vehicles and plant shall be used as far as is reasonably practicable.

No machinery starting up on site before the designated site start times.

No engines left running on vehicles waiting. Noise suppression / screening will be a prime consideration in order to reduce the noise impact for the surrounding community (e.g. around generators). Keeping voices and conversations to a low volume. No shouting or swearing.

No banging of doors, gates, scaffolding.

As far as reasonably practicable, construction methods will be selected to minimise noise and vibration. In addition, local residents will be advised when the above works are programmed to commence via our regular information updates. Wates details will also be provided to the local community in the event that there is a need to make contact due to noise or vibration disturbance in order that these can be investigated and dealt with accordingly.

Noise monitoring will be undertaken using a combination of semi-permanent (continuous) and attended monitoring methods averaged over the defined period of time or in the event of a complaint of noise, an investigation shall be carried out to ascertain the cause of the exceedance of the complaint and to check that Best Practicable Means are being used to control the noise. Noise levels shall be reduced further if it is reasonably practicable to do so.

The work activity will cease if it is found that improvements need to be made.

Information relating to the control of noise and vibration will be communicated to all site operatives through the site induction, start of shift briefings and tool box talk subcontractors to ensure Best practise methods are employed when carrying out their site operations. Discussion will include measures to be adopted to minimise and/or change working practices that could foreseeably have the potential to cause excessive noise and vibration.

32. Please provide evidence that staff have been trained on BS 5228:2009

CIRIA-accredited 'Environmental Good Practice on Site' training will be completed by all Site Management Staff. The course covers the requirements of BS 5228:2009.

Environmental

Best Practice briefing will be given to all site operatives starting on site by means of a specific environmental section of the site induction.

Temporary electrics will be managed using an automated cut out of non-essential power and lighting, so that out of working hours, all lighting other than emergency escape lighting will be turned off at night to avoid light pollution to neighbouring properties.

33. Please provide details on how dust nuisance arising from dusty activities, on site, will be prevented.

Please refer to addendum 8 – Air Quality Assessment

Control of dust, particularly during periods of dry and windy weather, is a prime concern for all construction projects. This applies to an operative drilling a hole to dust being blown about the site in dry weather.

Control of dust will be implemented following the guidelines set out in the best practice guidance 'The Control of Dust and Emissions during Construction and Demolitions –

Supplementary Planning Guidance, July 2014' produced by The Greater London Authority

(Mayor of London). When necessary water mist suppression will be utilised at the point of work.

Dust emissions shall be monitored throughout the working day concurrently with the noise monitoring. Should dust be observed either in the air or deposited on vehicles or other sensitive receptors works shall be suspended and the working practice reviewed to determine a method to prevent a recurrence.

Monaflex sheeting will be used on the perimeter scaffolds to assist in containing dust produced within the new building being constructed. The Monaflex will have a double usage, in that it will also provide privacy screening between the site and neighbouring windows.

The Monaflex will be maintained throughout its life to maintain its integrity. Prior to scaffold being taken down, the newly installed glazing will be coated with an opaque glass protection film which will maintain privacy to adjacent properties

2.440 m high hoardings will be erected to exposed perimeters to contain dust within the site boundary, these will also provide additional security and privacy to our neighbouring buildings.

34. Please provide details describing how any significant amounts of dirt or dust that may be spread onto the public highway will be prevented and/or cleaned.

All ground or surface water run-off will be strictly controlled in line with environmental legislation and best practice to prevent pollution of drains and watercourses. All fuel will be stored in bunded tanks, at least 10m from any drain or gully. Emergency spill kits will also be available on site. All concrete wash-out will be controlled to prevent contamination,

35. Please provide details describing arrangements for monitoring of [noise](#), vibration and dust levels.

Wates Construction will appoint a specialist consultant to ensure dust levels are below current expectations of Camden Borough Council and will provide monitoring stations for noise and vibration throughout the project. Triggers levels will be set which will alert Wates Construction of any dust, noise and vibration level issues.

36. Please confirm that a Risk Assessment has been undertaken at planning application stage in line with the GLA policy. [The Control of Dust and Emissions During Demolition and Construction 2104 \(SPG\)](#), that the risk level that has been identified, and that the appropriate measures within the GLA mitigation measures checklist have been applied. Please attach the risk assessment and mitigation checklist as an appendix.

Wates have carried out a risk assessment to identify the control of Dust and Emissions during construction, no demolition is planned.

Mitigation measures are included in our current CMP and include the early introduction of a hardsurfaced Haul road, adoption of silent “vibro” piling and introduction of traffic control measures including on site “switch off engines etc”

37. Please confirm that all of the GLA’s ‘highly recommended’ measures from the [SPG](#) document relative to the level of risk identified in question 36 have been addressed by completing the [GLA mitigation measures checklist](#).

The dust mitigation measures checklist as prepared by the GLA will be reviewed during the risk assessment process and we will ensure compliance prior to any works commencing on site.

38. If the site is a ‘High Risk Site’, 4 real time dust monitors will be required. If the site is a ‘Medium Risk Site’, 2 real time dust monitors will be required. The risk assessment must take account of proximity to sensitive receptors (e.g. schools, care homes etc), as detailed in the [SPG](#). Please confirm the location, number and specification of the monitors in line with the SPG and confirm that these will be installed 3 months prior to the commencement of works, and that real time data and quarterly reports will be provided to the Council detailing any exceedances of the threshold and measures that were implemented to address these.

This site is considered to be a medium risk site as per verbal confirmation from Hilson Moran and supports Camden’s local plan policy CC4 on air quality .

We will ensure 2 nos real time dust monitors will be installed prior to commencing on site .

39. Please provide details about how rodents, including rats, will be prevented from spreading out from the site. You are required to provide information about site inspections carried out and present copies of receipts (if work undertaken).

Wates construction will employ a specialist pest control company who will perform an initial site survey and then lay bait boxes as required, which will be maintained throughout the duration of the project.

High standards of site cleanliness, particularly within the site welfare cabins will be a focus throughout construction and all site operatives will receive a briefing to this effect.

Monthly environmental inspections will be carried out on site within which signs of the existence of rodents will be covered.

All connections to the sewer outfall will have an interceptor installed that is filled with water at the earliest opportunity to prevent rodents coming out of the sewers and onto site. Any open ends will be bunged as an additional precaution.

40. Please confirm when an asbestos survey was carried out at the site and include the key findings.

The Project is being undertaken on a previously undeveloped parcel of land with no asbestos bearing materials being affected, the foot bridge that crosses Abbey Road gets removed as part of the scheme has had an asbestos survey carried out and it was confirmed that there is no asbestos.

41. Complaints often arise from the conduct of builders in an area. Please confirm steps being taken to minimise this e.g. provision of a suitable smoking area, tackling bad language and unnecessary shouting.

Appropriate conduct of site operatives will be a key part of the site induction which all operatives and visitors to site will receive. A strict policy of no smoking outside the site boundary will be put in place and the provision of a smoking area will be made available to operatives within the site in a location which is not in clear sight of adjacent properties. The use

of bad language on site will not be tolerated by site management and instances will be dealt with immediately. Conduct of the workforce when away from site will also be covered by the site induction and all operatives will be required to remove protective clothing when outside of site.

In addition to the above, two-way radios will be used on site where appropriate to mitigate the need for shouting to pass messages on. Daily co-ordination meetings will be held with all site supervisors where issues of poor conduct can be dealt with and messages reinforced.

It is anticipated that site resources levels will peak at 50 No. A resource levelling exercise has been carried out on the programme to demonstrate the resource levels throughout the construction period.

42. If you will be using non-road mobile machinery (NRMM) on site with net power between 37kW and 560kW it will be required to meet the standards set out below. The standards are applicable to both variable and constant speed engines and apply for both PM and NOx emissions.

From 1st September 2015

(i) Major Development Sites – NRMM used on the site of any major development will be required to meet Stage IIIA of EU Directive 97/68/EC

(ii) Any development site within the Central Activity Zone - NRMM used on any site within the Central Activity Zone will be required to meet Stage IIIB of EU Directive 97/68/EC

From 1st September 2020

(iii) Any development site - NRMM used on any site within Greater London will be required to meet Stage IIIB of EU Directive 97/68/EC

(iv) Any development site within the Central Activity Zone - NRMM used on any site within the Central Activity Zone will be required to meet Stage IV of EU Directive 97/68/EC

Please provide evidence demonstrating the above requirements will be met by answering the following questions:

a) Construction time period: 01/2021 – 05/2022

b) Is the development within the CAZ? (Y/N): No

c) Will the NRMM with net power between 37kW and 560kW meet the standards outlined above? (Y/N): Yes

d) Please provide evidence to demonstrate that all relevant machinery will be registered on the NRMM Register, including the site name under which it has been registered:

Wates Construction confirms that in line with Best Practice that relevant machinery will be registered and that during subcontract procurement we shall include the requirement for all our sub-contractors to comply.

e) Please confirm that an inventory of all NRMM will be kept on site and that all machinery will be regularly serviced and service logs kept on site for inspection:

We confirm that this will be maintained on site. Weekly inspection and regular service forms part of mandatory Wates Safety, Health & Environmental Standards and compliance will be monitored on an ongoing basis.

f) Please confirm that records will be kept on site which details proof of emission limits, including legible photographs of individual engine plates for all equipment, and that this documentation will be made available to local authority officers as required:

All relevant mobile plant will be logged with records on site that will include the required information to be compliant.

All sub-contractor orders will include this requirement.

SYMBOL IS FOR INTERNAL USE

Agreement

The agreed contents of this Construction Management Plan must be complied with unless otherwise agreed in writing by the Council. This may require the CMP to be revised by the Developer and reapproved by the Council. The project manager shall work with the Council to review this Construction Management Plan if problems arise in relation to the construction of the development. Any future revised plan must be approved by the Council in writing and complied with thereafter.

It should be noted that any agreed Construction Management Plan does not prejudice further agreements that may be required such as road closures or hoarding licences.

Signed: ...*T. Lucey*.....

Date: 2/12/20

Print Name:Tony Lucey.....

Position:Project Manager

Please submit to: planningobligations@camden.gov.uk

End of form.

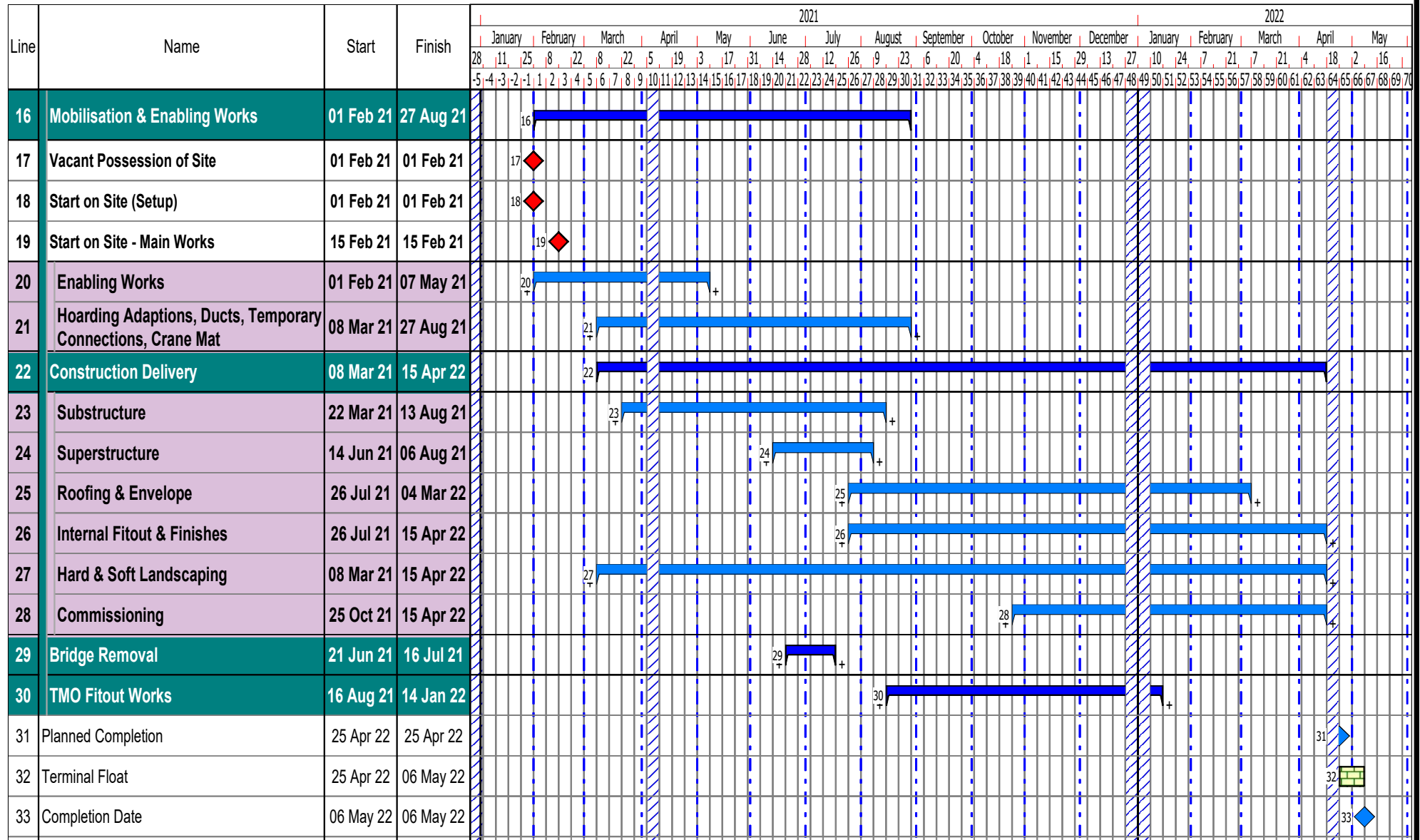
ADDENDUM 1

Programme

Abbey Road P2



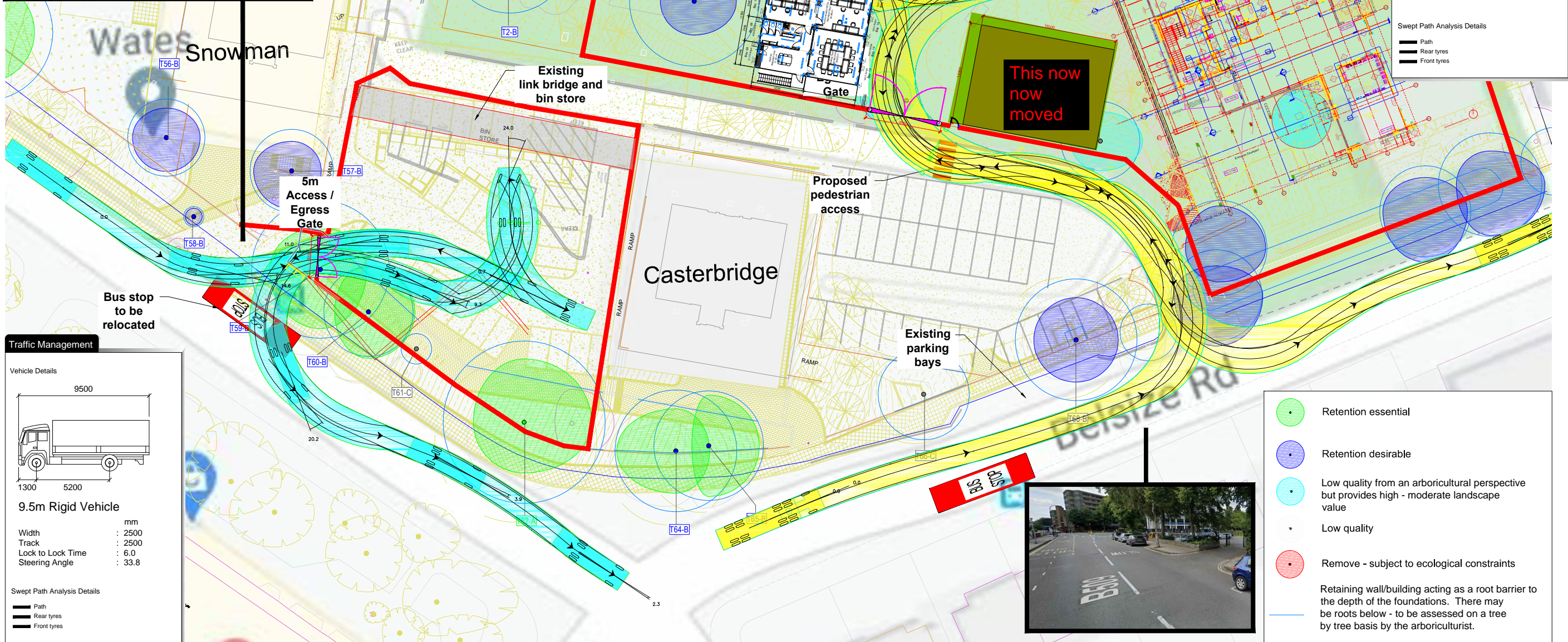
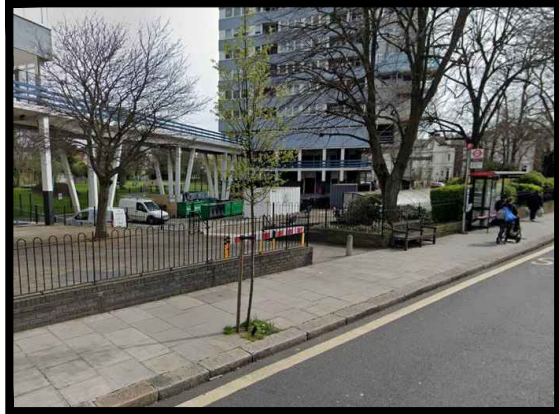
Abbey Road Phase 2 PCSDA. Abbey Road Phase 2 PCSDA



ADDENDUM 2

Site Layout

170 Belsize Road



Traffic Management

Vehicle Details

13m Articulated Vehicle

Tractor Width	: 2550
Trailer Width	: 2550
Tractor Track	: 2550
Trailer Track	: 2550
Lock to Lock Time	: 6.0
Steering Angle	: 25.6
Articulating Angle	: 70.0

Swept Path Analysis Details

- Path
- Rear tyres
- Front tyres

Traffic Management

Vehicle Details

9.5m Rigid Vehicle

Width	: 2500
Track	: 2500
Lock to Lock Time	: 6.0
Steering Angle	: 33.8

Swept Path Analysis Details

- Path
- Rear tyres
- Front tyres

- Retention essential
 - Retention desirable
 - Low quality from an arboricultural perspective but provides high - moderate landscape value
 - Low quality
 - Remove - subject to ecological constraints
- Retaining wall/building acting as a root barrier to the depth of the foundations. There may be roots below - to be assessed on a tree by tree basis by the arboriculturist.

KEY

- Timber hoarding
- Gate

Title **Logistics Set Up
SPA - 9.5m Rigid Vehicle
& 13m Articulated Vehicle**

Status	Scale	Date	Rev	Drawing n.
Draft	@A3	27.08.20	02	02

Designed by

On behalf of

ADDENDUM 3

Site access points

Entrance and Exit
for car park works
Only

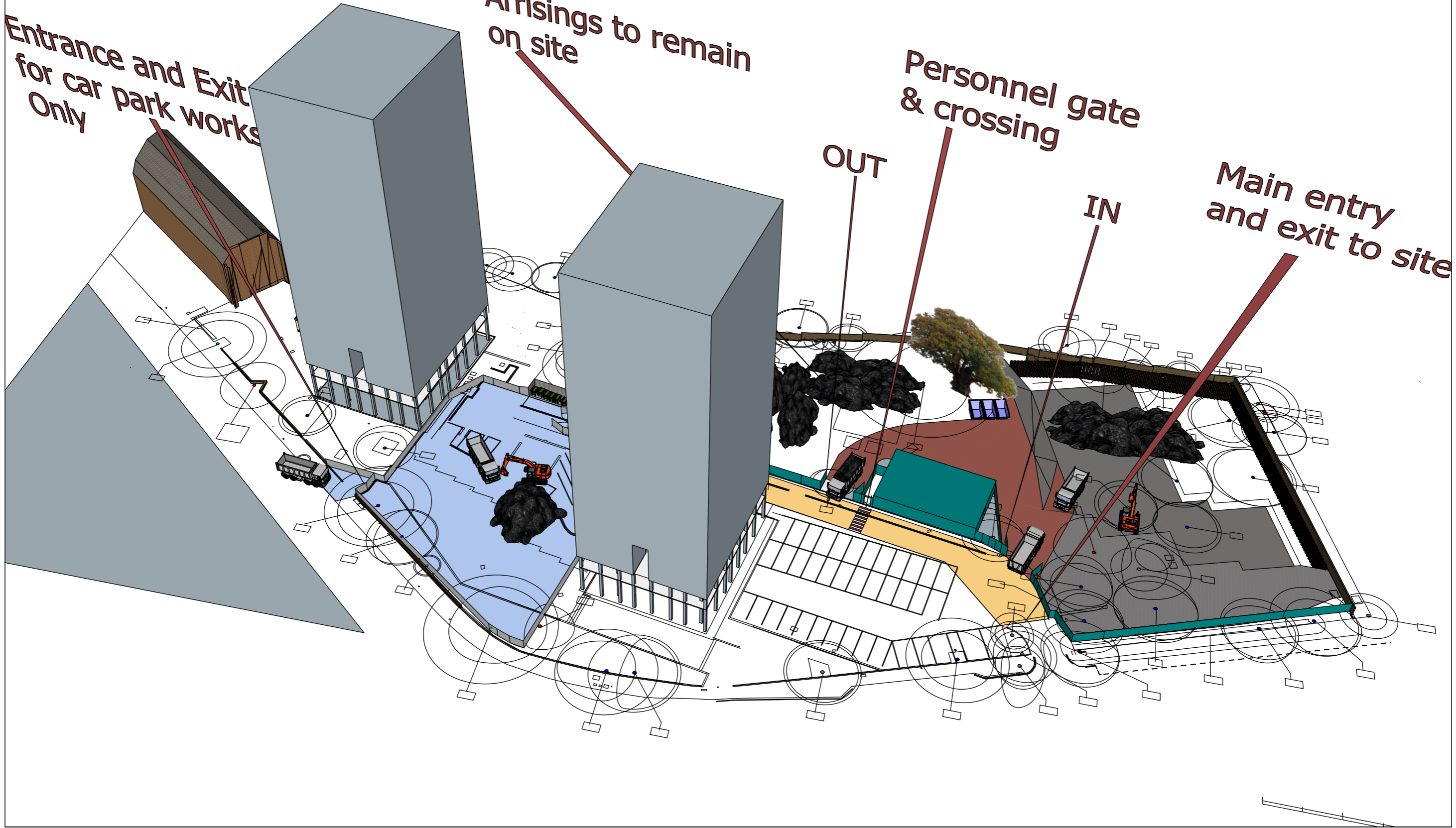
Arrisings to remain
on site

Personnel gate
& crossing

OUT

IN

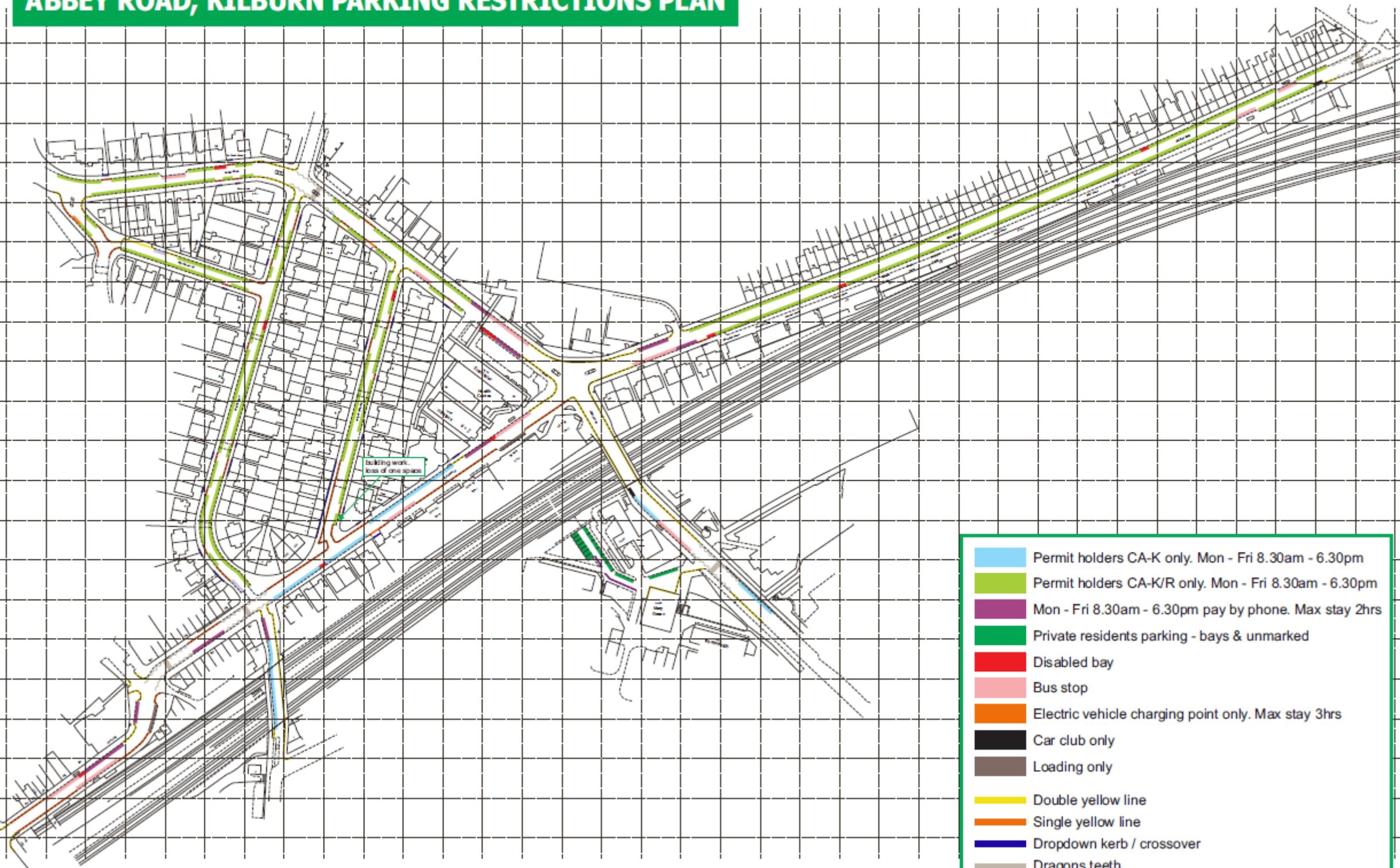
Main entry
and exit to site



ADDENDUM 4A

Site Location Plan

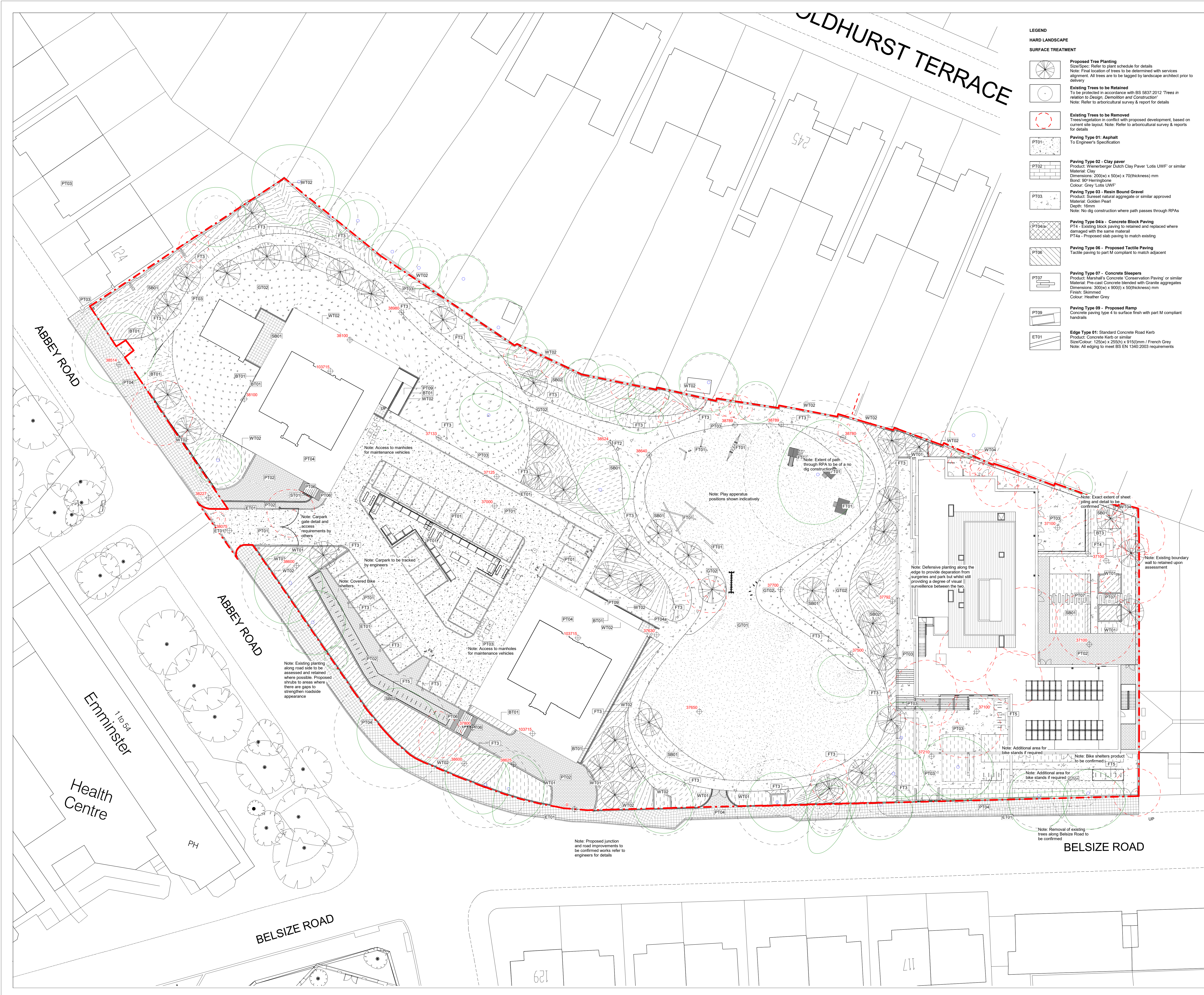
ABBEY ROAD, KILBURN PARKING RESTRICTIONS PLAN



- Permit holders CA-K only. Mon - Fri 8.30am - 6.30pm
- Permit holders CA-K/R only. Mon - Fri 8.30am - 6.30pm
- Mon - Fri 8.30am - 6.30pm pay by phone. Max stay 2hrs
- Private residents parking - bays & unmarked
- Disabled bay
- Bus stop
- Electric vehicle charging point only. Max stay 3hrs
- Car club only
- Loading only
- Double yellow line
- Single yellow line
- Dropdown kerb / crossover
- Dragons teeth
- Area available for parking but omitted due to carriageway width. No parking observed

ADDENDUM 4 B

Parking Restrictions



LEGEND

HARD LANDSCAPE

SURFACE TREATMENT

- Proposed Tree Planting**
 Product: Refer to plant schedule for details
 Note: Final location of trees to be determined with services alignment. All trees are to be tagged by landscape architect prior to delivery
- Existing Trees to be Retained**
 To be protected in accordance with BS 5837:2012 'Trees in relation to Design, Demolition and Construction'
 Note: Refer to arboricultural survey & report for details
- Existing Trees to be Removed**
 Trees/vegetation in conflict with proposed development, based on current site layout. Note: Refer to arboricultural survey & report for details
- Paving Type 01: Asphalt**
 To Engineer's Specification
- Paving Type 02 - Clay paver**
 Product: Wienerberger Balon Clay Paver 'Lotis UWF' or similar
 Material: Clay
 Dimensions: 200(w) x 50(w) x 70(thickness) mm
 Bond: 90° Herringbone
 Colour: Grey 'Lotis UWF'
- Paving Type 03 - Rain Bound Gravel**
 Product: Sureset natural aggregate or similar approved
 Material: Golden Pearl
 Depth: 16mm
 Note: No dig construction where path passes through RPAs
- Paving Type 04a - Concrete Block Paving**
 PT4 - Existing block paving to be retained and replaced where damaged with the same material
 PT4a - Proposed slab paving to match existing
- Paving Type 06 - Proposed Tactile Paving**
 Tactile paving to part M compliant to match adjacent
- Paving Type 07 - Concrete Sleepers**
 Product: Marshalls Concrete 'Conservation Paving' or similar
 Material: Pre-cast Concrete finished with Granite aggregates
 Dimensions: 300(w) x 900(l) x 50(thickness) mm
 Finish: Slatted
 Colour: Heather Grey
- Paving Type 08 - Proposed Ramp**
 Concrete paving type 4 to surface finish with part M compliant handrails
- Edge Type 01: Standard Concrete Road Kerb**
 Product: Concrete Kerb or similar
 Size/Colour: 120(w) x 250(h) x 915(l)mm / French Grey
 Note: All edging to meet BS EN 1340:2003 requirements

- Wall Type 01 - Proposed Brick wall**
 Proposed double skinned brick wall with brick on edge coping
 Product: To match architectural detail
 Structure and foundations to engineers detail
- Wall Type 02 - Existing Brick wall retained**
 Existing brick wall retained and made good where necessary, metal railing removed and made good
- Wall Type 03 - Proposed Signage Wall**
 Proposed double skinned brick wall with brick on edge coping with a panel of precast engraved signage
 Structure and foundations to engineers detail
- Wall Type 04 - Proposed Sheet Pile Cladding**
 Proposed sheet piled wall, clad facade to be confirmed
- Boundary Type 01 - Proposed Metal Railing**
 Proposed black painted metal base plate beneath coping to wall railing to park K standards
 Height: 500mm x 500mm wall upstand (1100mm total)
- Boundary Type 02 - Existing Metal Railing Retained**
 Existing metal railing retained and made good where necessary
- Boundary Type 03: Timber Fencing**
 Product: Close Board Timber Fence
 Supplier: Jacksons or similar approved
 Size/Colour: 1800mm (h) / Natural
- Step Type 01 - Proposed Brick Steps**
 Proposed steps with brick riser and tread
- Furniture Type 01 - Proposed play apparatus**
 Timber play pieces detail to be confirmed
- Furniture Type 02 - Proposed Bin**
 Lockable top
 Product to be confirmed
 Note: separate dig-waste bin attached
- Furniture Type 03 - Proposed Lighting column**
 Lighting columns to provide light levels to meet Secure by design standards to be detailed and design by a lighting specialist
- Furniture Type 04 - Proposed Feasting Table**
 Large timber feasting table with timber benches and access for disabled
- Furniture Type 05 - Cycle stands**
 Shelter to match architectural detail
 access requirements to be confirmed
- Grass Type 01: Amenity Grass**
 Product: An amenity grass mix
 Supplier: Rotun or Gemma/similar approved
 Size/Spec: Refer to plant schedule for details
- Grass Type 02: Flowering Grassland**
 GT2 - Moved on a Grassland regime
 Product: WFC2 'Flowering Grassland'
 Supplier: Gemma or similar approved
 Size/Spec: Refer to plant schedule for details
- Proposed Hedge Planting**
 Product: Field grown plant stock
 Size/Spec: Refer to plant schedule for details
 Note: All batches of species are to be labelled prior to delivery
- Proposed Shrub Planting Type 01**
 Shrub and herbaceous species chosen to provide a green backdrop to the feature areas of planting
 Product: Container grown plant stock
 Size/Spec: Refer to plant schedule for details
 Note: All batches of species are to be labelled prior to delivery
- Proposed Shrub Planting Type 02**
 Shrub and herbaceous species chosen to have a more ornamental appeal providing feature areas of planting
 Product: Container grown plant stock
 Size/Spec: Refer to plant schedule for details
 Note: All batches of species are to be labelled prior to delivery

Notes
 1. This drawing is the property of Fabrik Ltd. It must not be copied or reproduced without written consent.
 2. Only figured dimensions are to be taken from this drawing. All contractors must visit site and be responsible for taking and checking all dimensions related to the works shown on the drawing.

No.	Date	Issued for	Reason	Name
L01	22/05/20	Issued for Planning		
Revisions				

fabrik
 First Floor
 4-8 Emminster Street
 London
 SE1 1DU
 T: 0207 529 1493
 F: 0207 351 9728
 E: london@fabrik.com
 www.fabrik.com

Project
Abbey Area Phase 02 for WATES

Drawing
Combined Hard and Soft General Arrangement Plan

Scale	Date	Approved	Checked	Drawn
As indicated@A0	02/28/20	MB	MB	JC
Project No.	Drawing No.	Revision		
440300	S1-XX-DR-L-9100	L01		

<input checked="" type="checkbox"/> Preliminary	<input checked="" type="checkbox"/> Issued for Design/Information
<input type="checkbox"/> Issued for Planning Approval	<input type="checkbox"/> Issued for Tender
<input type="checkbox"/> Issued for Construction	<input type="checkbox"/> As Built

Drawing sheet size - A0 Copyright Reserved ©

ADDENDUM 5

Not used

ADDENDUM 6

Site Waste Management Strategy for Abbey Area Phase 2

Author Tony Lucey.

Date 22.10.20.

Addendum 6 to the Construction Management Plan.

Wates when on site will have a site waste management plan (SWMP)in place which will be reviewed and updated on a monthly basis .

We will minimise the amount of waste we send to landfill by the following methods .

Ensuring off site manufacturer as far as possible.

All doors and frames will come to site as pre -made “sets” complete with ironmongery.

External Glulam beams will come to site as cassette units

Mortar will be delivered to site in mortar tubs

The SFS will be delivered to site pre-cut to lengths .

Drylining metalwork studs all cut to length.

All plasterboard offcuts will be collected and separately recycled for re-use.

Re-use of concrete and bricks as hardcore where possible.

A fully co-ordinated design prior to commencement on site designed using BIM .Samples and mock-ups are completed , inspected and signed off to the correct workmanship details.

Ensuring hold points are in place and the correct inspections have been completed and the right supply chain contractors are appointed at the outset.

Ensuring the works are programmed correctly and the sequence is always kept too this will ensure a right first-time approach to the installation of the works.

The project intention for the handling of waste is that all waste will be packed and stored in the appropriate containers, which will prevent spillages, or contamination.

Waste will not be mixed with other waste that may contaminate it and change its properties.

Waste will be kept to a minimum on site and be stored in separate areas with divisions between hazardous and non-hazardous waste. These bins will be in various locations in the building and they get collected on a weekly basis using a bin compaction system, with on-site segregation taking place where possible and the waste carrier also performing an off-site segregation to ensure waste recycling is maximised. The logistics company will provide waste Monthly waste reports

Any hazardous waste that is created during construction work will be dealt with accordingly. e.g. Paint tins will be disposed of via a licensed waste contractor in accordance with the Hazardous Waste Regulations 2005.

Section 34 of the Environmental Protection Act 1990 introduces a "Duty of Care" for anyone who produces, imports, carries, keeps, treats or disposes of controlled waste. Controlled waste includes domestic waste, scrap materials, excavated materials etc. Discharge of effluent chemical waste of any kind into any river, waterway or drainage system will not be allowed. The burning of rubbish is not permitted on site.

The logistics company will also verify where required landfill sites or points of disposal it proposes to use. The following documentation will be collected from the waste contractor prior to any disposal;

- Waste Carriers Licence
- Waste Management Licence
- Consignment notes for hazardous waste

Wates will check the records of any waste consignments and licences (Premises Code) during his monitoring of operations. Disposal of waste will always comply with statutory requirements and waste transfer notes/consignment notes will be retained for the designated periods as follows:

- Waste Transfer Notes – 2 Years (Good practice now)
- Waste Consignment Notes – 3 Years

ADDENDUM 7

DRAFT EOI ABBEY ROAD WORKING GROUP TEMPLATE

I wish to register my interest in representing the following group at the Abbey Area Redevelopment Project Steering Group:

(please tick one)

- Existing tenants of Emminster & Hinstock
- Leaseholders in Snowman & Casterbridge
- Tenants of Snowman & Casterbridge
- Abbey Co-Op estate management team
- Ward Councillors
- Abbey Community Centre staff
- Abbey Community Centre board
- Belsize Priory Health Centre staff
- Local health service commissioners

I confirm that I am available to attend the first meeting of the Working Group on **XXth January 2021 at XXpm** and will make myself available for subsequent meetings.

Name: _____

Address: _____

Signed: _____

Date: _____

ADDENDUM 8

Air Quality Plan



Air Quality Assessment

DATE OF ISSUE: 26 MAY 2020
ISSUE: 01
HM REFERENCE: 27965-RP-SU-001

PROJECT:
ABBAY AREA REGENERATION PHASE 2
PHASE 2

CLIENT:
WATES CONSTRUCITON

PROJECT NAME: **ABBEY AREA REGENERATION PHASE 2**

REPORT NAME: **Air Quality Assessment**

ISSUE STATUS: **FINAL**

HM REFERENCE: **27965-RP-SU-001**

DATE OF ISSUE: **26 MAY 2020**

ISSUE: **01**

AUTHOR: **T HALL**

CHECKER: **T READE**

APPROVER: **C BIRCH**

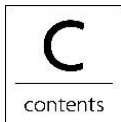
HM OFFICE: **SHACKLETON HOUSE
HAYS GALLERIA
4 BATTLEBRIDGE LANE
LONDON
SE1 2HP**

**T: +44 (0)20 7940 8888
HILSONMORAN.COM
INFO@HILSONMORAN.COM**

DOCUMENT HISTORY:

ISSUE	DATE	DETAILS
00	19/5/2020	DRAFT FOR COMMENTS
01	26/5/2020	FINAL FOR PLANNING

Copyright © Hilson Moran 2020. All rights reserved. This report is confidential to the party to whom it is addressed and their professional advisers for the specific purpose to which it refers. No responsibility is accepted to third parties, and neither the whole nor any part of this report nor reference thereto may be published or disclosed without the written consent of Hilson Moran.



Contents

Executive Summary	i
1. Introduction.....	1
2. Legislation, Policy and Guidance	2
3. Methodology	11
4. Baseline Conditions	24
5. Effects Appraisal and Site Suitability	29
6. Mitigation and Residual Effects	34
7. Conclusion	38
Figures	39
Appendix A Glossary of Terms	52
Appendix B Modelled Receptors & Defra Background Concentrations.....	53
Appendix C Model Verification.....	54
Appendix D 2019 Wind Rose for London City Airport	56
Appendix E Operational Results (2019 Baseline and Emission Factors)	57
Appendix F Sensitivity Analysis Results (2022 Baseline and Emission Factors)	60
References	63

Executive Summary

Hilson Moran has been instructed by Wates Construction London Residential to undertake an air quality assessment for Phase 2 of the Abbey Area Regeneration project in the London Borough of Camden.

This report presents the findings of the assessment, which addresses the potential air quality impacts during both the construction and operational stages of the Proposed Development. The assessment has been undertaken in line with the relevant policy and guidance, and where necessary, outlines the required mitigation measures to minimise impacts.

A qualitative assessment of construction phase impacts has been carried out. There is a medium risk of dust soiling and fugitive PM₁₀ emissions affecting human health from demolition (dust soiling only, low risk for human health), earthworks and a low risk from construction. Trackout holds a medium risk of dust soiling and low risk of fugitive PM₁₀ emissions affecting human health. Through good site practice and the implementation of suitable mitigation measures, the impact of dust and PM₁₀ releases will be minimised. The residual effect of the construction phase on air quality is therefore not significant.

The road traffic generated by the Proposed Development does not breach the threshold detailed in the IAQM and EPUK Air Quality Planning Guidance and the provision of heating and hot water is achieved through non-combustion sources. Whilst detailed modelling of building emissions has been scoped out of the assessment, detailed modelling of the traffic implications have been carried out to illustrate the impact associated with existing receptors in the local area and demonstrate the suitability of the site for the short-term receptors introduced as part of the Proposed Development.

In summary, the results indicate the impact of the Proposed Development is classified as negligible for all existing receptors. Although one existing receptor (E10 - 28 College Crescent) exceeds the annual mean air quality objective marginally, under the worst-case scenario assuming no improvement in background concentration or vehicle emission factors, the Proposed Development has no impact on concentrations. The receptors associated with the proposed development all comply with the long-term NO₂ objective, however the short-term objective is more applicable considering the receptor type.

There are no predicted exceedances of the 1-hour mean NO₂ air quality objective at both existing and proposed receptors, with the impacts of the development being negligible and the site being suitable for the introduction of short-term receptors.

With respect to particulates, no exceedances are predicted as a result of the vehicle emissions on PM₁₀ and PM_{2.5} concentrations, and impacts are negligible and the site is suitable for the introduction of the proposed receptor type.

The overall residual effect for the operational phase is not significant.

It is worth noting that with the introduction of the Real Driving Emissions (RDE) testing and the emergence of cleaner vehicle technologies (in particular EURO 6 (VI) a, b, c and d fleet categories – which indicate lower emissions than the previous EURO 5 (V), and the uptake of electric/hybrid vehicles) that deliver improvements in vehicle emissions, in particular NO_x, ambient pollutant concentrations have the potential to be lower in the future. This is demonstrated by the sensitivity analysis.

The Proposed Development was found to be compliant in relation to Building and Transport Emissions, and is therefore air quality neutral. No mitigation or additional off-setting is required.

Overall, with the inclusion of standard mitigation measures as best practice (construction phase only), the proposals would be compliant with legislation and policy.

1. Introduction

Hilson Moran has been instructed by Wates Construction London Residential to undertake an air quality assessment for Phase 2 of the Abbey Area Regeneration project in the London Borough of Camden. The proposals are hereafter referred to as the 'Proposed Development' or 'Application Site'.

1.1. Proposed Development

Abbey Phase 2 is part of a larger 3 phase masterplan. At this stage, Phase 1 is completed and provides 141 homes, alongside some retail and office space. Phase 2 to which this air quality assessment report supports is in design development and aims to deliver improved and enhanced, fit for purpose facilities to replace the Abbey Community Centre and Belsize Priory Health Clinic which is currently located on the Phase 3 plot. It is understood that Phase 3 will contain further residential development.

The wider masterplan aims to improve the landscape and public realm across all phases, including enhancements to the junction of Abbey Road and Belsize Road.

1.2. Potential Impacts

This report presents the findings of the AQIA for both the operational and construction phases. During the construction phase, activities on the Site could give rise to dust, which, if transported beyond the site boundary, could have an adverse effect on local air quality. During the operational phase, consideration is given to the appropriateness of the site for the introduction of new receptors associated with the development. For both phases, the impacts are identified and the mitigation measures that should be implemented to minimise the impact these are described.

Furthermore, an Air Quality Neutral Assessment (AQNA) has been undertaken in accordance with the Mayor of London's Supplementary Planning Guidance.

A glossary of terms is provided in **Appendix A**.

2. Legislation, Policy and Guidance

The following Section provides a summary of the relevant legislation, planning policy and best practice guidance relevant to air quality and the assessment of impacts from development.

2.1. Air Quality Legislation and Policy

2.1.1. Air Quality Strategy for England, Scotland, Wales and Northern Ireland

The Government's policy on air quality within the UK is set out in the Air Quality Strategy (AQS) for England, Scotland, Wales and Northern Ireland¹, most recently updated in July 2007. The AQS sets out a framework for reducing hazards to health from air pollution and ensuring that the European Union and International agreements are met in the UK.

The AQS covers the following air pollutants: ammonia (NH₃), benzene (C₆H₆), 1,3 butadiene (C₄H₆), carbon monoxide (CO), lead (Pb), oxides of nitrogen (NO_x) (including nitrogen dioxide (NO₂)), particulate matter (PM₁₀ and PM_{2.5}), sulphur dioxide (SO₂), ozone (O₃) and polycyclic aromatic hydrocarbons (PAHs).

The AQS Sets standards and objectives for the listed pollutants for the protection of human health, vegetation and ecosystems. The standards are based on recommendations by the Expert Panel on Air Quality Standards (EPAQS) and the World Health Organisation (WHO) based on current understanding and scientific knowledge about the effects of air pollution on health and the environment. The air quality objectives are policy based targets set by the UK Government that are often expressed as maximum concentrations not to be exceeded either without exception or with a limited number exceedances within a specified timescale.

For the pollutants considered in this assessment, there are both a long-term (*e.g.* annual mean) and short-term (*e.g.* one hour mean). In the case of NO₂, the short-term standard is for a 1-hour averaging period (no more than 18 exceedances of 200 µg/m³ per year), whereas for PM₁₀ it is a 24-hour averaging period (no more than 35 exceedances of 50 µg/m³ per year). The variation in time periods reflects the varying impacts on health of differing exposures to pollutants.

2.1.2. Air Quality Standards Regulations

The air quality objectives in the AQS are statutory in England with the Air Quality (England) Regulations 2000² and the Air Quality (England) (Amendment) Regulations 2002³ for the purpose of Local Air Quality Management (LAQM).

The regulations require likely exceedances of the AQS objectives to be assessed in relation to:

'...the quality of air at locations which are situated outside of buildings or other natural or man-made structures, above or below ground, and where members of the public are regularly present...'

The Air Quality Standards (Amendment) Regulations 2016⁴ transpose the European Union Ambient Air Quality Directive (2008/50/EC) into law in England, with the Air Quality (Amendment of Domestic Regulations) (EU Exit) Regulations 2019⁵ ensuring continuation of the transposition of the Directive. This Directive sets legally binding limit values for concentrations in outdoor air of major air pollutants that impact public health such as NO₂, PM₁₀ and PM_{2.5}. The limit values for NO₂ and PM₁₀ are the same concentration levels as the relevant AWS objectives and the limit value for PM_{2.5} is a concentration of 20 µg/m³. The relevant air quality objectives are presented in Table 2.1.

Table 2.1 Air Quality Objectives for Relevant Pollutants

Pollutant	Concentration	Measured as
NO ₂	200 µg/m ³	1-hour mean, not to be exceeded more than 18 times a year (99.79%ile)
	40 µg/m ³	Annual mean
PM ₁₀	50 µg/m ³	24-hour mean, not to be exceeded more than 35 times a year (90.41%ile)
	40 µg/m ³	Annual mean
PM _{2.5}	25 µg/m ³	Annual mean

2.1.3. Environment Act

Part IV of the Environment Act 1995⁶ requires local authorities to periodically review and assess the quality of air within their administrative area. The reviews have to consider both the air quality at the time of review and likely future air quality during the ‘relevant period’ and whether any air quality objectives prescribed in regulations are being achieved or are likely to be achieved in the future. Where the objectives are not likely to be achieved, an authority is required to designate an Air Quality Management Area (AQMA). For each designated AQMA the local authority is required to produce an Air Quality Action Plan (AQAP) that works to ensure compliance with the objectives by implementing a number of air quality improvement measures.

2.1.4. Environmental Protection Action

Section 79 of the Environmental Protection Act 1990 (as amended)⁷ makes provision for the identification and control of statutory nuisances. The Act identifies statutory nuisance, in relation to air quality, as:

- ‘Any dust, steam, smell or other effluvia arising on industrial, trade or business premises and being prejudicial to health or a nuisance’; and,
- ‘Any accumulation or deposit which is prejudicial to health or a nuisance’.

As a result, the level at which a nuisance occurs is highly variable and dependent on perception with effects influenced by existing conditions and the degree of change that has occurred.

Where a statutory nuisance has been demonstrated the Local Authority must serve an abatement notice, non-compliance with which would constitute a legal offence. The abatement notice may prevent or restrict occurrence of re-occurrence of the nuisance or may, itself, undertake action to abate the nuisance and recover any associated expenses.

2.2. Planning Policy

A summary of the national, regional and local planning policy relevant to air quality and the Proposed Development is detailed below.

2.2.1. National

National Planning Policy Framework

The National Planning Policy Framework (NPPF)⁸ sets out policies which will apply to the preparation of local plans and to development management decisions. This framework sets out the Government’s economic, environmental and social planning policies for England. Taken

together, these policies articulate the Government’s vision of sustainable development, which should be interpreted and applied locally to meet local aspirations.

The NPPF sets out the Government’s planning policies on the conservation and enhancement of the natural environment, with the following paragraphs relating to air quality:

- Paragraph 8c, which states *‘to contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy’*;
- Paragraph 54, which states *‘Local planning authorities should consider whether otherwise unacceptable development could be made acceptable through the use of conditions or planning obligations. Planning obligations should only be used where it is not possible to address unacceptable impacts through a planning condition’*;
- Paragraph 103, which states *‘the planning system should actively manage patterns of growth in support of these objectives. Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions, and improve air quality and public health. However, opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-making’*;
- Paragraph 170e, which states *‘preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans’*;
- Paragraph 181, which states *‘Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan’*;
- Paragraph 183, which states *‘The focus of planning policies and decisions should be on whether proposed development is an acceptable use of land, rather than the control of processes or emissions (where these are subject to separate pollution control regimes). Planning decisions should assume that these regimes will operate effectively. Equally, where a planning decision has been made on a particular development, the planning issues should not be revisited through the permitting regimes operated by pollution control authorities’*; and,
- Paragraph 205c, which states *‘ensure that any unavoidable noise, dust and particle emissions and any blasting vibrations are controlled, mitigated or removed at source, and establish appropriate noise limits for extraction in proximity to noise sensitive properties’*.

2.2.2. Regional

Clearing the Air: The Mayor's Air Quality Strategy (2010)

The Mayor's Air Quality Strategy⁹ is focused on delivering improvements to London's air quality and identifies road traffic as the largest contributor to air pollution. The strategy sets out a framework for improving air quality and details a number of measures to reduce emissions in London, these include:

- Development of electric vehicle infrastructure;
- Congestion charging and the London Low Emission Zone (LEZ);
- Smarter travel initiatives to encourage a shift to greener modes of transport;
- Funding and supporting car clubs (especially hybrid and electric cars);
- Maintaining roads in good repair to reduce the contribution of particulate matter from road surface wear;
- Smoothing traffic;
- Bus emissions programme, so that older buses have been fitted with particulate traps and diesel-electric hybrid buses are introduced as quickly as possible; and
- Publication and implementation of the London Best Practice Guidance for controlling dust and emissions from construction.

Regarding new developments, the Strategy plans to make use of the existing planning system to ensure that any new development does not have a negative impact on air quality in London by stating '*new developments in London shall as a minimum be 'air quality neutral' through the adoption of best practice in the management and mitigation of emissions'*'. It also aims to implement the Construction Best Practice Guidance on all construction sites across London.

The London Plan: Spatial Development Strategy for Greater London (2016)

Planning policy in respect of development planning and air quality management is also presented in the adopted London Plan¹⁰. Policy 7.14 on improving air quality states that development proposals should:

- Minimise exposure to existing poor air quality, make provision for addressing air quality problems and where development is likely to be used by large numbers of people particularly vulnerable to poor air quality, set up design solutions, buffer zones and travel plans for promoting a greater use of sustainable transport modes;
- Promote sustainable design and construction to reduce emissions from the demolition and construction of buildings following the best practice guidance;
- Be at minimum 'air quality neutral' and not lead to further deterioration of existing poor air quality;
- Ensure that where provision needs to be made to reduce emissions from a development, this is generally made on-site; and
- Where the development requires a detailed air quality assessment and biomass boilers are included, the assessment should forecast pollutant concentrations.

The London Plan (Intend to Publish): Spatial Development Strategy for Greater London (2019)

Planning policy in respect of development planning and air quality management is also presented in the 'Intend to Publish' version of the London Plan¹¹, which is a material consideration in the planning determination process. Policy SI1 on improving air quality states that,

- *To tackle poor air quality, protect health and meet legal obligations:*
 - 1) *Development proposals should not:*
 - i. *Lead to further deterioration of existing poor air quality;*
 - ii. *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;*
 - iii. *Create unacceptable risk of high levels of exposure to poor air quality.*
 - 2) *In order to achieve the above requirements, as a minimum:*
 - i. *Development proposals must be at least Air Quality Neutral;*
 - ii. *Development proposals should use design solutions to prevent or minimise increase 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;*
 - iii. *Major development proposals must be submitted with an Air Quality Assessment. Air quality assessments should show how the development will meet the requirements of part 1;*
 - iv. *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.*
- *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:*
 - a) *how proposals have considered ways to maximise benefits to local air quality; and,*
 - b) *what measures or design features will be put in place to reduce exposure to pollution, and how they will achieve this.*
- *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;*
- *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 the 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.*

2.2.3. Local

London Borough of Camden Local Plan (2017)

The Camden Local Plan¹² sets out the Council's planning policies. It ensures that Camden continues to have robust, effective and up to-date planning policies that respond to changing circumstances and the borough's unique characteristics and contribute to delivering the Camden Plan and other local priorities. The Local Plan covers the period from 2016-2031.

The policies of interest within the local plan include: Policy CC4 – Air Quality, which states:

'The Council will ensure that the impact of development on air quality is mitigated and ensure that exposure to poor air quality is reduced in the borough.

The Council will take into account the impact of air quality when assessing development proposals, through the consideration of both the exposure of occupants to air pollution and the effect of the development on air quality. Consideration must be taken to the actions identified in the Council's Air Quality Action Plan.

Air Quality Assessments (AQAs) are required where development is likely to expose residents to high levels of air pollution. Where the AQA shows that a development would cause harm to air quality, the Council will not grant planning permission unless measures are adopted to mitigate the impact. Similarly, developments that introduce sensitive receptors (i.e. housing, schools) in locations of poor air quality will not be acceptable unless designed to mitigate the impact.

Development that involves significant demolition, construction or earthworks will also be required to assess the risk of dust and emissions impacts in an AQA and include appropriate mitigation measures to be secured in a Construction Management Plan'.

In addition to Policy CC4, this Plan also actively supports the improvement of air quality in Camden by:

- Requiring all new development in the borough to be 'car-free' (see Policy T2 Parking and car-free development);
- Maintaining and increasing green infrastructure (see Policy A2 Open space);
- Reducing emissions associated with new development (see Policy CC1 Climate change mitigation); and,
- Supporting and encouraging sensitive energy efficiency improvements to existing buildings (see Policy CC1 Climate change mitigation).

Camden Draft Clean Air Action Plan (2019)

The Camden Draft Clean Air Action Plan¹³ has been produced as part of the borough's duty to London Local Air Quality Management. It outlines the action they will take to improve air quality in Camden between 2019 and 2022. The Clean Air Action Plan (CAAP) is split across seven themes:

- Building Emissions;
- Construction Emissions;
- Transport Emissions;
- Communities and Schools;
- Delivery, Servicing and Freight;
- Public Health and Awareness; and,

- Lobbying.

The CAAP has been developed in recognition of the role local authorities have under the Environment Act to meet the air quality obligations. Camden's role in this includes:

- Working to reduce emissions from their own estate and operations;
- Helping residents and visitors to reduce emissions and exposure;
- Using planning policy and regulation to reduce air pollution;
- Implementing innovative projects across the borough to improve air quality;
- Using their influence to lobby for increased financial and regulatory support for the mitigation of air pollution;
- Maintaining a monitoring network and ensuring the data is freely accessible; and,
- Raising awareness on how to reduce emissions and exposure.

The CAAP is supported by a number of other plans and strategies (including Camden 2025, Our Camden Plan, Green Action for Change 2010 – 2020, Camden's Parking and Enforcement Plan, Camden's Transport Strategy 2019 – 2022 and the Joint Strategic Needs Assessment) with the overarching aim of improving air quality in the borough of Camden.

2.3. Guidance

A summary of the publications referred to in undertaking the air quality assessment is provided below.

2.3.1. London Local Air Quality Management Technical Guidance

The Mayor of London has published guidance for use by the London boroughs in their review and assessment work¹⁴. The guidance is referred to as LLAQM.TG(16) and has been appropriately used within this assessment.

2.3.2. Local Air Quality Management Review and Assessment Technical Guidance

The Department for Environment, Food and Rural Affairs (Defra) has published technical guidance for use by local authorities. This technical guidance, identified as LAQM.TG(16)¹⁵, is for use by local authorities for their review and assessment work and has been applied where appropriate to this assessment.

2.3.3. Land-Use Planning and Development Control: Planning for Air Quality

Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM) have published guidance¹⁶, which offers advice as to when and air quality assessment may or may not be required. The guidance document details what should be included within an assessment, how to determine the significance of air quality impacts and the likely mitigation measures required to minimise the impacts.

2.3.4. Guidance on the Assessment of Dust from Demolition and Construction

This document¹⁷, published by the IAQM, provides guidance on how to assess the impact of construction activities on air quality associated with new developments. The methodology prescribed within the document allows the impacts to be categorised based on risk (with particular reference to dust and PM₁₀ on sensitive human and ecological receptors) and, where applicable, identify mitigation measures associated to the risk classification determined.

2.3.5. National Planning Practice Guidance

The National Planning Practice Guidance¹⁸ outlines how the planning process can address potential air quality impacts associated with new development. It provides guidance on the level of detail required, how impacts can be mitigated and also provides information on how local authorities may take air quality as a specific consideration in a planning decision.

2.3.6. London Councils Guidance for Air Quality Assessments

The London Councils have published guidance¹⁹ for undertaking air quality assessments in the London Boroughs, the majority of which have declared AQMA's. The guidance sets out suggested methodologies for undertaking air quality assessments and sets out criteria for determining the impacts of a new development on air quality.

2.3.7. Mayor of London's Supplementary Planning Guidance for the Control of Dust and Emissions during Construction and Demolition

The Supplementary Planning Guidance (SPG)²⁰ builds on the London Councils guidance to establish best practice when mitigating impacts on air quality during construction and demolition. The SPG, offers further detail and seeks to address emissions from Non-Road Mobile Machinery (NRMM) through the use of a Low Emission Zone, which was introduced in 2015.

The SPG provides a methodology for assessment the impacts on air quality of the construction and activities following the same procedure set out in the IAQM guidance. It identifies the potential impacts and risks to sensitive receptors and details the relevant control measures required to mitigate any adverse impacts.

2.3.8. Greater London Authority: Sustainable Design and Construction Supplementary Planning Guidance

Section 4.3 of this SPG²¹ provides guidance on when an air quality assessment is required, looks at how transport measures can minimise emissions to air and sets out emissions standards/limits for combustion plant.

The SPG also contains guidance on assessing the air quality neutrality of a new development. Emission benchmarks for transport and buildings for NO_x and PM₁₀ are detailed in the SPG.

Developments that do not exceed the calculated emission benchmarks are considered 'air quality neutral', however when the emission benchmarks are exceeded the development is not 'air quality neutral'. Where a development exceeds the benchmarks, additional mitigation or off-setting is required. This can be achieved by providing appropriate abatement including: green planting, upgrade or additional abatement to on-site combustion plant, retro-fitting of abatement technology for vehicles or flues and exposure reduction. Such measures can be achieved by condition or S106 contribution. The SPG states that air quality monitoring is not an eligible method for off-setting air quality impacts as this does not contribute to actual air quality improvements.

2.3.9. Camden planning Guidance – Amenity

The Camden Amenity Planning Guidance²² was adopted in September 2011, but subsequently updated in March 2018. The planning guidance outlines what the Council requires in relation to air quality for a planning application, what an air quality assessment should cover, and what measures can be implemented to minimise pollutant and protect public exposure. This guidance has been used to inform this assessment where appropriate.

2.3.10. Camden planning Guidance – Air Quality

The Camden Planning Guidance on Air Quality²³ forms a Supplementary Planning Document that supports the policies contained within the Local Plan, providing information on key air quality issues within the borough. The guidance provides a background to air quality in the borough, requirements for air quality assessments and measures to minimise emissions to air.

2.3.11. Air Quality Neutral Planning Support Guidance

The Air Quality Neutral Planning Support Guidance²⁴ provides a methodology for assessing the air quality neutrality of Proposed Developments in London.

3. Methodology

3.1. Scope of the Assessment

The scope of the assessment has been determined in the following way:

- Consultation with the Environmental Health Officer (EHO) at the London Borough of Camden to agree the scope of the assessment and the methodology to be applied;
- Review of the London Borough of Camden’s latest review and assessment reports²⁵ and the air quality data for the area surrounding the Application Site, including the London Borough of Camden, Defra²⁶, the London Air Quality Network (LAQN)²⁷ and the London Atmospheric Emissions Inventory²⁸;
- Desk study to confirm the locations of nearby existing receptors that may be sensitive to changes in local air quality, and a review of the Proposed Development to establish the location of new sensitive receptors;
- Review of the traffic data provided by Stantec; and,
- Review of energy strategy and heating/hot water proposals provided by Norman Bromley Partnership.

The scope of the assessment includes consideration of the potential impacts on local air quality resulting from:

- Dust and particulate matter generated by on-site activities during the construction phase; and,
- Increases in pollutant concentrations as a result of exhaust emissions arising from construction traffic and plant.

The proposals do not include on-site energy generation through combustion sources, such as centralised gas-fired boilers or Combined Heat and Power (CHP) unit. The Proposed Development is not expected to generate traffic, as confirmed by the transport consultant Stantec. As a result, these aspects have been scoped out of the AQIA. The operational phase assessment will, however, consider the air quality associated with the Application site and, as a result, the appropriateness for the introduction of new sensitive receptors.

3.2. Construction Phase

Assessment of the risk of impact associated with the generation of dust during the construction phase of the Development and determination of subsequent mitigation measures necessary has been undertaken following Institute of Air Quality Management (IAQM) guidelines.

The assessment is based on a series of steps: screening the requirement for a detailed assessment, classification of the likely magnitude of dust emissions; characterisation of the area of influence and establishment of its sensitivity to dust; and establishment of the overall risk of impact. The risk of impact from dust emissions from the Development considers effects on human health, nuisance as a result of dust soiling and ecological receptors from four main activities: demolition; earthworks; construction; and trackout. The potential for dust emissions from each activity should be considered, unless any of them are not relevant to the Development.

The guidelines identify appropriate screening criteria for the identification of potential receptors, based on a conservative approach and in consideration of the exponential decline in both airborne

concentrations and the rate of deposition with distance. A detailed assessment of the impact of dust from construction sites will be required where:

- A ‘human receptor’ is located within 350 m of the boundary of the site or within 50 m of the route(s) used by construction vehicles on the public highway, up to 500 m from the site entrance;
- An ‘ecological receptor’ is located within 50 m of the boundary of the site or within 50 m of the route(s) used by construction vehicles on the public highway, up to 500 m from the site entrance.

The magnitude of dust emissions for each activity is classified as small, medium or large depending upon the scale of the works proposed, materials involved and level of activity required. The IAQM guidelines provide examples of how the magnitude of emission can be defined, which are identified in Table 3.1. The Development is unlikely to satisfy all criteria within the examples, therefore professional judgement and site specific information are used to identify appropriate emission magnitude.

Table 3.1 Dust Emission Magnitude (Source: IAQM Guidance, v1.1 Updated June 2016)

Activity	Small	Medium	Large
Demolition	<ul style="list-style-type: none"> • Total building volume <20,000 m³ • Construction material with low potential for dust release (e.g. metal cladding or timber) • Demolition activities <10 m above ground level • Demolition during wetter months 	<ul style="list-style-type: none"> • Total building volume 20,000 - 50,000 m³ • Potentially dusty construction material • Demolition activities 10-20 m above ground level 	<ul style="list-style-type: none"> • Total building volume >50,000 m³ • Potentially dusty construction material (e.g. concrete) • On-site crushing and screening • Demolition activities >20 m above ground
Earthworks	<ul style="list-style-type: none"> • Total site area <2,500 m² • Soil type with large grain size (e.g. sand) • <5 heavy earth moving vehicles active at any one time • Formation of bunds <4 m in height • Total material moved <20,000 tonnes • Earthworks during wetter months 	<ul style="list-style-type: none"> • Total site area 2,500 - 10,000 m² • Moderately dusty soil type (e.g. silt) • 5 - 10 heavy earth moving vehicles active at any one time • Formation of bunds 4 – 8 m in height • Total material moved 20,000 - 100,00 tonnes 	<ul style="list-style-type: none"> • Total site area >10,000 m² • Potentially dusty soil type (e.g. clay) • >10 heavy earth moving vehicles active at any one time • Formation of bunds >8 m in height • Total material moved >100,000 tonnes
Construction	<ul style="list-style-type: none"> • Total building volume <25,000 m³ • Construction material with low potential for dust (e.g. metal cladding or timber). 	<ul style="list-style-type: none"> • Total building volume 25,000 - 100,000 m³ • Potentially dusty construction material (e.g. concrete) • On-site concrete batching 	<ul style="list-style-type: none"> • Total building volume >100,000 m³ • On-site concrete batching, sandblasting

Activity	Small	Medium	Large
Trackout	<ul style="list-style-type: none"> • <10 HDV (>3.5t) outward movements* in any one day[#] • Surface material with low potential for dust release • Unpaved road length <50 m 	<ul style="list-style-type: none"> • 10 - 50 HDV (>3.5t) outward movements* in any one day[#] • Moderately dusty surface material (e.g. high clay content) • Unpaved road length 50 - 100 m 	<ul style="list-style-type: none"> • >50 HDV (>3.5t) outward movements* in any one day[#] • Potentially dusty surface material (e.g. high clay content) • Unpaved road length >100 m
<p>* A vehicle movement is a one way journey, <i>i.e.</i> from A to B, and excludes the return journey. [#] HDV movements during a construction project vary over its lifetime, and the number of movements is the maximum not the average.</p>			

Consideration is given to the likely sensitivity of the area to the impacts of dust, establishing a sensitivity of low, medium or high for dust soiling, human health and ecological receptors. The sensitivity of the area considers a number of factors, including the specific sensitivities of receptors in the area, the proximity and number of those receptors, local baseline conditions such as background concentrations and site specific factors.

The first step in identifying the sensitivity of the area is to establish the sensitivity of the receptor, based on the presence or level of activity associated with the area influenced by the Development. Professional judgement and site specific information are used to assign an appropriate level of receptor sensitivity using the principles outlined in Table 3.2. Following this, the sensitivity of the area can be established from Tables 3.3 to 3.5 based on the sensitivity of the receptor, number of receptors (in the case of human health and dust soiling) and the distance from source.

Table 3.2 Receptor Sensitivity Definitions (Source: IAQM Guidance, v1.1 Updated June 2016)

Activity	Low	Medium	High
Dust Soiling	<ul style="list-style-type: none"> • Enjoyment of amenity would not reasonably be expected; • There is property that would not reasonably be expected to be diminished in appearance, aesthetics or value by soiling; • Transient exposure, where people or property is only expected to be present for limited periods of time as part of the normal pattern of use; • Indicative examples include playing fields, farmland, footpaths, short-term car parks and roads. 	<ul style="list-style-type: none"> • Users would expect to enjoy a reasonable level of amenity, but not reasonably at same level as in their home; • The appearance, aesthetics or value of property could be diminished by soiling; • Indicative examples include parks and places of work. 	<ul style="list-style-type: none"> • Users can reasonably expect enjoyment of a high level of amenity; • The appearance, aesthetics or value of property would be diminished by soiling, and continuous or regularly extended periods of presence expected during normal pattern of land use; • Indicative examples include dwellings, museum and other culturally important collections, medium and long-term car parks and car showrooms.

Activity	Low	Medium	High
Human Health	<ul style="list-style-type: none"> • Locations where human exposure is transient; • Indicative examples include public footpaths, playing fields, parks and shopping streets. 	<ul style="list-style-type: none"> • Locations where the people exposed are workers[#], and exposure is over a time period relevant to the air quality objective for PM₁₀*; • Indicative examples include office and shop workers, but not those occupationally exposed to dust. 	<ul style="list-style-type: none"> • Locations where members of the public are exposed over a period of time relevant to the air quality objective for PM₁₀*; • Indicative examples include residential properties, hospitals, schools and residential care homes.
Ecological	<ul style="list-style-type: none"> • Locations with a location designation where the features may be affected by dust deposition, <i>e.g.</i> Local Nature Reserve. 	<ul style="list-style-type: none"> • Locations where there is a particularly important plant species, where its dust sensitivity is uncertain or unknown; • Locations with a national designation where the features may be affected by dust deposition, <i>e.g.</i> Site of Special Scientific Interest. 	<ul style="list-style-type: none"> • Locations with an international or national designation and the designated features may be affected by dust soiling, <i>e.g.</i> Special Area of Conservation with acid heathland; • Location where there is a community of a particularly dust sensitive species such as vascular species included in the Red Data List for Great Britain.
<p>* In the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for eight hours or more in a day, following Defra guidance.</p> <p># Workers are considered to be less sensitive than the general public as a whole because the most sensitive to the effects of air pollution, such as young children, are not normally workers.</p>			

Table 3.3 *Sensitivity of the Area to Dust Soiling Effects on People and Property (Source: IAQM Guidance, v1.1 Updated June 2016)*

Receptor Sensitivity	Number of Receptors	Distance from Source			
		<20m	<50m	<100m	<350m
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 3.4 Sensitivity of the Area to Human Health Impacts (Source: IAQM Guidance, v1.1 Updated June 2016)

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

Table 3.5 Sensitivity of the Area to Ecological Impacts (Source: IAQM Guidance, v1.1 Updated June 2016)

Receptor Sensitivity	Distance from Source	
	<20 m	< 50 m
High	High	Medium
Medium	Medium	Low
Low	Low	Low

3.2.1. Establishing Significance

The risk of dust related impacts from the Proposed Development is established from the sensitivity of the area and the likely dust emission magnitude. The risk should be established, on the worst-case area sensitivity and in the absence of mitigation, for each of the construction related activities (demolition, earthworks, construction and trackout) following the matrix in Table 3.6.

Table 3.6 Risk of Dust Impacts from Each Activity (Source: IAQM Guidance, v1.1 Updated June 2016)

Sensitivity of Area	Activity	Dust Emission Magnitude		
		Large	Medium	Small
High	Demolition	High Risk	Medium Risk	Medium Risk
	Earthworks	High Risk	Medium Risk	Low Risk
	Construction	High Risk	Medium Risk	Low Risk
	Trackout	High Risk	Medium Risk	Low Risk
Medium	Demolition	High Risk	Medium Risk	Low Risk
	Earthworks	Medium Risk	Medium Risk	Low Risk
	Construction	Medium Risk	Medium Risk	Low Risk
	Trackout	Medium Risk	Low Risk	Negligible
Low	Demolition	Medium Risk	Low Risk	Negligible
	Earthworks	Low Risk	Low Risk	Negligible
	Construction	Low Risk	Low Risk	Negligible
	Trackout	Low Risk	Low Risk	Negligible

The IAQM guidelines identify a range of mitigation measures intended to reduce the emission and effects of dust from construction sites, and identify their likely applicability to a development based on the level of impact risk attributed. Consideration is given to these in the development of mitigation measures, with the significance of the residual effect based on professional judgement.

3.3. Operational Phase

3.3.1. Road Traffic Emissions

Road traffic emissions are typically the main source of NO_x, PM₁₀ and PM_{2.5} concentrations resulting from developments.

To understand the NO₂, PM₁₀ and PM_{2.5} concentrations arising as a result of the development, a detailed assessment using the air dispersion model ADMS-Roads, Version 4.1.1.0 (release date 18/01/2018) has been undertaken. This model uses detailed road traffic information, surface roughness and local meteorological information to predict the impact on pollutant concentrations at specific receptor points. Table 3.7 summarises the air quality modelling parameters for road traffic.

Table 3.7 ADMS Roads Modelling Parameters

Parameter	Local Area	Met. Measurement Site
Latitude	51.5	51.5
Surface Roughness	1	1
Monin-Obukhov Length (m)	30	30

The ADMS model uses meteorological data, including wind speed and direction, to determine how pollution is transported and diluted with distance from the source. For this assessment meteorological data from London City Airport for 2019 (to align with the baseline year) has been utilised as this is considered representative of the Site, although meteorological data from 2018 has been used in the verification process to represent the conditions associated with the monitoring as closely as possible.

The traffic data used in the air quality assessment is identified in Table 3.8 and the roads identified in Figure 2.

Table 3.8 Traffic Data Used in the Assessment

Link No.	Link Name	Speed (mph)	2019 Baseline		2022 Baseline	
			Total AADT	% HDV	Total AADT	% HDV
1	B509 Hilgrove Road	23.9	10,748	7.8%	11,234	7.8%
2	B509 Hilgrove Road	23.9	10,748	7.8%	11,234	7.8%
3	B509 Hilgrove Road	23.9	10,748	7.8%	11,234	7.8%
4	A41 Finchley Road	28.1	26,555	21.7%	27,756	21.7%
5	A41 Finchley Road	28.1	26,555	21.7%	27,756	21.7%
6	A41 Finchley Road	28.1	26,555	21.7%	27,756	21.7%
7	A41 Finchley Road	28.1	26,555	21.7%	27,756	21.7%
8	A41 Finchley Road	32	17,239	15.8%	18,019	15.8%
9	A41 Finchley Road	32	17,239	15.8%	18,019	15.8%
10	B511 College Crescent	21.7	17,103	7.6%	17,877	7.6%
11	Finchley Road	21.7	17,103	7.6%	17,877	7.6%
12	B511 College Crescent	21.7	17,103	7.6%	17,877	7.6%
13	B511 College Crescent	21.7	17,103	7.6%	17,877	7.6%
14	B509 Belsize Road	24.6	8,915	9.5%	9,318	9.5%
15	B509 Belsize Road	24.6	8,915	9.5%	9,318	9.5%
16	B509 Belsize Road	24.6	8,915	9.5%	9,318	9.5%
17	B509 Belsize Road	24.6	8,915	9.5%	9,318	9.5%
18	B507 Abbey Road	23.8	13,510	9.9%	14,122	9.9%
19	B507 Abbey Road	23.8	13,510	9.9%	14,122	9.9%
20	B507 Abbey Road	23.8	10,547	12.4%	11,024	12.4%
21	B507 Abbey Road	23.8	10,547	12.4%	11,024	12.4%
22	B509 Belsize Road	23.8	8,268	10.2%	8,642	10.2%
23	B509 Belsize Road	23.8	8,268	10.2%	8,642	10.2%
24	B509 Belsize Road	23.8	8,268	10.2%	8,642	10.2%
25	B509 Belsize Road	23.8	8,268	10.2%	8,642	10.2%
26	B509 Belsize Road	23.8	8,268	10.2%	8,642	10.2%

Model Scenarios

For the assessment, the following scenarios have been modelled:

- 2018 – Verification;
- 2019 – Baseline; and
- 2022 – Baseline with Committed Developments.

The above scenarios utilise emission factors and background concentrations from 2019, *i.e.* no improvement in the baseline position, with the exception of the model verification which was based on 2018 emission factors and background concentrations.

A sensitivity analysis has been undertaken for the following scenarios:

- 2022 – Baseline with Committed Developments.

The sensitivity analysis utilises emission factors and background concentrations from 2022, representing the proposed opening year for the development. This approach assumes some improvements will occur and is considered to be the most reasonable and likely outcome.

Vehicle Emission Factors

Vehicle emission factors for input into ADMS-Roads have been calculated using the EFT version 9.0 (published May 2019), available on the Defra website²⁹. The EFT allows for the calculation of emission factors arising from road traffic for all years between 2017 and 2030. For the predictions of future year emissions, the toolkit takes into account factors such as anticipated advances in vehicle technology and changes in fleet composition, such that vehicle emissions are assumed to reduce over time. There is good evidence from real-world testing of EURO 6 (VI) compliant vehicles of substantial improvements in vehicle emissions compared to earlier EURO categories, in particular with respect to NO_x emissions. Total pollutant concentrations are, therefore, likely to be lower in 2022 than in 2019.

Emission factors for NO_x, PM₁₀ and PM_{2.5} for all modelled scenarios under the non-sensitivity analysis have been calculated using Defra's EFT calculator. All scenarios use 2019 emission factors, presenting a worst-case scenario.

By assuming no improvement in emission factors between 2019 and 2022 is an extreme worst case approach, therefore under the sensitivity analysis emission factors from 2022 have been utilised. Although there had previously been some uncertainty over how representative future emission factors are using Defra's EFT calculator, particular in relation to NO_x, the current EFT is most likely to over-predict drive-cycle average NO_x emissions from EURO 6 (VI) diesel cars and therefore adjustment factors are no longer required.

Defra's EFT calculator has also been used to calculate the emission factors for PM₁₀ and PM_{2.5}.

Selection of Background Concentrations

Background concentrations for NO₂, PM₁₀ and PM_{2.5} have been obtained from Defra's website, which provides background concentrations mapped at a grid resolution of 1 x 1 km for the whole of the UK. Estimated background concentrations are available for all years between 2017 and 2030, and the maps assumed that background concentrations will reduce (*i.e.* improved) over time.

The Defra background concentrations have been selected for use in the modelling as the 2018 results are slightly higher than the concentrations identified by local urban background monitoring from the Frogna Way diffusion tube run by the London Borough of Camden.

For the non-sensitive analysis, 2019 background concentrations will be applied to the baseline and future (2022) assessment scenarios as a worst case approach – this aligns with the emission factors utilised.

For the sensitivity analysis, 2022 background concentrations will be applied to the future year scenario to align with the emission factors utilised.

Background concentrations for each of the receptors are included in Appendix B.

Model Verification

The ADMS-Roads dispersion model has been validated by the software developer and is considered to be fit for purpose, however local model validation, *i.e.* in the vicinity of the Proposed Development, has not been undertaken. Therefore, to validate the model and to determine how well the model is performing at a local level, comparing the modelling results with local monitoring data is undertaken. The verification process aims to minimise model uncertainty and error by adjusting the modelled results by a factor to offer greater confidence in the final results. This is undertaken in accordance with the methodology specified in Chapter 7, Section 4 of LAQM.TG16.

Details of the verification factor calculations are presented in Appendix C. An adjustment factor of 1.74 was obtained during the verification process, which indicated that the model was under-predicting. This factor was applied to the modelled road-NO_x outputs prior to conversion to annual mean NO₂ concentrations utilising the NO_x to NO₂ calculator (version 7.1, released April 2019) provided by Defra³⁰.

No local roadside monitoring data was available for PM₁₀ and PM_{2.5}, therefore the adjustment factor calculated for NO_x has been applied to both the modelled PM₁₀ and PM_{2.5} concentrations prior to adding to the appropriate background concentration. This approach is in accordance with LAQM. TG16.

3.3.2. Combustion Plant Emissions

The M&E Consultant (Norman Bromley) have confirmed that the development have allowed for the provision of heating and hot water through non-combustion sources, with both delivered through heat pumps. There will also be no allowance for any on-site diesel generators.

As a result, consideration of impacts associated with building emissions are not required and have therefore been excluded from the assessment. Furthermore, with non-combustion sources replacing existing combustion sources, the overall effect from the building is likely to be positive in relation to building related emissions.

3.3.3. Significance Criteria

The EPUK and IAQM provide guidance for establishing the significance of air quality impacts arising as a result of the Proposed Development. The magnitude of impact on individual receptors is dependent upon the long-term average pollutant concentrations at the receptor in the assessment year and the percentage change relative to the Air Quality Assessment Level (AQAL), as identified in Table 3.9.

Table 3.9 Impact Descriptors

Long-term Average Concentration at Receptor in Assessment Year	Percentage Change in Concentration to AQAL*			
	1	2-5	6-10	>10
75% of less of AQAL	Negligible	Negligible	Slight	Moderate
76 – 94% of AQAL	Negligible	Slight	Moderate	Moderate
95 – 102% of AQAL	Slight	Moderate	Substantial	Substantial
103 – 109% of AQAL	Moderate	Moderate	Substantial	Substantial
110% or more of AQAL	Moderate	Substantial	Substantial	Substantial

* Where the % change is <0.5% the change is described as 'Negligible' regardless of concentration.

The guidelines do not, however, provide a set method for establishing the significance of impact. Whilst the establishment of the impact magnitude on individual receptors can be identified as negligible, slight, moderate or substantial, the significance of the overall effect is dependent on a number of factors. Therefore, professional judgement will be applied to determine the likely significance of effects, with the following factors considered:

- The existing and future air quality in the absence of the development, notably whether the Air Quality Objectives are likely to be met or the scale of exceedances in the long-term and short-term concentrations;
- The extent of current and future population exposure to the impacts, notably the number of properties and/or people present and the scale of impact (e.g. whether the majority of the local population is subject to substantial or slight magnitude impacts);
- The influence and validity of any assumptions adopted when undertaking the prediction of impacts, such as establishing a worst-case scenario for sensitive receptors.

In addition, the London Council’s guidance for air quality assessment³¹ provides a flow chart for assessing the significance of air quality impacts. These are illustrated in Table 3.10.

Table 3.10 London Council’s Flow Chart Method for Assessing the Significance of Air Quality Impacts

Effect of Development	Outcome
Will development interfere with or prevent implementation of measures in the AQAP?	Air Quality is an overriding consideration.
Is development likely to cause a worsening of air quality or introduce new exposure into the Air Quality Management Area (AQMA)?	Air Quality of a highly significant consideration.
Would the development contribute to air quality exceedances or lead to the designation of a new AQMA?	Air Quality is a highly significant consideration.
Is the development likely to increase emissions of or increase/introduce new exposure to PM ₁₀ ?	Air Quality is a significant consideration.

The London Councils guidance for air quality assessments has published the Air Pollution Exposure Criteria (APEC) specifically for new exposure to determine the significance of new exposure to poor air quality and level of mitigation required. The APEC criteria are identified in Table 3.11.

Table 3.11 London Council’s Significance Criteria

APEC Level	Applicable Range Annual Average NO ₂	Applicable Range PM ₁₀	Recommendation
A	>5% below national objective	Annual Mean: >5% below national objective 24-hour Mean: >1 day less than the national objective	No air quality grounds for refusal, however mitigation of any emissions should be considered.

APEC Level	Applicable Range Annual Average NO ₂	Applicable Range PM ₁₀	Recommendation
B	Between 5% below or above national objective	Annual Mean: Between 5% below or above national objective. 24-hour Mean: Between 1 day above or below the national objective.	May not be sufficient air quality grounds for refusal, however appropriate mitigation must be considered – e.g. maximise distance from pollution source, proven ventilation systems, parking considerations, winter gardens, internal layout considered and internal pollutant emissions minimised.
C	>5% above national objective	Annual Mean: > 5% above national objective 24-hour Mean: >1 day more than the national objective	Refusal on air quality grounds should be anticipated unless the Local Authority 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.

3.4. Air Quality Neutral Assessment

In line with the Sustainable Design and Construction SPG (2014), an Air Quality Neutral Assessment (AQNA) is required for all new developments. The AQNA compares NO_x and PM₁₀ emission for buildings and transport against calculated benchmarks. NO_x and PM₁₀ emission for buildings and transport have been calculated based on the information in Table 3.12.

Table 3.12 Input Parameters for AQNA

Parameter	Value Used
Gross Internal Area (m ²)	1,862 (Health & Community Centre – D1- Use Class)
Energy Centre Total NO _x Emissions (kg/year)	0
Annual Development Generated Vehicle Trips	8 per day for 365 days per year – 2,920

The NO_x and PM₁₀ emissions calculated using the information in Table 3.12 are compared to the benchmarks provided in Table 3.13. For the transport emissions, the use proposed class (D1 (a) Medical & Health Services) included in the Proposed Development do not have Transport Emission Benchmarks specifically assigned:

- Use Classes D1 and D2, the AQN guidance identifies that a benchmark cannot be derived, therefore we have applied this as B1 with the office use likely to have a similar transport requirement.

Should a benchmark be exceeded (*i.e.* is in deficit), mitigation will be required either locally or by off-setting emissions elsewhere.

Table 3.13 Emission Benchmarks for AQNA

Land Use Class	Benchmark Category	NO _x Benchmark (kg/yr)	PM ₁₀ Benchmark (kg/yr)
D1 (a) Medical & Health Services*	Buildings	80.1	4.6
	Transport	21.2	3.8

*Inclusive of community centre

3.5. Sensitive Receptors

Defra provides guidance on locations where the air quality objectives should apply and Table 3.14 and professional judgement have been used to select receptors where likely significant exposure to pollutant concentrations may occur.

Table 3.14 Examples of where the Air Quality Neutral Objectives may or may not apply

Averaging Period	Objectives Should Apply	Objectives Should Generally Not Apply
Annual Mean	All locations where members of the public might be regularly exposed. Building facades of residential properties, schools, hospitals, care homes etc.	Building facades of offices or other places of work where members of the public do not have regular access. Hotels, unless people live there as their permanent residence. Gardens of residential properties. Kerbside sites (as opposed to locations at the building façade), or any other locations where public exposure is expected to be short term.
24-hour Mean	All locations where the annual mean objective would apply, together with hotels. Gardens of residential properties.	Kerbside sites (as opposed to locations at the building façade), or any other locations where public exposure is expected to be short term.
1-hour Mean	All locations where the annual mean and 24 -hour mean objectives apply. Kerbside sites (for example, pavements of busy shopping streets) Those parts of car parks, bus stations and railway stations etc. which are not fully enclosed, where members of the public might reasonably be expected to spend one hour or more. Any outdoor locations where members of the public might reasonably expected to spend one hour or longer.	Kerbside sites where the public would not be expected to have regular access.
15-minute Mean	All locations where members of the public might reasonably be exposed for a period of 15 minutes or longer.	-

The modelled receptors used within the study area are identified in Appendix B and illustrated in **Figure 3**.

3.6. Limitations and Assumptions

Professional judgement has been used in the completion of the construction phase dust assessment for the Proposed Development.

It is assumed that the information provided by the transport consultants (Stantec) and M&E engineers (Norman Bromley) is accurate.

The ADMS Roads dispersion model has been used in this assessment to assess the impact of development generated traffic. The dispersion models rely on input data, such as traffic data and predicted emissions data, *etc.*, which may have uncertainties associated with them. The models simplify complex environments and does not always accurately reflect local micro-climatic conditions which may ultimately affect the predicted pollutant concentrations.

The assessment has been undertaken on a worst case basis, assuming no improvement in emission factors or concentrations between 2019 and the operational year of 2022. A sensitivity analysis has been undertaken, whereby emission factors and background concentrations for 2022 have been utilised to demonstrate how the results would alter as a result of improvements in vehicle emissions and background concentrations.

The Defra background concentrations indicate air quality conditions at ground level. These ground level concentrations have been applied to all receptors, including those at height. As a result, the concentrations are likely to be lower at the receptors at height than predicted, but the assessment presents the worst case scenario and is therefore appropriate.

As discussed in Section 3.4, where Use Classes within the development do not have transport emission benchmark within the AQN Guidance, professional judgement has been applied to attribute an appropriate benchmark to provide a worst case assessment.

Hilson Moran consider the assumptions made in the assessment to be reasonable and robust.

4. Baseline Conditions

4.1. Defra 2017 Background Maps

The UK Air Information Resource (AIR) is operated by Defra and includes computer modelled predictions of background concentrations of air pollutants over the whole of the UK with a grid resolution of 1 km². Background concentrations are those levels that would be expected to be observed away from specific sources of air pollutants, such as roads and industrial installations. The background information for relevant pollutants in the grid squares covering the development are provided in Table 4.1.

Table 4.1 Defra 2017 Background Pollutant Data Relevant to the Proposed Development

Grid Square	Pollutant	Pollutant Concentration (µg/m ³)				
		2018	2019	2020	2021	2022
525500 184500	NO ₂	26.97	25.42	23.76	22.98	22.20
	NO _x	43.50	40.14	36.73	35.27	33.84
	PM ₁₀	17.23	16.94	16.65	16.49	16.32
	PM _{2.5}	11.78	11.56	11.35	11.21	11.08
526500 184500	NO ₂	30.94	29.14	27.14	26.25	25.36
	NO _x	52.24	47.99	43.57	41.78	40.04
	PM ₁₀	18.31	18.02	17.72	17.55	17.38
	PM _{2.5}	12.33	12.10	11.88	11.75	11.61
526500 183500	NO ₂	30.07	28.29	26.40	25.53	24.66
	NO _x	50.26	46.15	42.04	40.31	38.64
	PM ₁₀	17.91	17.62	17.33	17.16	16.99
	PM _{2.5}	12.08	11.87	11.66	11.52	11.38
525500 183500	NO ₂	29.91	28.26	26.44	25.56	24.67
	NO _x	50.34	46.53	42.55	40.79	39.06
	PM ₁₀	18.36	18.06	17.76	17.59	17.43
	PM _{2.5}	12.35	12.14	11.93	11.79	11.65

4.2. Local Air Quality Information

Between 1998 and 2000, the LBC undertook its first round of review and assessment for air quality. Following this review, it was concluded that a borough wide AQMA warranted designation due to exceedances of the AQS objectives for annual mean of NO₂ and PM₁₀ concentrations and 24-hour PM₁₀ concentrations, predominantly brought about by road transport emissions. The Proposed Development lies within the existing AQMA (see **Figure 4**) and in close proximity to an Air Quality Focus Area (AQFA). Since then, exceedances of the objective for annual mean concentrations of NO₂ have persisted in many locations (most pronounced at roadside).

4.2.1. Local Air Quality Monitoring Data

LBC operates four continuous monitoring stations and undertakes passive diffusion tube monitoring at 14 locations. The relevant monitoring locations are presented in **Figure 5**.

Nitrogen Dioxide

Table 4.2 and Table 4.3 presents the annual mean NO₂ concentrations and the number of exceedances of the 1-hour NO₂ objective, respectively for the most representative continuous monitors.

The annual mean NO₂ objective has been exceeded at all monitoring locations between 2012 and 2016. The Urban Background monitor at Bloomsbury fell within the annual mean NO₂ objective for 2017 and 2018, however the kerbside monitor at Swiss Cottage continued to exceed the annual mean NO₂ objective.

As can be seen from Table 4.3, the monitoring data has been compliant with the 1-hour mean NO₂ objective between in all years monitored at London Bloomsbury. Swiss Cottage indicates exceedance of the 1-hour mean objective in 2012 and 2013 and then again in 2016, complying with the objective for the first time in 2014 and 2015 and again in 2017 and 2018.

Table 4.2 *Continuous Monitoring – Annual Mean NO₂*

Site ID	X, Y	Type	Annual Mean (µg/m ³)						
			2012	2013	2014	2015	2016	2017	2018
London Bloomsbury	530123, 182014	UB	55	44	45	48	42	38	36
Swiss Cottage	526629, 184391	K	70	63	66	61	66	53	54

Bold indicates an exceedance of the annual mean objective.
Data capture was greater than 90% at all monitoring locations in 2018, with 92% for Bloomsbury and 95% for Swiss Cottage.
Notes: UB = Urban Background, K = Kerbside

Table 4.3 *Continuous Monitoring – 1-Hour Mean NO₂*

Site ID	X, Y	Type	Number of Exceedances of 1-Hour Mean NO ₂ Objective Threshold of 200 µg/m ³ (<18 exceedances/yr)						
			2012	2013	2014	2015	2016	2017	2018
London Bloomsbury	530123, 182014	UB	1	0	0	0	0	0	0
Swiss Cottage	526629, 184391	K	43	42	14	11	37	1	2

Bold indicates an exceedance of the annual mean objective.
Data capture was greater than 90% at all monitoring locations in 2018, with 92% for Bloomsbury and 95% for Swiss Cottage.
Notes: UB = Urban Background, K = Kerbside

Table 4.4 presents a summary of the diffusion tube monitoring collected by LBC between 2012 and 2018.

The Urban Background monitor at Frogal Way (CA7) does not exceed the annual mean NO₂ objective over the monitoring period. However, the other monitors in the study area all exceed the objective between 2012 and 2017, and only the monitor at Emmanuel Primary (CA25) falls beneath the objective over the monitoring period.

Table 4.4 Diffusion Tube Monitoring – Annual Mean NO₂

Site ID	X, Y	Type	Annual Mean (µg/m ³)						
			2012	2013	2014	2015	2016	2017	2018
CA7 Frognal Wy	526213, 185519	UB	28.89	31.95	28.55	27.78	27.91	32.26	22.1
CA15 Swiss Cottage	526633, 184392	K	72.66	83.08	74.34	69.28	73.86	-	62.3
CA17 47 Fitzjohn's Rd	526547, 185125	R	61.20	65.24	60.30	55.80	56.38	-	48.1
CA25 Emmanuel Primary	525325, 185255	R	45.94	57.91	48.36	47.70	52.18	55.16	39.8

Bold indicates an exceedance of the annual mean objective.
Data capture in 2018 was 92% for CA7 Frognal Way and CA25 Emmanuel Primary, and 83% for 47 Fitzjohn's Road. The data capture was only 42% for CA15 Swiss Cottage, therefore care needs to be given when using this data.
Notes: UB = Urban Background, K = Kerbside, R = Roadside

Particulate Matter

Table 4.5 and Table 4.6 presents the annual mean PM₁₀ concentrations and the number of exceedances of the 24-hour PM₁₀ objective, respectively for the most representative continuous monitors.

Annual mean PM₁₀ concentrations (Table 4.5) at both monitoring locations have been well below the air quality objective since 2012. As can be seen from Table 4.6, the measured data also indicates compliance with the short term air quality objective for PM₁₀ for both sites.

Table 4.5 Continuous Monitoring – Annual Mean PM₁₀

Site ID	X, Y	Type	Annual Mean (µg/m ³)						
			2012	2013	2014	2015	2016	2017	2018
London Bloomsbury	530123, 182014	UB	19	18	20	22	20	19	17
Swiss Cottage	526629, 184391	K	23	21	22	20	21	20	21

Bold indicates an exceedance of the annual mean objective.
Data capture for 2018 was 88% for Bloomsbury and 96% for Swiss Cottage.
Notes: UB = Urban Background, K = Kerbside

Table 4.6 Continuous Monitoring – 24-Hour Mean PM₁₀

Site ID	X, Y	Type	Number of Exceedances of 24-Hour Mean NO ₂ Objective Threshold of 50 µg/m ³ (<35 exceedances/yr)						
			2012	2013	2014	2015	2016	2017	2018
London Bloomsbury	530123, 182014	UB	10	4	11	6	9	6	1
Swiss Cottage	526629, 184391	K	21	8	12	8	7	8	4

Bold indicates an exceedance of the annual mean objective.
Data capture for 2018 was 88% for Bloomsbury and 96% for Swiss Cottage.
Notes: UB = Urban Background, K = Kerbside

Table 4.7 presents the annual mean PM_{2.5} concentrations for the Bloomsbury and Swiss Cottage continuous monitors. Annual mean PM_{2.5} concentrations (Table 4.7) at both monitoring locations have been well below the air quality objective since 2015.

Table 4.7 Continuous Monitoring – Annual Mean PM_{2.5}

Site ID	X, Y	Type	Annual Mean (µg/m ³)						
			2012	2013	2014	2015	2016	2017	2018
London Bloomsbury	530123, 182014	UB	-	-	-	11	12	13	10
Swiss Cottage	526629, 184391	K	-	-	-	12	15	16	11

Bold indicates an exceedance of the annual mean objective.
Data capture for 2018 was 92% for Bloomsbury and 88% for Swiss Cottage.
Notes: UB = Urban Background, K = Kerbside

4.2.2. London Atmospheric Emissions Inventory

The LAEI includes dispersion model results for the whole of London for 2016 (updated July 2019) and 2020 (updated in April 2017). Estimated ground level annual mean concentrations for NO₂, PM₁₀ and PM_{2.5} in the vicinity of the Application Site are presented in **Figures 6 to 8**.

Figure 6 presents the 2016 LAEI baseline concentrations for annual mean NO₂ in the vicinity of the Application site. This indicates elevated ground level concentrations in excess of 50 µg/m³ along the adjoining roads (Belsize Road and Abbey Road). Within the Application Site boundary, baseline annual mean NO₂ concentrations are generally around the 40 µg/m³ concentration with the highest being 43.4 µg/m³. Due to the resolution of the model, some of the concentrations associated with the roads of around 50 µg/m³ also fall within the site, however using professional judgement it is not considered likely that these would be experienced in the Application Site boundary.

Defra’s LAQM.TG(16) guidance provides an approach by which to determine compliance with the 1-hour mean objective for NO₂. It suggests that where annual mean NO₂ concentrations do not exceed 60 µg/m³ then it is likely that exceedances of the 1-hour mean concentrations do not occur. As identified above the 2016 LAEI baseline data demonstrates that annual mean NO₂ concentrations do not exceed 60 µg/m³ within the Application Site boundary, and therefore it is unlikely that the 1-hour mean AQS objective at the Proposed Development would be exceeded.

Figure 7 presents the 2016 LAEI baseline concentrations for annual mean PM₁₀ in the vicinity of the Application Site. This indicates ground level concentrations are between 25 and 30 µg/m³ along the adjoining roads. Within the Application Site boundary the estimated annual mean PM₁₀ concentrations are generally below 25 µg/m³, and where elevations associated with adjoining roads fall within the site these are all below 30 µg/m³.

Figure 8 presents the 2016 LAEI baseline concentrations for annual mean PM_{2.5} in the vicinity of the Application Site. This indicates ground level concentrations around 16 µg/m³ along adjoining roads of Belsize Road and Abbey Road. Within the Application Site boundary the estimated mean PM_{2.5} concentrations are generally below 15 µg/m³.

Based upon GLA forecasts on expected emission reductions, **Figures 9, 10 and 11** (taken from the 2020 LAEI mapped data) estimated ground level annual mean concentrations for NO₂, PM₁₀ and PM_{2.5} in 2020 are predicted to be lower than those presented in **Figures 6, 7 and 8** for 2016. With the introduction of the Real Driving Emissions (RDE) testing and the likely improvement in cleaner vehicle technologies (in particular EURO 6 (VI) a, b, c and d fleet categories – which are substantially cleaner than the previous EURO 5 (V), and the uptake of electric/hybrid vehicles) delivering improvements in vehicle emissions, in particular NO_x, then ambient pollutant concentrations could potentially be lower in 2020 than predicted by the 2016 LAEI baseline. However, it is important to note that such improvements would depend upon traffic growth, congestion and the implementation of government/local authority air quality initiatives and policy.

5. Effects Appraisal and Site Suitability

5.1. Construction

5.1.1. Assessment of Potential Dust Emission Magnitude

The likely magnitude of dust emissions from the Proposed Development for the four main activities has been assessed, as identified in Table 5.1.

Table 5.1 Predicted Magnitude of Dust Emissions from Proposed Development

Activity	Magnitude	Justification
Demolition	Small	There is a small amount of demolition activity proposed, this includes a pedestrian footbridge (35m ³) and two ramps (10m ³ each). The total volume of material to be demolished is 55m ³ , which is well below the small threshold of 20,000m ³ set out in the IAQM guidance. The material to be demolished is concrete and therefore has the potential for dust releases. The height of the bridge does not exceed 10m, therefore all demolition works will occur below this threshold. Based on this information, it is reasonable to categorise the dust emission magnitude as small.
Earthworks	Medium	Although the site area is 10,860 m ² , however the area in which the development is taking place is much smaller, at 935.6m ² . The soil type is potentially dusty, no bunds are proposed. Earthworks will be limited to site levelling and for the establishment of foundations, therefore excavated material is estimated at 600m ³ , which equates to approximately 212 tonnes (well below 20,000 tonnes set out for the small threshold). A maximum of two excavators and two earth moving vehicles will be used during this stage i.e. less than five as set out in the IAQM threshold for small. However, due to the site area it has been classified as Medium.
Construction	Small	The total building volume is 20,045m ² (below 25,000m ² as set out in the IAQM Guidance small threshold). The material to be used in the construction stage includes steel, brick and timber cladding, composite floor decking and plasterboard partitions – the dust release potential is low.
Trackout	Medium	Considering the size of the Proposed Development, the outward movements of vehicles is as follows: <ul style="list-style-type: none"> • 32t Tipper: 20 muck away deliveries per day during first 8 weeks • Skip loader: 2 deliveries per week during first 10 weeks • Articulated vehicles: 1 delivery per day • 18t flatbed: 1 deliveries per day for duration of project • 3.5t van: 6 deliveries per day for duration of project Based on the above information the maximum number of outward HDV movements is 30, which is below the threshold of 50. The proposed haul roads are expected to be kept to a minimum (<i>i.e.</i> <50 m) but will be concrete to minimise dust resuspension.

5.1.2. Sensitivity of the Area

A wind rose for London City Airport for 2019 is provided in Appendix D, which indicates that the prevailing wind direction is from the south-west. Therefore, existing receptors that are located to the north-east are most likely to fall within the area of influence from dust emissions generated by the construction phase. The extent of the zone of influence from construction dust is identified in **Figure 12**.

The majority of dust generated by the construction stage is likely to be deposited in close proximity to the source. Surrounding the Application Site, the majority of existing buildings are residential in nature, with terrace houses lining both sides of Belsize Road and various apartment buildings present both within the development site and in the wider area along Belsize Road, Abbey Road and Rowley Way on the far side of the railway line. However, as the wider masterplan site incorporates the two apartment blocks overlooking Abbey Road, there are more than 100 receptors within 20 m of the development. In reality, these buildings on site will fall c. 50 m from the majority of the construction works based on the footprint of the new building, however this has little effect on the sensitivity of the area from dust soiling as there would still be more than 100 residential receptors within 50 m of the works. For human health, considering the buildings on site as falling within 20 m of the works represents a worst case scenario.

There are no ecological receptors located within 50 m of the Application Site, or within 50 m of the likely construction traffic route for 500 m from the site boundary, and therefore consideration of these receptors has been scoped out.

The background PM₁₀ concentration within the Application Site is less than 24 µg/m³, which is well below the annual mean air quality objective.

The sensitivity of the area to each of the previously identified impact types associated with the Proposed Development are identified in Table 5.2.

Table 5.2 Sensitivity of Receptors to Dust Emission Effects

Impact Type	Sensitivity of Surrounding Area			
	Demolition	Earthworks	Construction	Trackout
Dust Soiling	High	High	High	High
Human Health	Medium	Medium	Medium	Medium
Ecological	N/A	N/A	N/A	N/A

5.1.3. Risk of Impact

To determine the risk of impacts prior to the implementation of mitigation the dust emission magnitude and the sensitivity of the area have been combined. Table 5.3 below summaries the potential risk of impacts during the construction phase.

Table 5.3 Risk of Dust Related Impacts from the Proposed Development

Impact Type	Risk			
	Demolition	Earthworks	Construction	Trackout
Dust Soiling	Medium Risk	Medium Risk	Low Risk	Medium Risk
Human Health	Low Risk	Medium Risk	Low Risk	Low Risk
Ecological	N/A	N/A	N/A	N/A

The risk of dust related impacts from the Proposed Development on existing receptors in the vicinity of the Application Site is Medium to Low Risk for dust soiling and Medium to Low Risk for human health, without the implementation of mitigation.

5.1.4. Construction Road Traffic and Non-Road Mobile Machinery (NRMM)

The greatest impact on air quality due to construction traffic and NRMM is likely to be along roads in the vicinity of the Application Site. It is likely that construction traffic will enter the Application Site via Belsize Road, but the volume of construction traffic will be low compared to the existing traffic flows.

Based on the current local air quality in the area, the proximity of sensitive receptors to the roads likely to be used by construction vehicles, the impacts are therefore considered to be slight adverse without the implementation of mitigation.

5.2. Operational Phase

Full results of the dispersion modelling are presented in **Appendix E** and a summary is provided below.

The proposals for the site include for new receptor types, associated with the health centre and community uses. As a result, a number of the air quality objectives do not generally apply for the specified land uses (as set out in Table 3.14) with the long-term air quality objectives not applicable to the proposed use of the site. As a result, the short-term objectives are more applicable for receptors introduced by the Proposed Development. The surrounding receptors do, however, include residential receptors for which the long-term objectives apply.

5.2.1. Impact Assessment

Annual Mean NO₂ Concentration

The objective for annual mean NO₂ concentrations is 40 µg/m³. In the 2019 baseline, the annual mean NO₂ concentrations at existing sensitive receptor locations fall within the objective with the exception of one, which is sensitive receptor E10 (28 College Crescent) where the predicted concentration is 40.6 µg/m³.

In 2022, concentrations at existing receptors remains similar to the 2019 baseline with all existing receptors falling within the air quality objective with the exception of sensitive receptor E10 (28 College Crescent). The concentration at this location is 41.0 µg/m³. As the traffic related to the development falls within the thresholds for detailed assessment, the additional traffic has a negligible influence on flows and, as a result, no influence on predicted annual mean NO₂ concentrations. Therefore, the Proposed Development has a negligible impact.

All of the annual mean NO₂ concentrations in 2022 for receptors within the Proposed Development fall within the air quality objective, with the highest predicted annual mean NO₂ concentration being 37.8 µg/m³ at proposed receptor P1 (Western corner of site along Abbey Road). All receptors would be classified as APEC A, with concentrations falling more than 5% under the air quality objective. However, the proposed receptors are not considered to be long-term receptors with the short-term objective more applicable.

Hourly Mean NO₂ Concentration

The objective for hourly mean NO₂ concentrations is 200 µg/m³ to be exceeded no more than 18 times a year. Following the approach within Defra's LAQM.TG(16), which suggests that where annual mean NO₂ concentrations do not exceed 60 µg/m³ then it is likely that exceedances of the 1-hour mean concentrations do not occur, all existing and proposed receptors are considered

unlikely to be exposed to exceedances of the hourly mean NO₂ concentration. Therefore, impacts associated with the short-term NO₂ objective in 2019 and 2022 are negligible.

Annual Mean PM₁₀ Concentration

The objective for annual mean PM₁₀ concentrations is 40 µg/m³. In the 2019 baseline, the annual mean PM₁₀ concentrations at existing sensitive receptor locations all fall within the air quality objective. The highest concentration is 19.9 µg/m³ at a sensitive receptor E10 (28 College Crescent).

In 2022, concentrations at existing receptors remains similar to the 2019 baseline with all existing receptors falling within the air quality objective. The highest concentration remains 19.9 µg/m³ at sensitive receptor E10 (28 College Crescent). As the traffic related to the development falls within the thresholds for detailed assessment, the additional traffic has a negligible influence on flows and, as a result, no influence on predicted annual mean PM₁₀ concentrations. Therefore, the Proposed Development has a negligible impact.

All of the annual mean PM₁₀ concentrations in 2022 for receptors within the Proposed Development fall within the air quality objective, with the highest predicted annual mean PM₁₀ concentration being 19.6 µg/m³ at proposed receptors P1 and P2 (Western boundary along Abbey Road) and P5 and P6 (South-Eastern boundary of site along Belsize Road). All receptors would be classified as APEC A, with concentrations falling more than 5% under the air quality objective. However, the proposed receptors are not considered to be long-term receptors with the short-term objective more applicable.

Daily Mean PM₁₀ Concentration

The objective for daily mean PM₁₀ concentrations is 50 µg/m³ to be exceeded no more than 35 times a year. In 2019 the daily mean PM₁₀ concentrations at all existing receptors comply with the objective, with the greatest exceedance being 3 occasions at receptors E2 (129 Belsize Road), E7 (Centre Heights, Finchley Road), E9 (The Quarters, Finchley Road) and E10 (28 College Crescent).

The results indicate that concentrations at both existing and new receptors will comply with the objective in 2022, with the greatest number of exceedances indicated to be 3 at existing receptors E2 (129 Belsize Road), E7 (Centre Heights, Finchley Road), E9 (The Quarters, Finchley Road) and E10 (28 College Crescent) and all of the proposed receptors. All receptors are classified as APEC A, with predicted exceedances more than 1 day less than the air quality objective. The impact on daily mean PM₁₀ concentrations at existing receptors is considered negligible.

Annual Mean PM_{2.5} Concentration

The objective for annual mean PM_{2.5} concentrations is 25 µg/m³. In the 2019 baseline, the annual mean PM_{2.5} concentrations at existing sensitive receptor locations all fall within the air quality objective. The highest concentration is 13.3 µg/m³ at a sensitive receptor E10 (28 College Crescent).

In 2022, concentrations at existing receptors remains similar to the 2019 baseline with all existing receptors falling within the air quality objective. The highest concentration remains 13.3 µg/m³ at sensitive receptor E10 (28 College Crescent). As the traffic related to the development falls within the thresholds for detailed assessment, the additional traffic has a negligible influence on flows and, as a result, no influence on predicted annual mean PM_{2.5} concentrations. Therefore, the Proposed Development has a negligible impact.

All of the annual mean PM_{2.5} concentrations in 2022 for receptors within the Proposed Development fall within the air quality objective, with the highest predicted annual mean PM_{2.5}

concentration being 13.1 µg/m³ at all proposed receptors except P4 (Southern Boundary along Belsize Road). However, this is not considered to be a long-term receptor.

5.2.2. Sensitivity Analysis

The following sensitivity test is also included in the assessment:

2022 Background Concentrations and Emission Factors have been used to indicate an improvement in emissions and background concentrations over time.

The results of the sensitivity test are given in **Appendix F**.

In summary, the sensitivity test using the 2022 background concentrations and emission factors gives lower concentrations at all existing and new receptors for both long-term and short-term pollutant concentrations.

The greatest difference is seen in the long-term NO₂ concentrations, which are all predicted to be fall within the annual mean AQS objective of 40 µg/m³. The highest concentration at an existing receptor is predicted to be 32.1 µg/m³. The impact associated with the Proposed Development remains negligible, with none of the long-term receptors observing an increase in concentration as a result of the Proposed Development as previously discussed.

Within the Proposed Development, all concentrations for all receptors fall within the annual mean AQS objective for NO₂. Under this scenario, all receptors fall within APEC A. However, the proposed receptors are not considered to be long-term receptors with the short-term objective more applicable.

In terms of the 1-hour mean objective for NO₂, there remains no predicted exceedances at any existing or new receptors following the approach within Defra’s LAQM.TG(16). The annual mean concentrations of PM₁₀ and PM_{2.5} remain within the AQS objective for all receptors and within the objective for daily mean PM₁₀. Impacts, therefore, remain negligible.

5.2.3. Air Quality Neutral Assessment

A summary of the findings of the AQNA are presented in Table 5.4 below.

Table 5.4 Summary of AQNA

Category	Parameter	NO _x Emissions (kg/annum)	PM ₁₀ Emissions (kg/annum)
Building Emissions	Benchmark	80.1	4.6
	Development	0	0
	Difference	-80.1	-4.6
Transport Emissions	Benchmark	21.2	3.8
	Development	8.3	1.5
	Difference	-12.9	-2.3

The Proposed Development is air quality neutral in relation to building and transport emissions, no mitigation or additional off-setting is required.

6. Mitigation and Residual Effects

6.1. Construction Phase

6.1.1. Mitigation

The IAQM guidelines provide an indication of the mitigation measures that would be appropriate for inclusion within the Proposed Development, based on the level of risk of dust related impacts identified for each of the activities. Consequently, the following mitigation measures should be incorporated into the Proposed Development, and delivered through the implementation of a Construction Environment Management Plan (CEMP).

Mitigation measures that are generic to each of the activities, and therefore should be implemented for the duration of the construction related works where applicable are identified in Table 6.1, whilst activity specific mitigation measures are identified in Table 6.2.

Table 6.1 *Mitigation to be Implemented during the Construction Phase*

Development Element	Mitigation Measures
Communication	<p>Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.</p> <p>Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/ engineer or the site manager.</p> <p>Display the head or regional office contact information on the site boundary.</p>
Planning	<p>Development and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority at Planning Condition stage. The level of detail will depend on the risk, and should include as a minimum the measures listed in this table, which includes additional measures identified in the Mayor of London’s dust guidance. The DMP may include monitoring of dust deposition, dust flux, real-time PM₁₀ continuous monitoring and/or visual inspections.</p>
Site Management	<p>Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.</p> <p>Make the complaints log available to the local authority when asked.</p> <p>Record any exceptional incidents that cause dust and/or air emissions, either on- or off-site, and the action taken to resolve the situation in the log book.</p>
Monitoring	<p>Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked.</p> <p>Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out during prolonged dry or windy conditions. Regular checks of buildings within 100 m of the site boundary should be carried out to check for soiling due to dust with cleaning carried out where necessary.</p>

Development Element	Mitigation Measures
<p>Preparing and Maintaining the Site</p>	<p>Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.</p> <p>Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.</p> <p>Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period.</p> <p>Avoid site runoff of water or mud. The construction site should be bunded to prevent runoff.</p> <p>Keep site fencing, barriers and scaffolding clean using wet methods. The water used should be collected and maximise the use of recycled and non-potable water.</p> <p>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.</p> <p>Require a change of shoes and clothes by staff and visitors before going off-site to reduce the transport of dust or provide cleaning facilities such as showers or boot cleaners.</p>
<p>Operating Vehicle/ Vehicle Movements</p>	<p>Ensure all on-road vehicles comply with the requirements of the London Low Emission Zone and the London NRMM standards. For HGVs, the standard is EURO IV for PM and for heavier vans and mini buses it is Euro III.</p> <p>Ensure all vehicles switch off engines when stationary – no idling vehicles.</p> <p>Avoid the use of diesel or petrol powered generators and use mains electricity or batter powered equipment where practicable.</p> <p>Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.</p> <p>Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking and car-sharing).</p>
<p>Operations</p>	<p>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.</p> <p>Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.</p> <p>Use enclosed chutes and conveyors and covered skips.</p> <p>Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.</p> <p>Regularly inspect the site area for spillages;</p> <p>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.</p> <p>Vacuum or sweep regularly to prevent the build-up of fine waste dust material, which has spilled on the site and is designated as waste that is no longer fit for use.</p> <p>Inform the Environment Agency, London Fire and Emergency Planning Authority (LFEPA) or the Health Protection Agency (HPA) if harmful substances are spilled.</p>

Development Element	Mitigation Measures
Waste Management	Avoid bonfires and burning of waste materials. Developments should produce a waste and/or recycling plan. The Environment Agency suggests that a waste plan includes a number of best practice procedures identified in the dust guidance document.

Table 6.2 *Activity Specific Mitigation Measures to be Implemented during the Construction Phase*

Development Element	Mitigation Measures
Demolition	Soft strip inside buildings before demolition (retaining walls and windows in the rest of the building where possible, to provide a screen against dust). Ensure effective water suppression is used during demolition operations. Hand held sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground. Avoid explosive blasting, using appropriate manual or mechanical alternatives. Bag and remove any biological debris or damp down such material before demolition.
Earthworks	Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable. Use hessian, mulches or tackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable. Only remove the cover in small areas during work and not all at once.
Construction	Avoid scabbling (roughening of concrete surfaces) if possible. Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place. Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery. For smaller supplies of fine powder materials ensure bags are sealed after use and stored appropriately to prevent dust.
Trackout	Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use. Avoid dry sweeping of large areas. Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport. Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable. Record all inspections of haul routes and any subsequent action in a site log book. Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.

Development Element	Mitigation Measures
	<p>Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).</p> <p>Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever sit size and layout permits.</p> <p>Access gates to be located at least 10 m from receptors where possible.</p>

6.1.2. Residual Effects

The residual effects of dust and PM₁₀ generated by construction activities following the application of the mitigation measures described above and good site practice is not significant.

The residual effects of emissions to air from construction vehicles and NRMM on local air quality is not significant following the implementation of the recommended mitigation measures.

6.2. Operational Phase

6.2.1. Mitigation

The results indicate that the impact of the Proposed Development at all existing receptors for all pollutants are classified as negligible, and therefore do not warrant mitigation.

Within the Proposed Development, all of the predicted NO₂ concentrations are below the AQS objective of 40 µg/m³. The receptors are all classified as APEC A, with mitigation not required, although the receptors are not considered to be long-term receptors with the short-term objective more applicable. The sensitivity analysis, which is considered to provide a more realistic prediction of air quality with the improvement in background concentrations considered in this scenario in line with the improvements seen at the local monitoring stations, demonstrates that concentrations remain below the AQS objective and classified as APEC A, therefore not requiring mitigation.

Exceedances of the hourly mean NO₂ objective of 200 µg/m³ are considered to be unlikely under all scenarios, and therefore negligible and mitigation is not required.

With respect to particulates, the operation of the Proposed Development is not predicted to result in exceedances and impacts are identified as negligible, and therefore mitigation is not required.

Overall, the assessment, taking predicted reductions in background concentration into account as local monitoring demonstrates a decreasing trend, indicates that site specific mitigation is not required.

6.2.2. Residual Effects

The overall residual effect for the operational phase is not significant.

7. Conclusion

This report presents the findings of the assessment, which addresses the potential air quality impacts during both the construction and operational stages of the Proposed Development. The assessment has been undertaken in line with the relevant policy and guidance, and where necessary, outlines the required mitigation measures to minimise impacts.

A qualitative assessment of construction phase impacts has been carried out. There is a medium risk of dust soiling and fugitive PM₁₀ emissions affecting human health from demolition (dust soiling only, low risk for human health), earthworks and a low risk from construction. Trackout holds a medium risk of dust soiling and low risk of fugitive PM₁₀ emissions affecting human health. Through good site practice and the implementation of suitable mitigation measures, the impact of dust and PM₁₀ releases will be minimised. The residual effect of the construction phase on air quality is therefore not significant.

The road traffic generated by the Proposed Development does not breach the threshold detailed in the IAQM and EPUK Air Quality Planning Guidance and the provision of heating and hot water is achieved through non-combustion sources. Whilst detailed modelling of building emissions has been scoped out of the assessment, detailed modelling of the traffic implications have been carried out to illustrate the impact associated with existing receptors in the local area and demonstrate the suitability of the site for the short-term receptors introduced as part of the Proposed Development.

In summary, the results indicate the impact of the Proposed Development is classified as negligible for all existing receptors. Although one existing receptor (E10 28 College Crescent) exceeds the annual mean air quality objective marginally, under the worst-case scenario assuming no improvement in background concentration or vehicle emission factors, the Proposed Development has no impact on concentrations. The receptors associated with the proposed development all comply with the long-term NO₂ objective, however the short-term objective is more applicable considering the receptor type.

There are no predicted exceedances of the 1-hour mean NO₂ air quality objective at both existing and proposed receptors, with the impacts of the development being negligible and the site being suitable for the introduction of short-term receptors.

With respect to particulates, no exceedances are predicted as a result of the vehicle emissions on PM₁₀ and PM_{2.5} concentrations, and impacts are negligible and the site is suitable for the introduction of the proposed receptor type.

The overall residual effect for the operational phase is not significant.

It is worth noting that with the introduction of the Real Driving Emissions (RDE) testing and the emergence of cleaner vehicle technologies (in particular EURO 6 (VI) a, b, c and d fleet categories – which indicate lower emissions than the previous EURO 5 (V), and the uptake of electric/hybrid vehicles) that deliver improvements in vehicle emissions, in particular NO_x, ambient pollutant concentrations have the potential to be lower in the future. This is demonstrated by the sensitivity analysis.

The Proposed Development was found to be compliant in relation to Building and Transport Emissions, and is therefore air quality neutral. No mitigation or additional off-setting is required.

Overall, with the inclusion of standard mitigation measures as best practice (construction phase only), the proposals would be compliant with legislation and policy.



Figures

Figure 1 Site Location

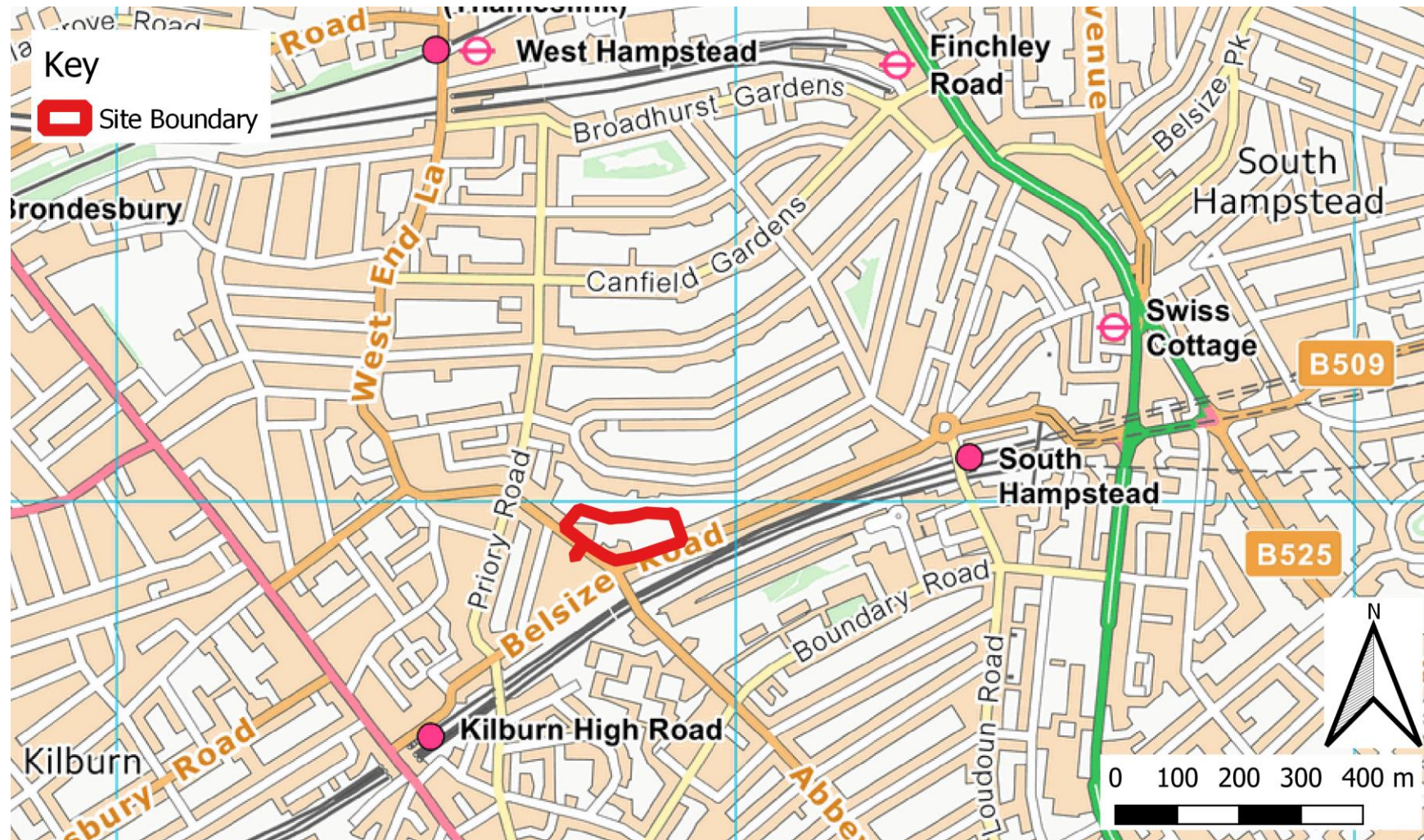


Figure 2 Modelled Roads within the Assessment

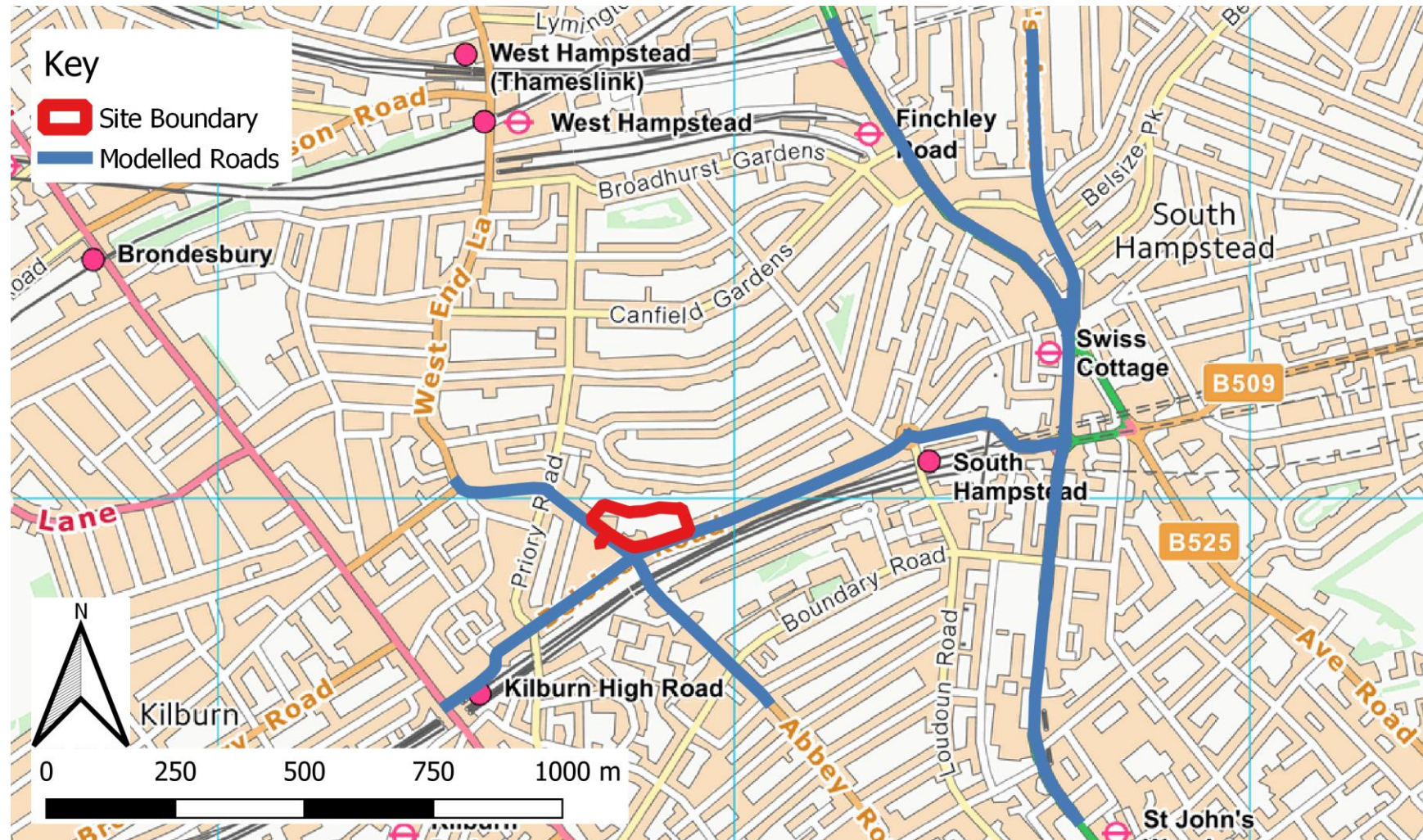


Figure 3 Modelled Receptors within the Assessment

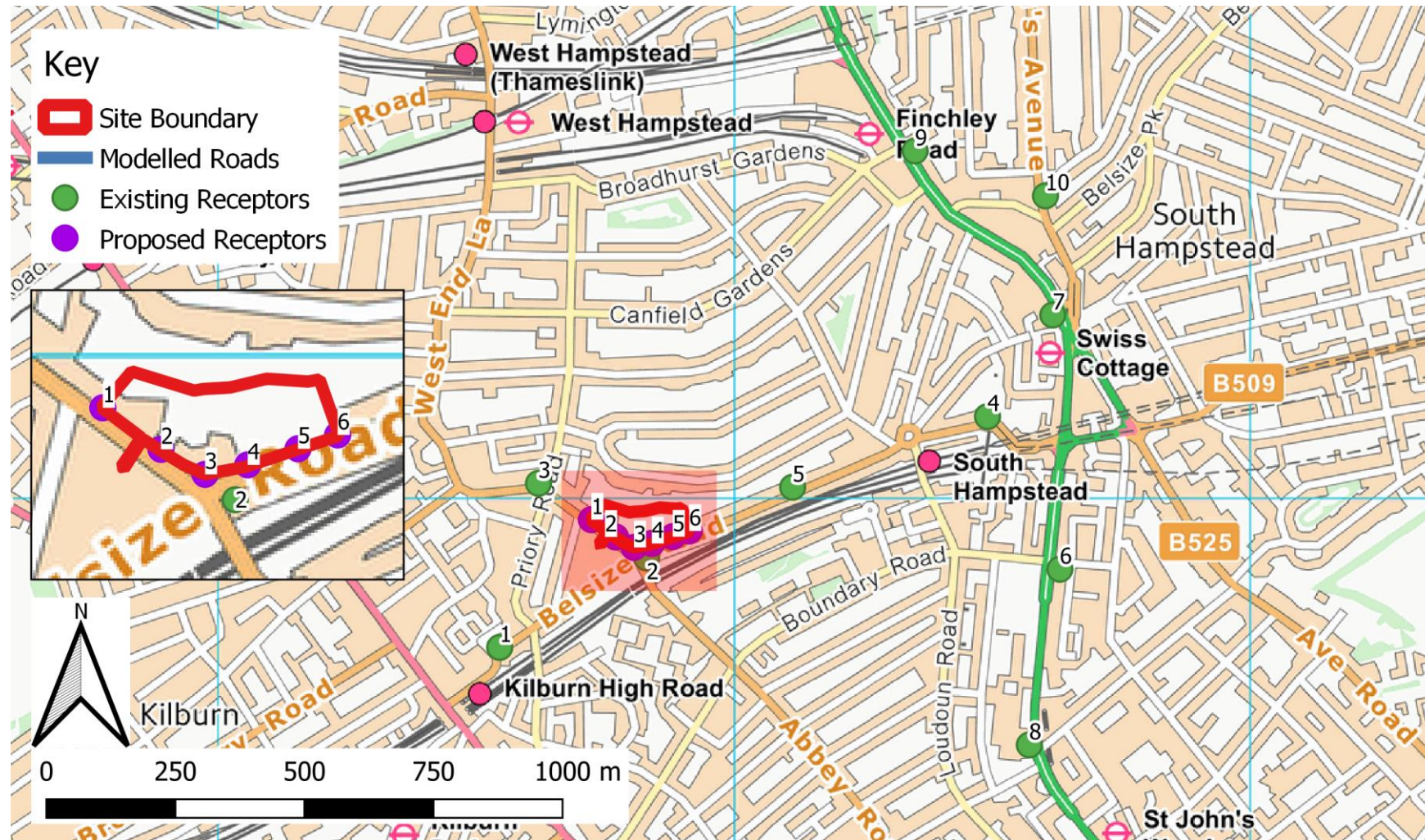


Figure 4 AQMA and LAEI Air Quality Focus Areas

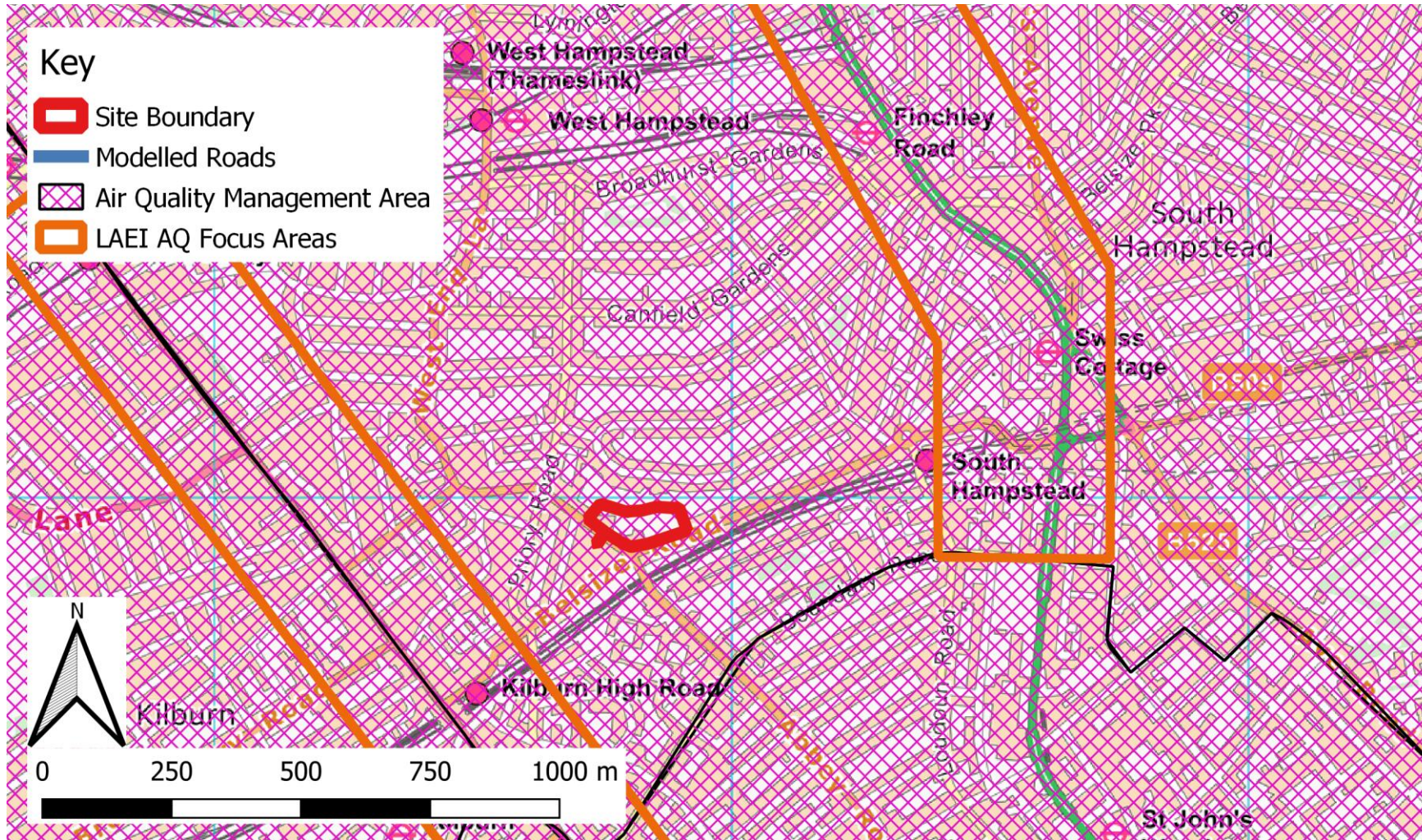


Figure 5 Local Air Quality Monitoring Network

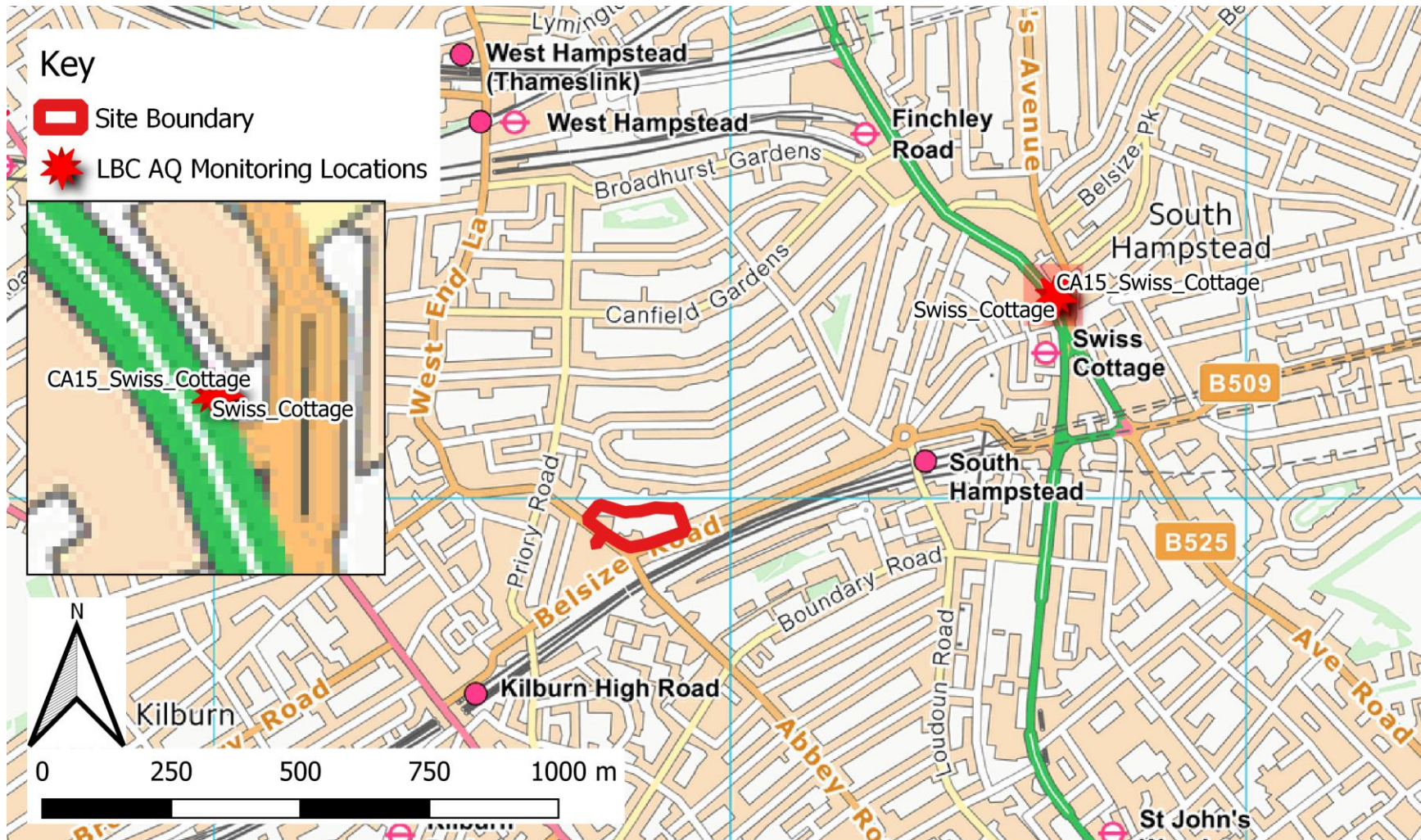


Figure 6 2016 LAEI Baseline Data – Annual Mean NO₂ (µg/m³)



Figure 7 2016 LAEI Baseline Data – Annual Mean PM₁₀ (µg/m³)

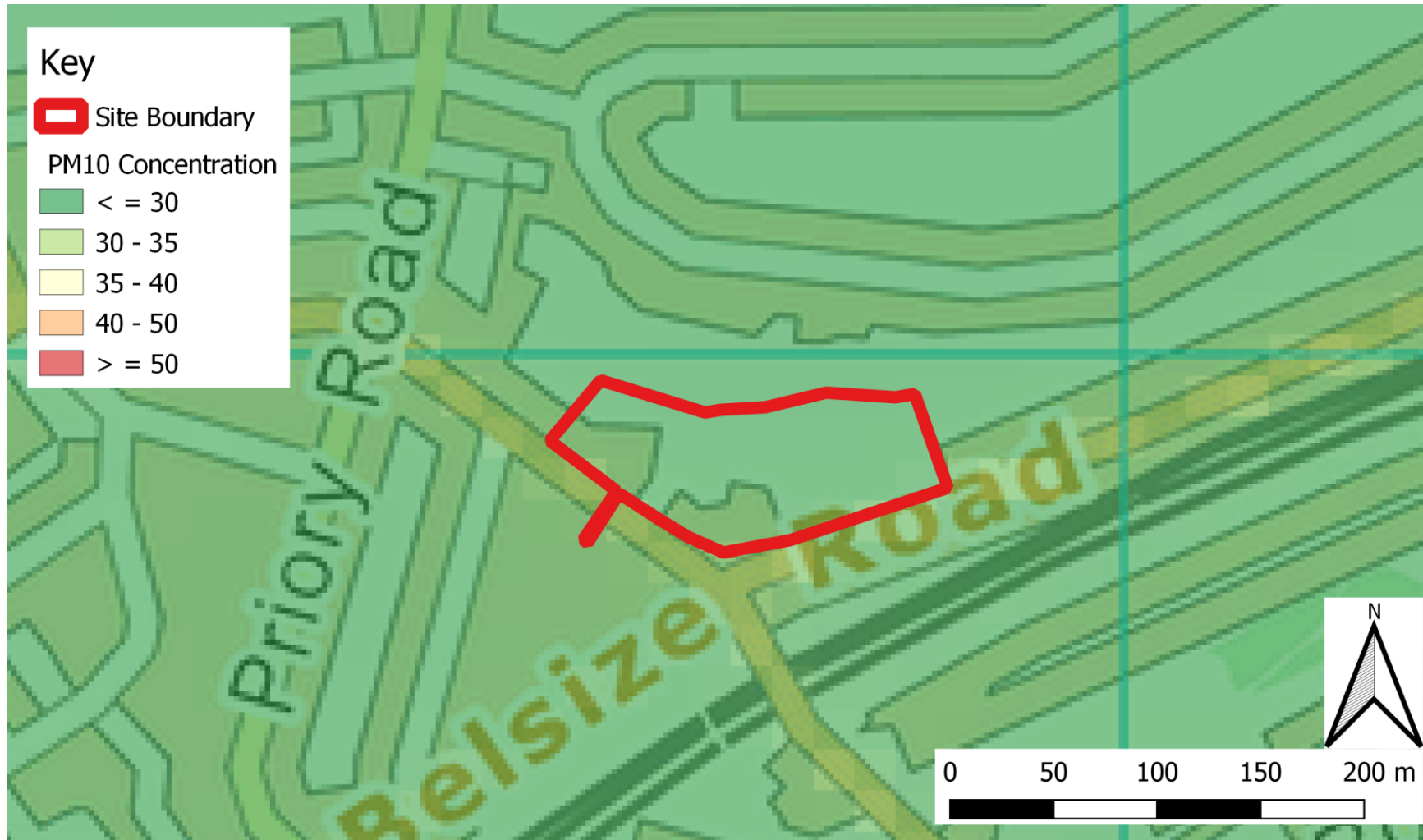


Figure 8 2016 LAEI Baseline Data – Annual Mean PM_{2.5} (µg/m³)

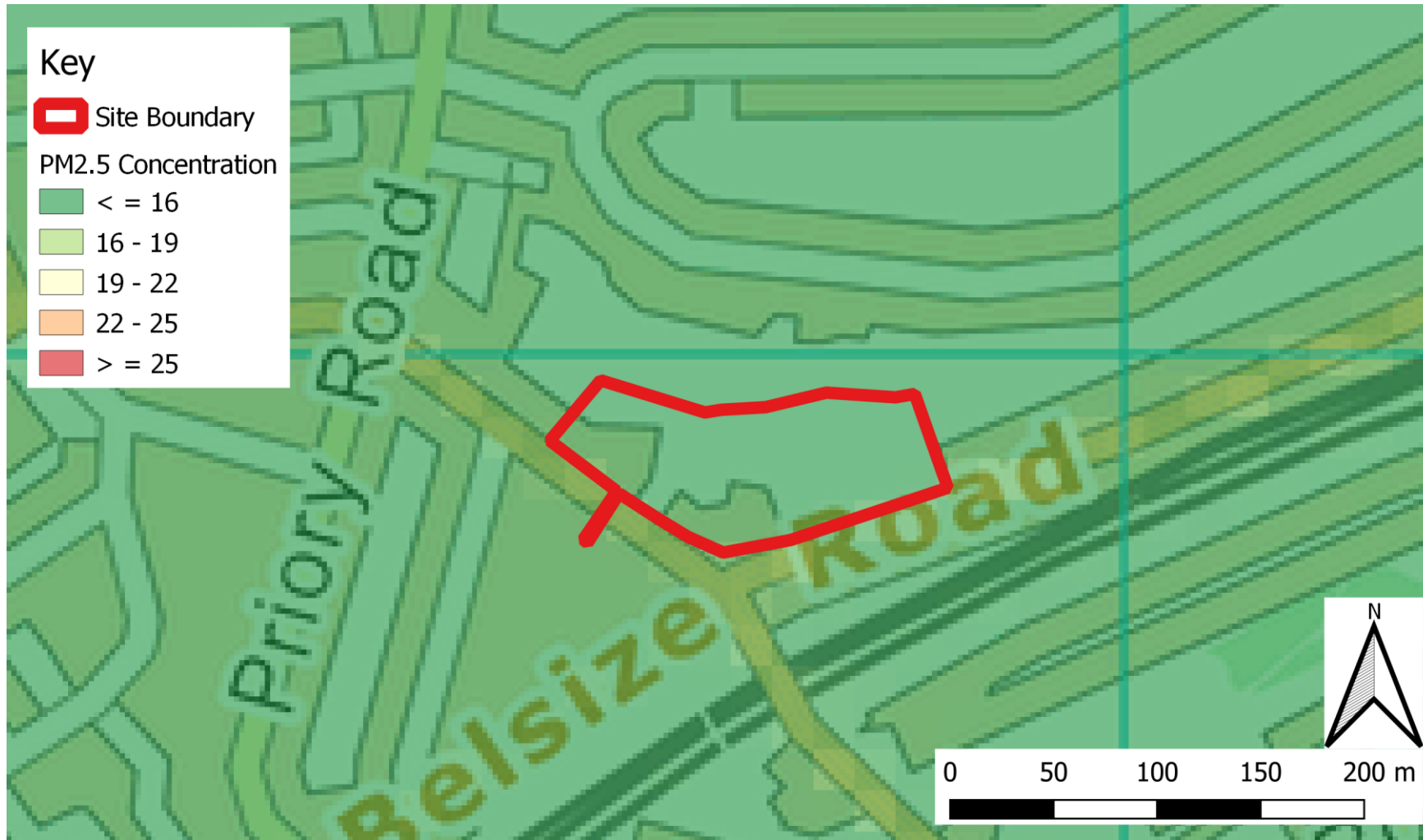


Figure 9 2020 LAEI Baseline Data – Annual Mean NO₂ (µg/m³)

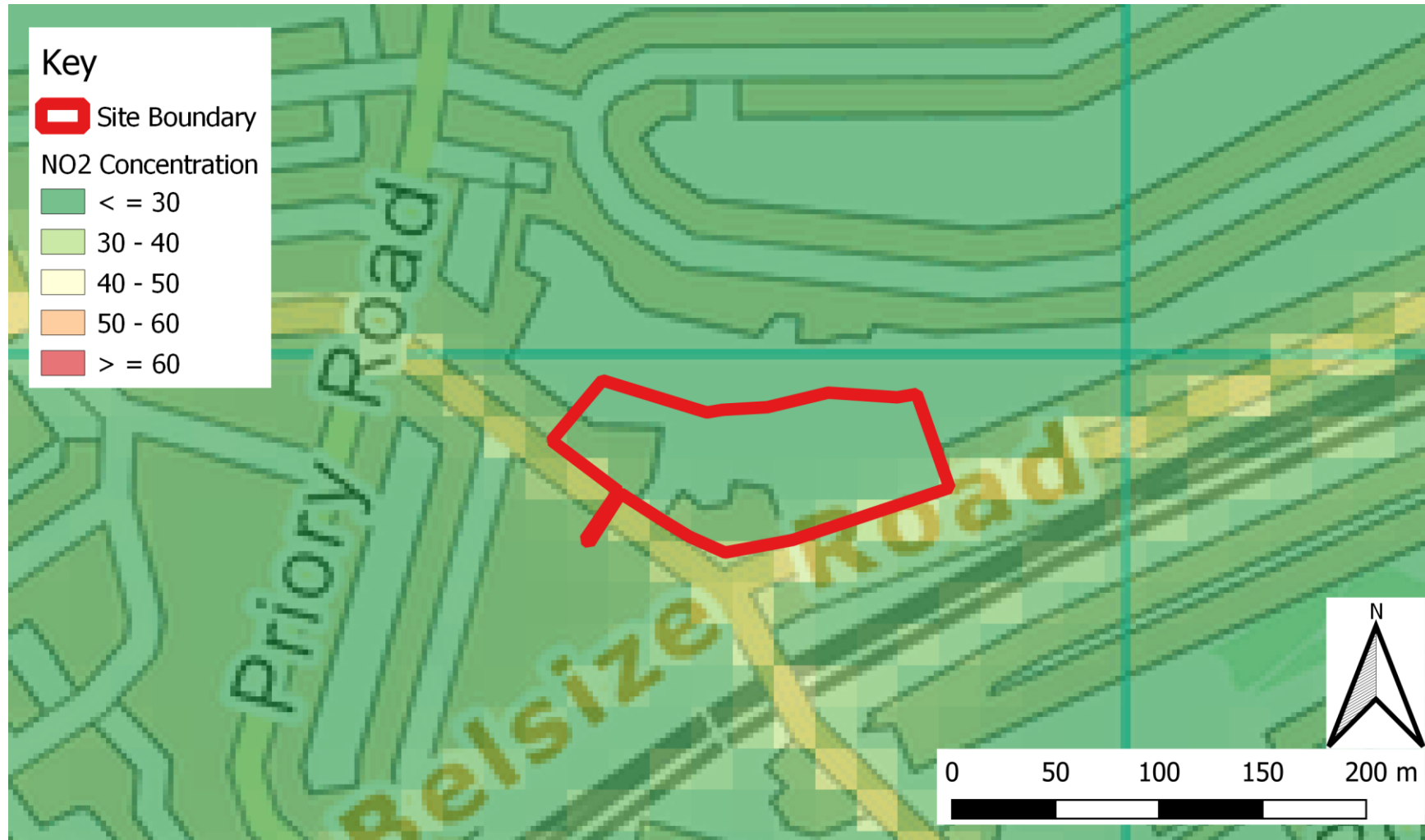


Figure 10 2020 LAEI Baseline Data – Annual Mean PM₁₀ (µg/m³)

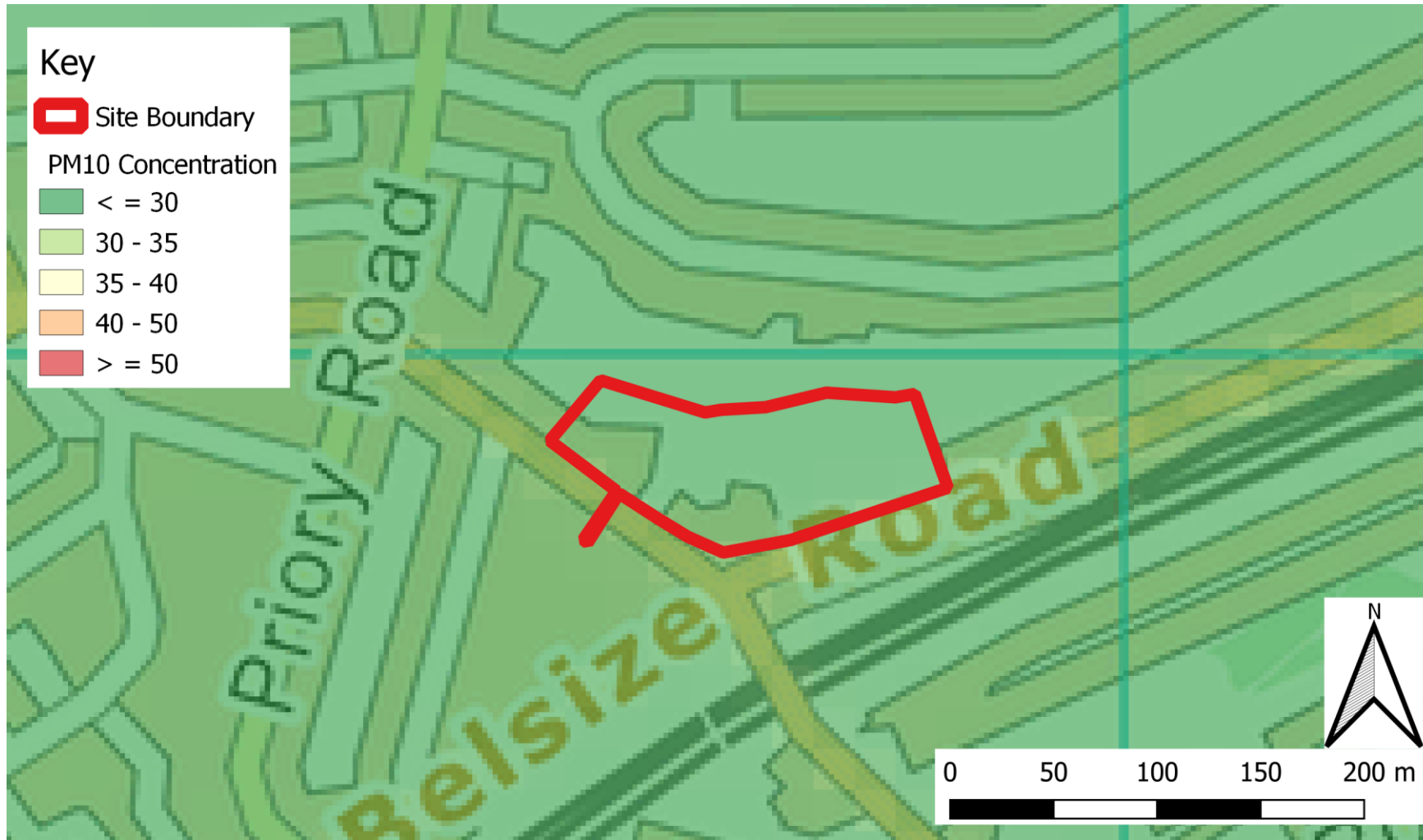


Figure 11 2020 LAEI Baseline Data – Annual Mean PM_{2.5} (µg/m³)

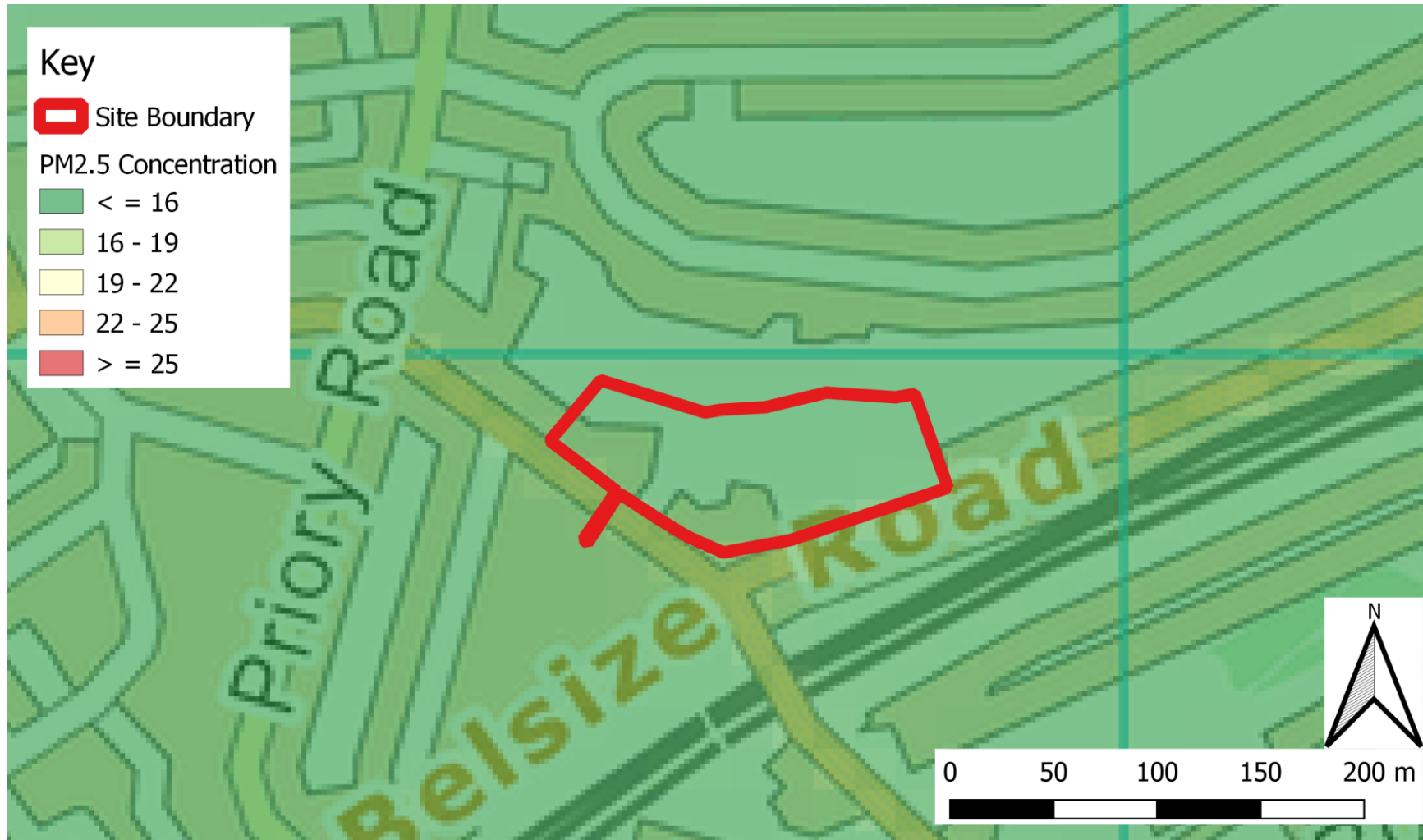
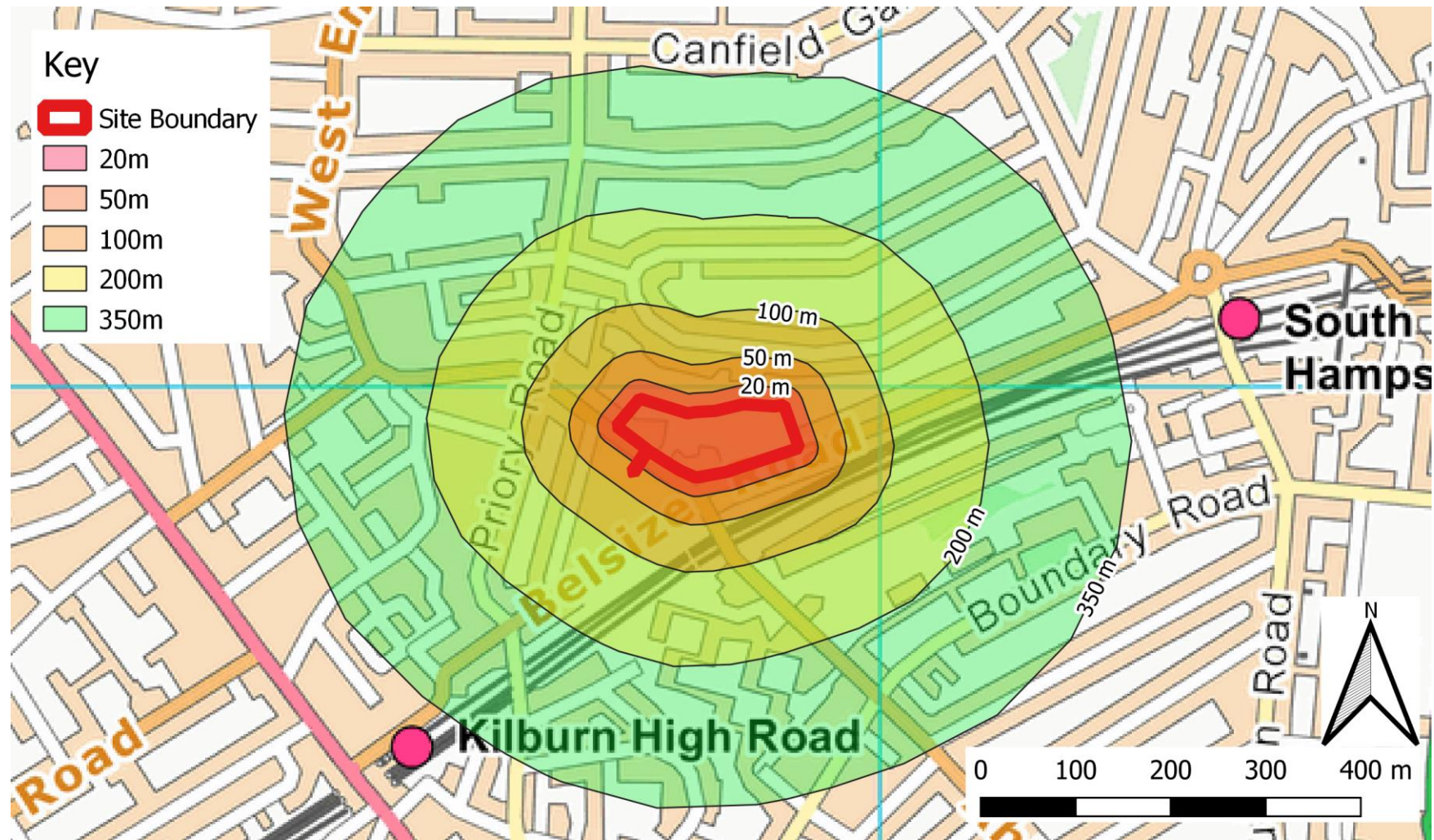


Figure 12 Construction Dust Zone of Influence



Appendix A Glossary of Terms

Term	Definition
AADT Annual Average Daily Traffic	A daily total traffic flow (24 hours), expressed as a mean daily flow across all 365 days of the year.
Adjustment	Application of a correction factor to modelled results to account for uncertainties in the model.
Air Quality Objective	Policy target generally expressed as a maximum ambient concentration to be achieved, either without exception or with a permitted number of exceedances within a specific timescale (see also air quality standard).
Air Quality Standard	The concentrations of pollutants in the atmosphere which can broadly be taken to achieve a certain level of environmental quality. The standards are based on the assessment of the effects of each pollutant on human health including the effects on sensitive sub groups (see also air quality objective).
Ambient air	Outdoor air in the troposphere, excluding workplace air.
Annual mean	The average (mean) of the concentrations measured for each pollutant for one year.
AQMA	Air Quality Management Area.
Conservative	Tending to over-predict the impact rather than under-predict.
Data capture	The percentage of all the possible measurements for a given period that were validly measured.
Defra	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
Dust	Dust comprises particles typically in the size range 1-75 micrometre (μm) in aerodynamic diameter and is created through the action of crushing and abrasive forces on materials.
Exceedance	A period of time where the concentrations of a pollutant is greater than the appropriate air quality standard.
HDV/HGV	Heavy Duty Vehicle / Heavy Goods Vehicle
LAQM	Local Air Quality Management
Model adjustment	Following model verification, the process by which modelled results are amended. This corrects for systematic error.
NO ₂	Nitrogen dioxide
NO _x	Nitrogen oxides
PM ₁₀	Particulate matter with an aerodynamic diameter of less than 10 micrometres.
PM _{2.5}	Particulate matter with an aerodynamic diameter of less than 2.5 micrometres.
Trackout	The transport of dust and dirt from the construction/demolition site onto the public road network, where it may be deposited and then re-suspended by vehicles using the network. This arises when heavy duty vehicles (HDVs) leave the construction/demolition site with dusty materials, which may then spill onto the road, and/or when HDVs transfer dust and dirt onto the road having travelled over muddy ground on site.
$\mu\text{g}/\text{m}^3$ (micrograms per cubic metre)	A measure of concentration in terms of mass per unit volume. A concentration of $1 \mu\text{g}/\text{m}^3$ means that one cubic metre of air contains one microgram (millionth of a gram) of pollutant.

Appendix B Modelled Receptors & Defra Background Concentrations

Receptor				2019			2022		
ID	Type	X, Y	Z (m)	NO ₂	PM ₁₀	PM _{2.5}	NO ₂	PM ₁₀	PM _{2.5}
E1	Long-term	525500,183500	4.5	29.9	18.4	12.4	24.7	17.4	11.7
E2	Long-term	525500,183500	1.5	29.9	18.4	12.4	24.7	17.4	11.7
E3	Long-term	525500,184500	3.0	27.0	17.2	11.8	22.2	16.3	11.1
E4	Long-term	526500,184500	0.0	30.9	18.3	12.3	25.4	17.4	11.6
E5	Long-term	526500,184500	0.0	30.9	18.3	12.3	25.4	17.4	11.6
E6	Long-term	526500,183500	1.5	30.1	17.9	12.1	24.7	17.0	11.4
E8	Long-term	526500,183500	1.5	30.1	17.9	12.1	24.7	17.0	11.4
E7	Long-term	526500,184500	4.5	30.9	18.3	12.3	25.4	17.4	11.6
E9	Long-term	526500,184500	4.5	30.9	18.3	12.3	25.4	17.4	11.6
E10	Long-term	526500,184500	0.0	30.9	18.3	12.3	25.4	17.4	11.6
P1	Short-term	525500,183500	1.5	29.9	18.4	12.4	24.7	17.4	11.7
P2	Short-term	525500,183500	1.5	29.9	18.4	12.4	24.7	17.4	11.7
P3	Short-term	525500,183500	1.5	29.9	18.4	12.4	24.7	17.4	11.7
P4	Short-term	525500,183500	1.5	29.9	18.4	12.4	24.7	17.4	11.7
P5	Short-term	525500,183500	1.5	29.9	18.4	12.4	24.7	17.4	11.7
P6	Short-term	525500,183500	1.5	29.9	18.4	12.4	24.7	17.4	11.7

Appendix C Model Verification

The comparison of modelled concentrations with local monitored concentrations is a process termed ‘verification’. Model verification investigates the discrepancies between modelled and measured concentrations. Discrepancies occur due to model uncertainties, such as:

- Estimates of background pollutant concentrations;
- Meteorological data uncertainties;
- Traffic data uncertainties;
- Model input parameters; and,
- Overall limitation of the dispersion model.

NO₂ is produced in the atmosphere by the reaction of nitric acid (NO) with ozone. Therefore, model verification for nitrogen oxides (NO_x = NO + NO₂) the primary pollutant is appropriate. This has been undertaken in accordance with Chapter 7 of LAQM.TG(16).

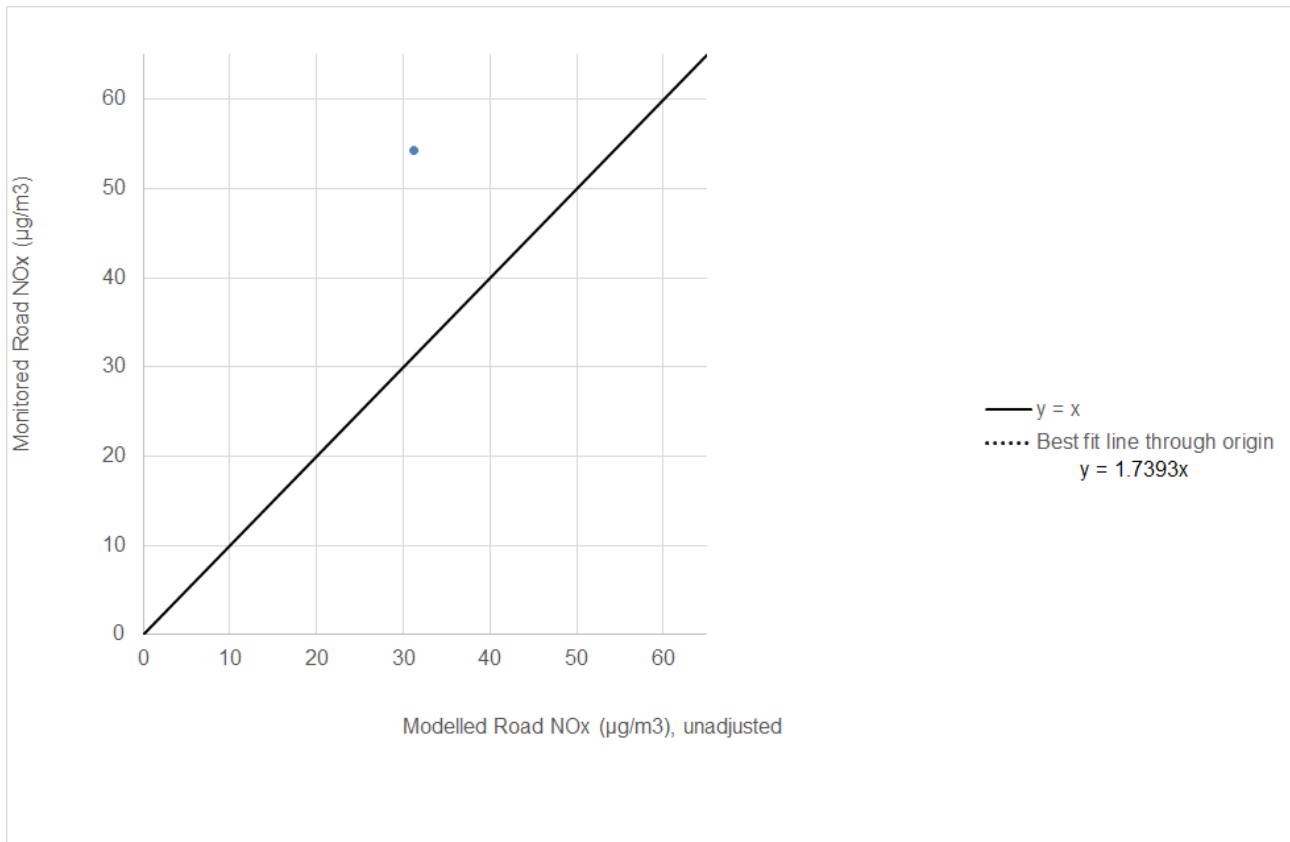
The model has been run to predict the 2018 annual mean road-NO_x contribution at the monitoring location given below. The model outputs of road- NO_x for the location has been compared with the 2018 ‘measured’ road-NO_x, which was determined using the NO_x to NO₂ calculator and the NO₂ concentration data from the London Borough of Camden monitoring.

Details of the data used in the verification process is in the table and figure below.

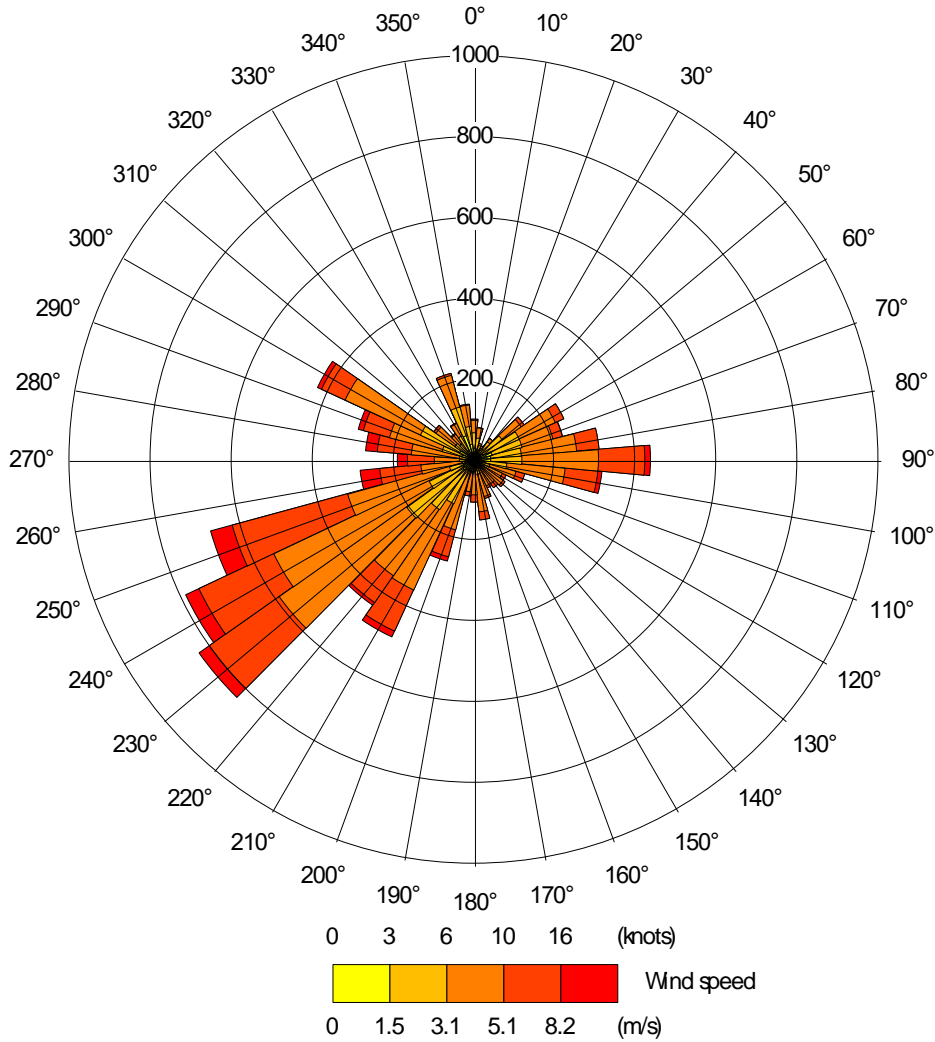
Location	2018 Monitored Total NO ₂ (µg/m ³)	Background NO ₂ (µg/m ³)	2018 Monitored Road Contribution NO _x (µg/m ³)	2018 Modelled Road Contribution NO _x (µg/m ³)	Ratio of monitored/ modelled NO _x road contribution
CD1 Swiss Cottage	54	30.94	54.25	31.19	1.7393

The adjustment factor calculated is 1.74.

For PM₁₀ and PM_{2.5} there are no relevant local monitoring data against which the model could be verified. Consequently, the verification factors determined above for adjusting the road-NO_x contribution has been applied to the predicted road-PM₁₀ and road-PM_{2.5} contributions, consistent with guidance set out in LAQM.TG(16).



Appendix D 2019 Wind Rose for London City Airport



Appendix E Operational Results (2019 Baseline and Emission Factors)

Annual Mean NO₂ Results

Receptor Id	2019 Baseline (µg/m ³)	2022		Change (µg/m ³)	Impact
		Without Devt (µg/m ³)	With Devt (µg/m ³)		
E1	32.5	32.6	32.6	±0.0	Negligible
E2	36.5	36.8	36.8	±0.0	Negligible
E3	32.2	32.4	32.4	±0.0	Negligible
E4	35.5	35.7	35.7	±0.0	Negligible
E5	35.2	35.4	35.4	±0.0	Negligible
E6	34.8	35.0	35.0	±0.0	Negligible
E8	34.2	34.4	34.4	±0.0	Negligible
E7	37.9	38.2	38.2	±0.0	Negligible
E9	38.2	38.6	38.6	±0.0	Negligible
E10	40.6	41.0	41.0	±0.0	Negligible
P1	-	-	37.8	-	APEC A
P2	-	-	37.5	-	APEC A
P3	-	-	37.2	-	APEC A
P4	-	-	36.8	-	APEC A
P5	-	-	37.4	-	APEC A
P6	-	-	37.7	-	APEC A

Annual Mean PM₁₀ Results

Receptor Id	2019 Baseline (µg/m ³)	2022		Change (µg/m ³)	Impact
		Without Devt (µg/m ³)	With Devt (µg/m ³)		
E1	18.8	18.8	18.8	±0.0	Negligible
E2	19.4	19.5	19.5	±0.0	Negligible
E3	18.0	18.1	18.1	±0.0	Negligible
E4	19.1	19.1	19.1	±0.0	Negligible
E5	19.0	19.0	19.0	±0.0	Negligible
E6	18.7	18.8	18.8	±0.0	Negligible
E8	18.6	18.7	18.7	±0.0	Negligible
E7	19.4	19.5	19.5	±0.0	Negligible
E9	19.5	19.6	19.6	±0.0	Negligible
E10	19.9	19.9	19.9	±0.0	Negligible
P1	-	-	19.6	-	APEC A
P2	-	-	19.6	-	APEC A

Receptor Id	2019 Baseline ($\mu\text{g}/\text{m}^3$)	2022		Change ($\mu\text{g}/\text{m}^3$)	Impact
		Without Devt ($\mu\text{g}/\text{m}^3$)	With Devt ($\mu\text{g}/\text{m}^3$)		
P3	-	-	19.5	-	APEC A
P4	-	-	19.5	-	APEC A
P5	-	-	19.6	-	APEC A
P6	-	-	19.6	-	APEC A

Daily Mean PM₁₀ Results

Receptor Id	2019 Baseline (Exceedances)	2022		Change (Days)	Impact
		Without Devt (Exceedances)	With Devt (Exceedances)		
E1	2	2	2	±0.0	Negligible
E2	3	3	3	±0.0	Negligible
E3	1	1	1	±0.0	Negligible
E4	2	2	2	±0.0	Negligible
E5	2	2	2	±0.0	Negligible
E6	2	2	2	±0.0	Negligible
E8	2	2	2	±0.0	Negligible
E7	3	3	3	±0.0	Negligible
E9	3	3	3	±0.0	Negligible
E10	3	3	3	±0.0	Negligible
P1	-	-	3	-	APEC A
P2	-	-	3	-	APEC A
P3	-	-	3	-	APEC A
P4	-	-	3	-	APEC A
P5	-	-	3	-	APEC A
P6	-	-	3	-	APEC A

Annual Mean PM_{2.5} Results

Receptor Id	2019 Baseline ($\mu\text{g}/\text{m}^3$)	2022		Change ($\mu\text{g}/\text{m}^3$)	Impact
		Without Devt ($\mu\text{g}/\text{m}^3$)	With Devt ($\mu\text{g}/\text{m}^3$)		
E1	12.6	12.6	12.6	±0.0	Negligible
E2	13.0	13.0	13.0	±0.0	Negligible
E3	12.3	12.3	12.3	±0.0	Negligible
E4	12.8	12.8	12.8	±0.0	Negligible
E5	12.7	12.8	12.8	±0.0	Negligible
E6	12.6	12.6	12.6	±0.0	Negligible
E8	12.5	12.5	12.5	±0.0	Negligible

Receptor Id	2019 Baseline ($\mu\text{g}/\text{m}^3$)	2022		Change ($\mu\text{g}/\text{m}^3$)	Impact
		Without Devt ($\mu\text{g}/\text{m}^3$)	With Devt ($\mu\text{g}/\text{m}^3$)		
E7	13.0	13.0	13.0	± 0.0	Negligible
E9	13.0	13.1	13.1	± 0.0	Negligible
E10	13.3	13.3	13.3	± 0.0	Negligible
P1	-	-	13.1	-	No
P2	-	-	13.1	-	No
P3	-	-	13.1	-	No
P4	-	-	13.0	-	No
P5	-	-	13.1	-	No
P6	-	-	13.1	-	No

Appendix F Sensitivity Analysis Results (2022 Baseline and Emission Factors)

Annual Mean NO₂ Results

Receptor Id	2019 Baseline (µg/m ³)	2022		Change (µg/m ³)	Impact
		Without Devt (µg/m ³)	With Devt (µg/m ³)		
E1	32.5	26.4	26.4	±0.0	Negligible
E2	36.5	29.2	29.2	±0.0	Negligible
E3	32.2	25.7	25.7	±0.0	Negligible
E4	35.5	28.5	28.5	±0.0	Negligible
E5	35.2	28.3	28.3	±0.0	Negligible
E6	34.8	27.7	27.7	±0.0	Negligible
E8	34.2	27.4	27.4	±0.0	Negligible
E7	37.9	29.9	29.9	±0.0	Negligible
E9	38.2	29.9	29.9	±0.0	Negligible
E10	40.6	32.1	32.1	±0.0	Negligible
P1	-	-	29.8	-	APEC A
P2	-	-	29.6	-	APEC A
P3	-	-	29.5	-	APEC A
P4	-	-	29.2	-	APEC A
P5	-	-	29.6	-	APEC A
P6	-	-	29.8	-	APEC A

Annual Mean PM₁₀ Results

Receptor Id	2019 Baseline (µg/m ³)	2022		Change (µg/m ³)	Impact
		Without Devt (µg/m ³)	With Devt (µg/m ³)		
E1	18.8	17.8	17.8	±0.0	Negligible
E2	19.4	18.5	18.5	±0.0	Negligible
E3	18.0	17.1	17.1	±0.0	Negligible
E4	19.1	18.1	18.1	±0.0	Negligible
E5	19.0	18.1	18.1	±0.0	Negligible
E6	18.7	17.8	17.8	±0.0	Negligible
E8	18.6	17.7	17.7	±0.0	Negligible
E7	19.4	18.5	18.5	±0.0	Negligible
E9	19.5	18.6	18.6	±0.0	Negligible
E10	19.9	18.9	18.9	±0.0	Negligible
P1	-	-	18.6	-	APEC A
P2	-	-	18.6	-	APEC A

Receptor Id	2019 Baseline ($\mu\text{g}/\text{m}^3$)	2022		Change ($\mu\text{g}/\text{m}^3$)	Impact
		Without Devt ($\mu\text{g}/\text{m}^3$)	With Devt ($\mu\text{g}/\text{m}^3$)		
P3	-	-	18.5	-	APEC A
P4	-	-	18.5	-	APEC A
P5	-	-	18.6	-	APEC A
P6	-	-	18.6	-	APEC A

Daily Mean PM₁₀ Results

Receptor Id	2019 Baseline (Exceedances)	2022		Change (Days)	Impact
		Without Devt (Exceedances)	With Devt (Exceedances)		
E1	2	1	1	±0.0	Negligible
E2	3	2	2	±0.0	Negligible
E3	1	1	1	±0.0	Negligible
E4	2	1	1	±0.0	Negligible
E5	2	1	1	±0.0	Negligible
E6	2	1	1	±0.0	Negligible
E8	2	1	1	±0.0	Negligible
E7	3	2	2	±0.0	Negligible
E9	3	2	2	±0.0	Negligible
E10	3	2	2	±0.0	Negligible
P1	-	-	2	-	APEC A
P2	-	-	2	-	APEC A
P3	-	-	2	-	APEC A
P4	-	-	2	-	APEC A
P5	-	-	2	-	APEC A
P6	-	-	2	-	APEC A

Annual Mean PM_{2.5} Results

Receptor Id	2019 Baseline ($\mu\text{g}/\text{m}^3$)	2022		Change ($\mu\text{g}/\text{m}^3$)	Impact
		Without Devt ($\mu\text{g}/\text{m}^3$)	With Devt ($\mu\text{g}/\text{m}^3$)		
E1	12.6	11.9	11.9	±0.0	Negligible
E2	13.0	12.2	12.2	±0.0	Negligible
E3	12.3	11.5	11.5	±0.0	Negligible
E4	12.8	12.0	12.0	±0.0	Negligible
E5	12.7	12.0	12.0	±0.0	Negligible
E6	12.6	11.8	11.8	±0.0	Negligible
E8	12.5	11.8	11.8	±0.0	Negligible

Receptor Id	2019 Baseline ($\mu\text{g}/\text{m}^3$)	2022		Change ($\mu\text{g}/\text{m}^3$)	Impact
		Without Devt ($\mu\text{g}/\text{m}^3$)	With Devt ($\mu\text{g}/\text{m}^3$)		
E7	13.0	12.2	12.2	± 0.0	Negligible
E9	13.0	12.3	12.3	± 0.0	Negligible
E10	13.3	12.5	12.5	± 0.0	Negligible
P1	-	-	12.3	-	No
P2	-	-	12.3	-	No
P3	-	-	12.3	-	No
P4	-	-	12.2	-	No
P5	-	-	12.3	-	No
P6	-	-	12.3	-	No

References

- ¹ Department for Environment, Food and Rural Affairs (DEFRA) and the Devolved Administrations (2007). The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (Volumes 1 and 2)
- ² The Air Quality (England) Regulations 2000 - Statutory Instrument 2000 No.928
- ³ The Air Quality (England) (Amendment) Regulations 2002- Statutory Instrument 2002 No.3043
- ⁴ The Air Quality Standards (Amendment) Regulations 2016- Statutory Instrument 2016 No. 1184
- ⁵ The Air Quality (Amendment of Domestic Regulations) (EU Exit) Regulations 2019 – Statutory Instrument 2019 No. 74.
- ⁶ The Environment Act 1995
- ⁷ The Environmental Protection Act 1990.
- ⁸ Ministry of Housing, Communities and Local Government (February 2019). National Planning Policy Framework.
- ⁹ Mayor of London: Cleaning London's air, The Mayor's Air Quality Strategy (December 2010)
- ¹⁰ Mayor of London (March 2016) The London Plan: Spatial Development Strategy for Greater London Consolidated with alterations since 2011.
- ¹¹ Mayor of London (December 2019) The London Plan – Intend to Publish: Spatial Development Strategy for Greater London.
- ¹² London Borough of Camden. Local Plan (Adopted 2017).
- ¹³ London Borough of Camden. Draft Clean Air Action Plan (2019-2022).
- ¹⁴ Mayor of London (May 2016) London Local Air Quality Management (LLAQM) Technical Guidance (LLAQM.TG(16))
- ¹⁵ Defra (2018) Part IV The Environment Act 1995 and Environment (Northern Ireland) Order 2002 Part III, Local Air Quality Management Technical Guidance LAQM.TG16
- ¹⁶ Environmental Protection UK and Institute of Air Quality Management (Version 1.2 Updated January 2017). Land Use Planning & Development Control: Planning for Air Quality
- ¹⁷ Institute of Air Quality Management (Version 1.1 Updated June 2016). Guidance on the Assessment of Dust from Demolition and Construction
- ¹⁸ Ministry of Housing, Communities and Local Government (2019). National Planning Practice Guidance – Air Quality. Updated November 2019.
- ¹⁹ London Councils (January 2007). Air Quality and Planning Guidance – Revised Version.
- ²⁰ Mayor of London (July 2014): The Control of Dust and Emissions during Construction and Demolition – Supplementary Planning Guidance.
- ²¹ Greater London Authority (April 2014): Sustainable Design and Construction - Supplementary Planning Guidance
- ²² London Borough of Camden. Amenity (September 2011 – updated March 2018).
- ²³ London Borough of Camden (2019) Camden Planning Guidance – Air Quality. March 2019.
- ²⁴ AQC & ENVIRON UK Ltd (2014). Air Quality Neutral Planning Guidance.
- ²⁵ London Borough of Camden. 2018 Air Quality Status Report.
- ²⁶ Defra Local Air Quality Management (LAQM) Support Pages. Available at: <http://laqm.defra.gov.uk/>. [Accessed on 25/02/2020].
- ²⁷ London Air Quality Network. Available at: <http://www.londonair.org.uk/LondonAir/Default.aspx>. [Accessed on 25/02/2020].
- ²⁸ London Atmospheric Emissions Inventory (LAEI). Available at: <https://data.london.gov.uk/dataset/london-atmospheric-emissions-inventory-2013>. [Accessed on 25/02/2020].
- ²⁹ Defra (2019) Defra Emission Factor Toolkit (v9.0) Available at <https://laqm.defra.gov.uk/review-and-assessment/tools/emission-factors-toolkit.html>, accessed on 25/02/2020.
- ³⁰ Defra (2019) Defra NO_x to NO₂ Calculator (v7.1). Available at <https://laqm.defra.gov.uk/review-and-assessment/tools/background-maps.html#NOxNO2calc>, accessed on 25/02/2020.
- ³¹ London Councils (2007) Air Quality and Planning Guidance. Revised version – January 2007.