

The Post Building
21 -31 New Oxford Street,
London
WC1A 1AP

Stage 1 Demolition - Construction Management Plan (\$106 – Obligation 4.3.1)

Developer	New Oxford Street Ltd		
Produced by	Gardiner & Theobald LLP		
Submitted to	London Borough of Camden		
Status	For Approval		
Start Date of Works: 1 st Stage Demolition 2 nd Stage Demo and Construction	September 2015 March 2016	Duration:	c. 6 months c. 24 months

Revision History			
Revision No.	Issue Date	Author	Description of Modifications
00	10.07.2015	AP	First Draft. Issued for comment.
01	11.8.15	AP	DRAFT removed from title. Demolition Contractor's Input and updated to align with LB Camden's 2015 CMP Pro-forma. Issued for Approval

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1 INTRODUCTION & CONTACTS

The purpose of this document is to outline the proposed method and control measures associated with the remodeling, refurbishment and extension of “The Post Building” project at 21-31 New Oxford Street, for the purpose of satisfying obligation 3.4.1 of the Section 106 agreement, which requires a draft Construction Management Plan to be submitted prior to the Implementation Date.

Statement required by the S106 Agreement:

The agreed contents of the Construction Management Plan must be complied with unless otherwise agreed with 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 and complied with thereafter.

As the project is being procured in 2 stages, this document will be developed as the project progresses and is to be treated as a live document. The approximate timing of these submissions will be as follows:

- First draft prepared by the Employer's consultant team (July 2015) **[Now S/S]**
- Second draft including input from the 1st stage demolition contractor (August 2015) incorporating feedback from the first draft. **[This Revision]**
- Third draft including input from the main contractor (February 2016).
- Further drafts may be submitted as the project progresses. E.g. incorporating feedback from the local authority and other relevant consultees.

The successful demolition contractor shall be responsible for submitting a Demolition Notice to the Council's Building Control Service.

CONTENT OF THE CONSTRUCTION MANAGEMENT PLAN (CMP)

This CMP has been prepared following the guidelines set out in Camden's document titled “Construction Management Pro-forma”. Rev 1 of this CMP **[This Revision]** has been updated to reflect, where possible, the revised pro-forma that LB Camden intend to implement for all future projects.

CONTACT DETAILS

The Project Manager, as identified above, for these works is:

Gardiner & Theobald LLP
10 South Crescent
London
WC1E 7BD
Contact: Alan Povey
a.povey@gardiner.com

The Demolition Contractor's contact details are:

John F Hunt Demolition Ltd
London Road
Grays
Essex
RM20 4DB
Contact: John Ballantyne - 07738 718229 (**24 hour**)
john.ballantyne@johnfhunt.co.uk

The Community Liaison Contact is:

London Communications Agency
8th Floor, Berkshire House
168-173 High Holborn
London
WC1V 7AA
020 7612 8480
Contact: Duncan Hepburn
dh@londoncommunications.co.uk

LEGAL NOTICES

Until details of the demolition / main contractor are known legal correspondence shall be issued to the Project Manager at the above address marked for the attention of James Angus.

2 THE SITE

2.1 PROPOSED DEVELOPMENT

The proposed development includes the remodeling, refurbishment, and extension of the former Royal Mail sorting office (Sui-generis use) at 21-31 New Oxford Street to provide offices, retail/restaurant/doctor's surgery (Classes A1/A3/D1) and 21 affordable housing units (Class C3) and associated landscaping, highway works and public roof terrace.

Relevant Information

Address	The Post Building 21 -31 New Oxford Street, London WC1A 1AP
Local Authority	London Borough of Camden
Planning Application:	2914/5946/P
Resolution to Grant:	12-Feb-2015
S.106 Agreement:	30-Mar-2015
Planning Permission	30-Mar-2015
Conservation Area:	No

2.2 LOCATION

The site location plan and highway network are both included in Appendix B. The building is situated in London WC1 within the London Borough of Camden and is bounded on 3 sides by the public highway:

- To the north by New Oxford Street (one-way from east to west)
- To the west by Museum Street (one-way from south to north)
- To the south by High Holborn (one way from east to west).

On the East side of the building is Commonwealth House a multi-storey, multi-tenanted building with two party wall connections to the site above 1st floor level.

Between the two buildings is a private access road, which belongs to Commonwealth House. There is also a narrow pedestrian footway, Dunn's Passage, which is presently closed at both ends and is part owned by Commonwealth House and the applicant.

The building does not form part of a conservation area, but is in close proximity to the Seven Dials Conservation Area to the South-East and the Bloomsbury Conservation Area to the North, East and West.

Refer to Appendix F for the Demolition Contractor's Site Logistics Plan. This shows the surrounding footways and highways in relation to the site (discussed in more detail in section 4 – Highways).

2.3 KEY PROGRAMME DATES

An outline development programme is included in Appendix B. The key dates for each stage of the works are as follows:

Appoint 1st stage demolition contractor	July 2015
Commence soft-strip & asbestos removal	September 2015
Commence 'hard' demolition (i.e. removal of upper floors)	October 2015
Complete 1st stage demolition.	March 2016
Appoint Main Contractor	Q1/ 2016
Mobilisation (i.e. hoarding, protection works etc)	Q1/ 2016
Commence construction (including 2nd stage of demolition)	Q1/ 2016
Complete construction	Q1/ 2018

Refer to Appendix G for a copy of the Demolition Contractor's Programme.

The above dates for the 2nd stage demolition and construction phase are all subject to confirmation following the appointment of the main contractor.

2.4 INDICATIVE SCOPE OF WORKS

A brief summary of the scope of works to which this document relates is outlined below (refer to consented planning application for full details):

- Asbestos Removal and soft-strip of internal finishes
- Removal of structure above 4th floor level
- Remodeling of lower floors and cores
- Insertion of mezzanine slabs within lower floors
- Construction of new core and upper floors
- Re-cladding
- Re-location of 3no UKPN substations within building footprint
- Construction of affordable housing units
- Formation of new public roof terrace
- Associated highways and landscaping works.

Note: An asbestos survey has already been carried out by the building owner and forms the scope of works for the demolition contractor who will then supplement this with their own further investigations. The demolition contractor shall be responsible for submitting the ASB5 application and complying with the relevant regulations for the safe removal of the asbestos.

2.5 REFERENCE MATERIAL

The following relevant documents were submitted with the Planning Application and are available on the Planning section of Camden's website at:

<http://planningrecords.camden.gov.uk> planning application reference: 2914/5946/P. All are referred to in this report.

- Construction Management Plan by Arup dated 5/9/14 (Appendix I)
- Statement of Community Involvement by London Communications Agency
- Acoustic Report by Arup dated 5/9/14 (Appendix J)
- Air Quality Report by Arup dated 5/9/14 (Appendix K)
- Pedestrian Impact Assessment by Space Syntax dated December 2014

2.6 WORKING HOURS

We confirm that Demolition and Construction work will be carried out during the 'standard' hours defined in LB Camden's CMP Pro-forma document, i.e.:

- 8am to 6pm Monday to Friday
- 8am to 1pm on Saturdays
- No working on Sundays or Public Holidays.

It is understood that LB Camden will allow work outside of the Standard Hours in the interests of allowing delivery of a building project in the least disruptive manner and with prior consultation and agreement with neighbours and other interested third parties. During the stage 1 demolition phase this is likely to be limited to road closures for mobile crane usage as plant is delivered to or removed from site.

2.7 UTILITIES

No utilities works are proposed during the first stage demolition works although the existing UKPN sub-stations on site will be protected and emergency access maintained.

2.8 PREVIOUS CONSULTATION

As detailed in the Statement of Community Involvement, there was a 4 stage approach to public consultation prior to the planning application being submitted:

Stage	Activities
1	Early engagement with key local stakeholders to present emerging thinking and ideas for the building, test concepts and acquire feedback.
2	Engaging with politicians and local communities through the London Borough of Camden, including presenting emerging proposals at a Development Management Forum and a Developers' Briefing.
3	A public exhibition over three days on-site to explain the scheme and collate feedback.
4	Prior to the submission of the planning application, further time was allowed for additional meetings with local stakeholders and ward councillors and a public meeting open to all on 7 July 2014.

As well as inviting attendance from the local community via a leaflet drop, adverts in the local press and a web-site, the following local stakeholder groups were approached directly:

- The British Museum
- The Bloomsbury Association
- The Bloomsbury Conservation Area Advisory Committee
- The Covent Garden Community Association
- South Bloomsbury Tenants' and Residents' Association
- Tavistock Chambers Tenants' and Residents' Association
- The Seven Dials Trust
- The Soho Society
- The Fitzrovia Society
- Inmidtown BID
- West End Community Network

The feedback that was received from the consultation process is recorded in the Statement of Public Consultation along with the building owner's response and design changes made.

No feedback was received prior to, or during, the determination of the application with regards to the CMP submitted as part of the application documentation.

2.9 ON-GOING CONSULTATION

Following receipt of Planning Permission, the case office at LB Camden has confirmed that consultation is necessary and that the following parties should be consulted prior to demolition work commencing in order that construction-specific aspects of the project can be discussed:

- All properties directly adjacent and opposite the site;
- TfL Borough Planning as it is on the strategic road network (High Holborn); and
- Ward Councillors (Fulbrook, Olad, Vincent).

Meeting dates are being agreed with TfL and local stakeholders and a leaflet-drop to the adjacent properties will be carried out. Ward Councillors are also being contacted with an opportunity to meet.

The outcome of these meetings and any agreed actions will be recorded in a subsequent draft of this CMP.

The proposed agenda for these meetings will include:

- Key contacts during the works
- Out of hours contact
- Hoarding strategy
- Safe pedestrian routes outside the site
- Traffic routes to / from the site
- Need for periodic road closures
- Noise, dust and vibration monitoring
- Any other business

It is intended that the stage 1 demolition contractor will have been appointed in time to have prepared more detailed proposals for the site works and will attend these meetings.

Comments received will be incorporated into later versions of this document and where not reasoning will be provided.

2.10 CONSIDERATE CONTRACTORS SCHEME

The scheme will be registered under the industry wide Considerate Constructors Scheme. Consideration will also be given to the 'Guide for Contractor's Working in Camden' and the 'Camden Considerate Contractors Manual'.

2.11 KEY ISSUES AND GOOD PRACTICE

The following defines the key issues associated with the project logistics;

General Logistics (Stage 1 demolition)

- A Condition Survey will be prepared by the stage 1 demolition contractor for all external areas (road surfaces and adjacent buildings);
- At high level (above 4th floor) the building will be fully hoarded to assist in the control of dust and noise.
- Dedicated site welfare facilities will be provided for all operatives within the building and a 'behavioural code' enforced for site workers;
- All demolition Works are to be carried out in accordance with BS6187:2011 Code of Practice for Full and Partial Demolition;
- Wheel washing facilities (or similar) will be provided when appropriate;
- It is a condition of Contract that Contractors at all stages manage the potential for nuisance caused by vermin on the site.

Active Management and Neighbourly Relations

- In Section 1 of this CMP, a named individual has been identified as the stage 1 demolition contractor's liaison person. Their duties will include coordinating all construction related deliveries to the building and will be the initial point of contact for adjoining properties and TfL;
- All deliveries will be scheduled and coordinated with other neighbours to avoid clashes and to spread deliveries out over each day and week.
- The construction liaison officer will be fully contactable through all stages of construction (in addition to contact via G&T);
- A regular newsletter will be published to alert neighbours and LB Camden of planned activities (refer to appendix L for the area to be included).
- Construction Working Group (CWG) meetings will be held to ensure that issues which arise can be dealt with as soon as possible.

Complaints Procedure

- Prior to commencing works the construction liaison officer will confirm his contact details to all neighbours and will advise them as to a formal complaints procedure.
- The complaints procedure will advise 24 hour contact phone numbers and email addresses for key personnel to be contacted by neighbours in the event that they have concerns regarding any aspect of the project.
- The construction liaison officer or his out of hours team will undertake to respond to all complaints within a 24 hour period in order to determine the nature of the complaint and attempt to resolve the problem to the satisfaction of the complainant.
- The construction liaison officer will ensure that notice of a complaint and subsequent action undertaken will be given to the Construction Director responsible for the project. The Construction Director will follow up by contacting any complainant in order to determine that the complainant is satisfied with the resolution.
- Notification of any complaints and the subsequent action taken will be issued to the Project Manager and copied to LB Camden's Environmental Health team.
- The CMP will be kept on site, ready for inspection at the request of an authorized officer of the Council.

SECTION 3 – TRANSPORT

3.2 TRANSPORT ISSUES AND TRAFFIC MANAGEMENT

This section of the Construction Management Plan is highly dependent on the input of the contractors engaged to carry out the works. The 1st stage demolition contractor has been appointed only recently and has provided preliminary input into the preparation of this document. More information will be submitted under separate cover where appropriate in good time as the project progresses (refer to section 2.3 – Key Dates).

In addition to the general requirements set out in LB Camden's documents "Construction Management Pro-forma" and "Minimum requirements for Construction Sites", this CMP confirms that the contractors will be obliged to conform to the specific requirements of Schedule 3 of the S106 Agreement (appendix C)

The scope of works for the first stage demolition do not require any works outside the building at street level, with the hard demolition works all being conducted above the 4th floor slab.

Vehicle Access to the Site (Stage 1 demolition phase)

- Appendix B shows how the site is located in relation to the local strategic road network. It is envisaged that the majority of traffic generated by the stage 1 demolition works will be associated with the removal of demolition arisings and will arrive from and depart towards East London using the route marked SE on plan in appendix B. This will be implemented on site by the demolition contractor when they agree method statements with their haulage firms.
- During the stage 1 demolition phase, all contractor's vehicles will access and egress the site via the existing vehicular entrances on New Oxford Street. This has been confirmed by the demolition contractor on their site logistics plan (appendix F).
- The demolition contractor has confirmed that there is room within the site to turn vehicle, i.e. reversing into or out of the site will not be necessary or permitted.
- The demolition contractor will provide traffic marshals to manage this process and provide a safe method of segregating construction traffic as they utilize the existing cross-overs to exit and access the site.
- All loading of demolition arisings into haulage vehicles will be carried out within the building.
- Stationary or parking of site vehicles on any areas of the public roads adjacent to the site boundary is not permitted (other than is specifically consented in relation to the previous point, if required).
- Temporary road closures will be required when mobile cranes are used to transfer construction plant to the roof level.

Access and Egress for Personnel (Stage 1 demolition phase)

- All welfare provision will be provided within the existing building and access for contractor's personnel will be via existing doors.
- All operatives will use this route for access and egress to building, with entry controlled by biometric readers (or similar).

Predicted Number of Vehicular Movements (Stage 1 demolition)

- The Stage 1 demolition contractor has provided an estimate of the vehicular movements during this phase of works (shown as deliveries per week – i.e. each one represents on arrival and one departure). This is illustrated in tabular format and on a histogram chart in appendix H.
- Peak deliveries are expected to be 22 per week, i.e. 44 vehicle movements. The average daily figures would therefore be in the order of 8 to 10 movements per day (i.e. 4-5 arrivals and departures).
- The breakdown of vehicle types is shown in appendix H.

Times for Vehicular Movements (Stage 1 demolition)

- It is noted that the 2015 revision of LB Camden's CMP Pro-forma includes a statement that "Construction vehicle movements are generally acceptable between 9:30am and 4:30pm on weekdays and between 8:00am and 1:00pm on Saturdays". Whilst it is acknowledged that it is desirable to avoid the peak traffic times and hence not contribute to further congestion, this requirement was not stipulated in the Planning Conditions or S106 Agreement, or raised during the highways discussion that took place during the determination of the application.
- The site hours will be 8:00am to 6:00pm on weekdays (in line with the Planning Conditions, as noted in section 2.6 of this report). Although, reasonable endeavours will be used to limit the requirement for vehicle movements during peak traffic flows the nature of demolition work is that regular vehicle movements are required to maintain a steady removal of material from site without impacting the programme, albeit that the average number of vehicle movements predicted for the stage 1 demo is very limited (see above).
- The timing of all vehicle movements will be managed by the demolition contractor to avoid congestion on and out-site the site. As noted elsewhere, on-street parking / waiting will not be permitted

Vehicle Access & General Logistics (future construction phase)

- The Construction Management Plan submitted by Arup prior to planning set out the intended access regime for the duration of the project. At the present time, these proposals have not changed. However, as soon as a main contractor is engaged, a full set of working proposals will be developed and presented to LB Camden's Highways department and other interested stakeholders.

3.4 VULNERABLE ROAD USERS

The stage 1 demolition contractor is registered and operates within the requirements of the Freight Operators Recognition Scheme (FORS).

Prior to commencement of the works, the stage 1 demolition contractor will submit proposals to comply with this and TfL's Standard for Construction Logistics and Cycle Safety (CLOCS). These details will be included in a subsequent draft of the CMP.

The same requirement will be imposed on the main contractor when these works are tendered.

SECTION 4 – HIGHWAYS

4.1 HOARDINGS AND TEMPORARY STRUCTURES

As shown on the stage 1 demolition contractor's site logistics plan (appendix F), there are no proposals to erect temporary works over the public highways or footways. All site works will be contained within the site boundary.

During the stage 1 demolition, the existing site hoardings will be retained and maintained. The only potential adaptations will be to facilitate site access and egress, i.e. vehicle gates (utilizing the existing crossovers) and personnel doors.

4.2 ROAD CLOSURES

As shown on the stage 1 demolition contractor's programme (appendix G), periodic road closures will be required between mid-September 2015 and the end of January 2016. These are to facilitate the delivery, repositioning and removal of the contractor's plant as the works progress. The contractor will make applications for these road closures (including fall-back dates) and the intention is that these will all occur during weekends.

As shown on the stage 1 demolition contractor's logistics plan (appendix F), the proposed road closures will generally occupy the bus lane on the South side of New Oxford Street outside the site, maintaining access to the junction for west bound buses. Detailed proposals for any necessary diversions will be prepared by the demolition contractor and submitted with the application for road closures. During road closures, pedestrians will be re-routed to the North side of the street.

4.2 OTHER NEAR-BY CONSTRUCTION SITES

Commonwealth House is adjacent to the site (immediately bounding it to the East) and the main construction works are broadly concurrent, i.e. their contractor is currently mobilising.

Contact has already been made between the two developers and a meeting proposed to discuss coordinated planning of site activities. Following this, regular meetings will be held to ensure that the contractors operating on the two sites continue to work in coordinated manner.

This section of the CMP will be updated as further information becomes available.

SECTION 5 – ENVIRONMENTAL MEASURES

4.1 KEY ISSUES AND GOOD PRACTICE

This section of the CMP addresses LB Camden's requirements for noise, vibration and air quality monitoring on construction projects as described in their "Minimum Requirements for Building / Demolition / Construction Sites" and more specifically in the Schedule 2 of the Section 106 Agreement with respect to air quality (refer to Appendix D).

The stage 1 demolition contractor will comply with the standards set out in LB Camden's documents and BS5228 (2009). The same requirement will be imposed on the main contractors at the appropriate time.

The following studies were carried out prior to planning and the following documents were submitted with the consented planning application:

- Air Quality Report by Arup dated 5 September 2014
- Acoustic Survey by Arup dated 5 September 2014

4.2 AIR QUALITY MEASURES

It is noted that the S106 Agreement (Schedule 2) also includes specific measures to be employed by the Contractors to improve air quality, i.e. control of PM10, NOx, CO2 and dust emissions.

We confirm that the contractors will be contractually obliged to comply with the requirements of the S106 agreement and their proposed method statements will be prepared for submission with the next draft of this CMP.

4.3 AIR QUALITY MONITORING

In order to achieve consistency across the project, Arup have been appointed to supply, install and maintain air quality monitoring points in line with the specific requirements of schedule 2 of the S106 agreement, i.e. 2 points within the site and 3rd point located at the nearest sensitive receptor. They will then gather, assess and report on the data gathered, again as set out in the S106 agreement.

Air quality monitoring results will be shared with the demolition contractor and any additional mitigation measures required will be discussed and agreed at the monthly progress meetings.

At the time of writing (Aug 2015) the order for the monitoring equipment has been placed and will be installed by the end of August. Arup are in the process of identifying the nearest sensitive receptor and agreeing access for installing the equipment. The Travelodge Hotel is the most appropriate, but there are concerns about this potentially being up-wind of the site under prevailing conditions so an alternative is being sought and the proposal will be agreed with LB Camden.

4.4 NOISE & VIBRATION MONITORING

Noise and vibration monitoring, where required, will be carried out by the demolition and main contractors during their respective phases of the works, with the monitoring scheme being designed by Arup.

It is not envisaged that vibration monitoring will be required during the stage 1 demolition as the majority of the works are above the level of the 4th floor slab. However, noise monitoring will be installed to meet the requirements of LB Camden's "Minimum Requirements" document.

Noise monitoring results will be shared with the demolition contractor and any additional mitigation measures required will be discussed and agreed at the monthly progress meetings.

As with the dust monitoring, the Travelodge Hotel to the West is the most appropriate location for the noise monitoring and Arup are approaching them to agree access.

4.5 ON-SITE MITIGATION AND CONTROL MEASURES

At the time of writing, the stage 1 demolition contractor has not yet prepared detailed method statements for the control and mitigation of dust, vibration and noise. These will be submitted to LB Camden in due course (in advance of the works proceeding). Meanwhile we would reiterate our confirmation that the Stage 1 demolition contractor will comply with all of the requirements set out in schedule 2 of the S106 agreement.

Times at which noisy activities can be heard at the site boundaries are defined in the Planning Consent (informatives) and are the same as the proposed operating times for the site.

APPENDIX A – Planning Decision Letter

APPENDIX B – Site Location Plan & Highway Network

APPENDIX C – Schedule 3 of Section 106 Agreement (Highways)

APPENDIX D – Schedule 2 of Section 106 Agreement (Dust Monitoring)

APPENDIX E – LB Camden 2015 CMP Pro-forma (for reference)

APPENDIX F – Stage 1 Demolition Contractor's Site Logistics Plan

APPENDIX G – Stage 1 Demolition Contractor's Programme

APPENDIX H – Predicted Vehicle Movements (Stage 1 Demolition)

APPENDIX I - Pre-planning CMP by Arup

APPENDIX J - Pre-planning Acoustic Report by Arup

APPENDIX K - Pre-planning Air Quality Report by Arup

APPENDIX L - Leaflet-drop / Community Liaison Area

Ms Lisa Webb
Gerald Eve LLP
72 Welbeck Street
London
W1G 0AY

Application Ref: **2014/5946/P**
Please ask for: **Neil McDonald**
Telephone: 020 7974 **2061**

30 March 2015

Dear Sir/Madam

DECISION

Town and Country Planning Act 1990 (as amended)

Full Planning Permission Granted Subject to a Section 106 Legal Agreement

Address:
21-31 New Oxford Street
London
WC1A 1BA

Proposal:

Remodelling, refurbishment and extension of existing former postal sorting office (Sui-generis use), including formation of a new public roof terrace, private terraces, wintergardens, roof top plant and new entrances in connection with the change of use of the building to offices (Class B1), retail/restaurant/doctors' surgery uses (Classes A1/A3/D1) and 21 affordable housing units (Class C3), along with associated highway, landscaping, and public realm improvement works.

Drawing Nos: Acoustic Report (RP/230602/004); Air Quality Assessment (RP/230602/004); Construction Management Plan (RP/230602/004); Energy Statement (RP/230602/001); Flood Risk Assessment (RP/230602/006); Housing Study (September 2014); Townscape and Visual Impact Assessment (September 2014); Town Planning Statement (LJW/ANE/HBR/J6936); Transport Assessment (RP/230602/007); Landscape Statement (September 2014); London Housing Design Guide Audit (September 2014); Statement of Community Involvement (September 2014); Sustainability Statement (RP/230602/004); Design and Access Statement (September 2014); Daylight and Sunlight Statement (September 2014); Financial viability assessment (September 2014); Design and Access Statement - Addendum (December 2014); Daylight and Sunlight - Addendum (December 2014); Landscape Statement - Addendum (December 2014); Transport Assessment



Addendum (December 2014); Townscape and Visual Impact Assessment Addendum (December 2014); Pedestrian Impact Assessment by Space Syntax (December 2014); View studies -St Georges Church (January 2015).

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 12141_PL_(00)_303 P04, 12141_PL_(00)_310 P04, 12141_PL_(00)_311 P05,
 12141_PL_(00)_312 P05, 12141_PL_(00)_313 P04, 12141_PL_(00)_400 P04,
 1241_PL_(00)_401_02, SK-00-555, SK-00-556.

The Council has considered your application and decided to grant permission subject to the following condition(s):

Condition(s) and Reason(s):

- 1 The development hereby permitted must be begun not later than the end of three years from the date of this permission.

Reason: In order to comply with the provisions of Section 91 of the Town and Country Planning Act 1990 (as amended).

- 2 The development hereby permitted shall be carried out in accordance with the following approved plans:
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 12141_PL_(00)_216 P02, 12141_PL_(00)_220 P04, 12141_PL_(00)_251 P03,
 12141_PL_(00)_300 P04, 12141_PL_(00)_301 P05, 12141_PL_(00)_302 P05,

12141_PL_(00)_303 P04, 12141_PL_(00)_310 P04, 12141_PL_(00)_311 P05, 12141_PL_(00)_312 P05, 12141_PL_(00)_313 P04, 12141_PL_(00)_400 P04, 1241_PL_(00)_401_02, SK-00-555, SK-00-556.

Acoustic Report (RP/230602/004); Air Quality Assessment (RP/230602/004); Construction Management Plan (RP/230602/004); Energy Statement (RP/230602/001); Flood Risk Assessment (RP/230602/006); Housing Study (September 2014); Townscape and Visual Impact Assessment (September 2014); Town Planning Statement (LJW/ANE/HBR/J6936); Transport Assessment (RP/230602/007); Landscape Statement (September 2014); London Housing Design Guide Audit (September 2014); Statement of Community Involvement (September 2014); Sustainability Statement (RP/230602/004); Design and Access Statement (September 2014); Daylight and Sunlight Statement (September 2014); Financial viability assessment (September 2014); Design and Access Statement - Addendum (December 2014); Daylight and Sunlight - Addendum (December 2014); Landscape Statement - Addendum (December 2014); Transport Assessment Addendum (December 2014); Townscape and Visual Impact Assessment Addendum (December 2014); Pedestrian Impact Assessment by Space Syntax (December 2014); View studies -St Georges Church (January 2015).

Reason: For the avoidance of doubt and in the interest of proper planning.

- 3 The details of the following shall be submitted to and approved in writing by the local planning authority before any work is commenced on the relevant part of the development:
 - a) Manufacturer's specification details of all facing materials (to be submitted to the Local Planning Authority) and samples of those materials (to be provided on site);
 - b) Details including sections at 1:5 minimum of all windows, metal and stone panels, canopies, ventilation grills, external doors and gates;
 - c) Details including materials of all balconies, balustrades, winter gardens and roof terraces
 - d) Plan, elevation and section drawings, including fascia, cornice, pilasters and glazing panels of the new shopfronts at a scale of 1:10;
 - e) Details of all external lighting within the public realm of the site and fixed to buildings;
 - f) Details, including samples, of paving to all external areas including Dunn's Passage;
 - g) Details of lighting to Dunn's Passage;
 - h) Treatment to the flank wall of the service bay build-out on High Holborn

The relevant part of the works shall not be carried out otherwise than in accordance with the details thus approved.

Reason: In order to safeguard the appearance of the premises and the character of the immediate area in accordance with the requirements of policies CS14, CS15 and CS17 of the London Borough of Camden Local Development Framework Core Strategy and policies DP24, DP25 and DP29 of the London Borough of Camden Local Development Framework Development Policies.

- 4 A full scale sample panel of 1 whole bay for each of the office and the residential

elements shall be provided on site and approved in writing by the local planning authority before the relevant parts of the works are commenced and the development shall be carried out in accordance with the approval given. The approved panel shall be retained on site until the work has been completed.

Reason: To safeguard the appearance of the premises and the character of the immediate area in accordance with the requirements of policy CS14 of the London Borough of Camden Local Development Framework Core Strategy and policies DP24 and DP25 of the London Borough of Camden Local Development Framework Development Policies.

- 5 No lights, meter boxes, flues, vents or pipes, and no telecommunications equipment, alarm boxes, television aerials or satellite dishes shall be fixed or installed on the external face of the buildings, without the prior approval in writing of the local planning authority.

Reason: To safeguard the appearance of the premises and the character of the immediate area in accordance with the requirements of policy CS14 of the London Borough of Camden Local Development Framework Core Strategy and policies DP24 and DP25 of the London Borough of Camden Local Development Framework Development Policies.

- 6 No sound emanating from the commercial (Classes B1, A1, A3 or D1) uses in the development shall be audible from inside any adjacent residential premises between 2300 hrs and 0700 hrs.

Reason: To safeguard the amenities of the adjoining premises and the area generally in accordance with the requirements of policies CS5 and CS7 of the London Borough of Camden Local Development Framework Core Strategy and policies DP26, DP28 and DP12 of the London Borough of Camden Local Development Framework Development Policies.

- 7 The Class A3 use hereby permitted shall not be carried out outside the following times: 08:00 to 23:30 Monday to Thursdays, 08:00 to 00:00 on Fridays and Saturdays and 08:00 to 22:30 on Sundays and Bank Holidays.

Reason: To safeguard the amenities of the adjoining premises and the area generally in accordance with the requirements of policies CS5 and CS7 of the London Borough of Camden Local Development Framework Core Strategy and policy DP26, DP28 and DP12 of the London Borough of Camden Local Development Framework Development Policies.

- 8 No work shall commence on any of the relevant parts of the development until detailed layout plans have been submitted to and approved in writing by the local planning authority in respect of the retail, food and drink and doctors surgery uses of the ground floor and mezzanine areas of the development. The development shall thereafter proceed in accordance with the approved details unless otherwise approved by the local planning authority in writing.

Reason: To ensure that the scheme makes satisfactory provision for local needs

with particular regard to small and independent retail units and public healthcare facilities in accordance with the requirements of policy CS16 of the London Borough of Camden Local Development Framework Core Strategy and policies DP10 and DP15 of the London Borough of Camden Local Development Framework Development Policies.

- 9 Food and drink uses within Class A3 of the Schedule of the Town and Country Planning (Use Classes) Order, 1987, or any provision equivalent to that Class in any statutory instrument revoking and re-enacting that Order, shall not comprise more than 33% of the ground floor retail area (excluding the small independent retail space) hereby approved.

Reason: To ensure the development does not lead to an over concentration of food and drink uses in the area and to safeguard the amenities of neighbouring premises in accordance with the requirements of policies CS5, CS7 and CS9 of the London Borough of Camden Local Development Framework Core Strategy and policies DP26, DP28 and DP12 of the London Borough of Camden Local Development Framework Development Policies.

- 10 No works on the relevant parts of the development shall commence until full details of hard and soft landscaping and means of enclosure of all un-built, open areas, including the roof terraces have been submitted to and approved by the local planning authority. The details in respect of the residential roof terrace shall include provision for children's play space and play equipment. The relevant works shall not be carried out otherwise than in accordance with the details thus approved.

Reason: To enable the Council to ensure a reasonable standard of amenity in the scheme in accordance with the requirements of policies CS14 and CS15 of the London Borough of Camden Local Development Framework Core Strategy and policies DP24, DP25 and DP31 of the London Borough of Camden Local Development Framework Development Policies.

- 11 All hard and soft landscaping works shall be carried out in accordance with the approved landscape details prior to first occupation of the residential units, or in the case of soft landscaping by not later than the end of the planting season following completion of the development.

Reason: To ensure that the landscaping is carried out within a reasonable period and to maintain a high quality of amenity in the scheme in accordance with the requirements of policy CS14 and CS15 of the London Borough of Camden Local Development Framework Core Strategy and policies DP24 and DP31 of the London Borough of Camden Local Development Framework Development Policies.

- 12 Notwithstanding the recommendations of the submitted Landscape Statement, details of a report of feasibility and method statement for the protection during construction and retention of the 3 existing street trees (T22, 23 and 24) on New Oxford Street shall be submitted to and approved by the local authority in writing before any works of construction are commenced. Such details shall follow guidelines and standards set out in BS5837:2012 "Trees in Relation to

Construction". The development shall thereafter not proceed other than in accordance with the approved details.

Reason: To ensure that the development will not have an adverse effect on existing trees and in order to maintain the character and amenity of the area in accordance with the requirements of policy CS15 of the London Borough of Camden Local Development Framework Core Strategy.

- 13 No part of the relevant uses shall be occupied until detailed plans and specifications of the cycle storage facilities for at least 43 cycle parking spaces for the residential use; and 468 spaces for the other uses of the development, have been submitted to and approved by the local planning authority in writing, and the relevant details have been provided in complete accordance with such approval given. The approved details shall be permanently retained thereafter.

Reason: To ensure the development provides adequate cycle parking facilities in accordance with the requirements of policy CS11 of the London Borough of Camden Local Development Framework Core Strategy and policy DP17 of the London Borough of Camden Local Development Framework Development Policies.

- 14 Prior to first occupation of any part of the development, confirmation of the location of 1 electric vehicle charging point within the development shall be submitted to and approved in writing by the local planning authority. Such measures shall be completed prior to first occupation and shall thereafter be retained.

Reason: To ensure that the scheme promotes the use of sustainable transport means in accordance with policy CS11 of the London Borough of Camden Local Development Framework Core Strategy.

- 15 Prior to first occupation of the building, full details in respect of the green and biodiverse roofs, and the green wall in the areas indicated on the approved roof plans, including respective areas of coverage, construction profile, materials, substrate depth, full schedule of plant species, density of planting and plan of maintenance shall be submitted to and approved by the local planning authority. The buildings shall remain unoccupied until such time as the approved details have been fully implemented and these works shall be permanently retained and maintained thereafter.

Reason: In order to ensure the development undertakes reasonable measures to take account of biodiversity and the water environment in accordance with policies CS13, CS15 and CS16 of the London Borough of Camden Local Development Framework Core Strategy and policies DP22, DP23 and DP32 of the London Borough of Camden Local Development Framework Development Policies.

- 16 The development hereby approved shall not be commenced, other than for site preparation, relocation of services, utilities and public infrastructure and demolition, until details of a blue roof for capturing and storing water at roof level during storm events has been submitted to and approved by the local planning authority. The development shall not be implemented other than in complete accordance with the

scheme that has been approved.

Reason: To reduce the rate of surface water run-off from the buildings and limit the impact on the storm-water drainage system in accordance with policies CS13 and CS16 of the London Borough of Camden Local Development Framework Core Strategy and policies DP22, DP23 and DP32 of the London Borough of Camden Local Development Framework Development Policies.

- 17 None of the dwellings hereby permitted shall be occupied until the detailed layout plans (scale 1:20) of the 2 affordable units to be provided as fully wheelchair accessible and their access from communal entrances have been submitted to and approved by the local planning authority in writing. The approved details shall be incorporated in full prior to the first occupation of each relevant unit.

Reason: To ensure that the internal layout of the building provides flexibility for the accessibility of future occupiers and their changing needs over time, in accordance with the requirements of policy CS6 (Providing quality homes) of the London Borough of Camden Local Development Framework Core Strategy and policy DP6 (Lifetime homes and wheelchair homes) of the London Borough of Camden Local Development Framework Development Policies.

- 18 All the residential units of the development hereby approved shall be built out in full compliance with the relevant lifetime homes standards as set out in the Design and Access Statement.

Reason: To ensure that the internal layout of the building provides flexibility for the accessibility of future occupiers and their changing needs over time, in accordance with the requirements of policy CS6 of the London Borough of Camden Local Development Framework Core Strategy and policy DP6 of the London Borough of Camden Local Development Framework Development Policies.

- 19 Before the use of any of the residential dwellings commences, sound insulation shall be provided in accordance with the approved Acoustic Report. A post installation noise assessment shall be carried out where required to confirm compliance with the noise criteria set out in the approved report and the results of this together with any additional steps to mitigate noise as necessary, shall be submitted to and approved by the local planning authority. The dwellings shall thereafter not be occupied other than in accordance with the approved scheme.

Reason: To safeguard the amenities of the adjoining premises and the area generally in accordance with the requirements of policy CS5 of the London Borough of Camden Local Development Framework Core Strategy and policies DP26 and DP28 of the London Borough of Camden Local Development Framework Development Policies.

- 20 Technical specification details of the mechanical plant to be installed within the roof top plant area as shown on the approved floor plans, together with an accompanying acoustic report, shall be submitted to and approved by the local planning authority prior to installation of this plant. The plant shall not be operated other than in complete accordance with such measures as may be approved.

Reason: To safeguard the amenities of occupiers of the proposed use, adjoining premises and the area generally in accordance with the requirements of policy CS5 of the London Borough of Camden Local Development Framework Core Strategy and policies DP26 and DP28 of the London Borough of Camden Local Development Framework Development Policies.

- 21 Noise levels from fixed plant associated with the development at a point 1 metre external to sensitive facades shall be at least 5dB(A) less than the existing background measurement (LA90), expressed in dB(A) when all plant/equipment (or any part of it) is in operation unless the plant/equipment hereby permitted will have a noise that has a distinguishable, discrete continuous note (whine, hiss, screech, hum) and/or if there are distinct impulses (bangs, clicks, clatters, thumps), then the noise levels from that piece of plant/equipment at any sensitive façade shall be at least 10dB(A) below the LA90, expressed in dB(A).

Reason: To safeguard the amenities of the adjoining premises and the area generally in accordance with the requirements of policy CS5 of the London Borough of Camden Local Development Framework Core Strategy and policies DP26 and DP28 of the London Borough of Camden Local Development Framework Development Policies.

- 22 The commercial uses of the development shall not be occupied until 6 or more bird nesting boxes/bricks have been installed in accordance with details showing the precise locations, specifications and design of such that have first been submitted to and approved in writing by the local planning authority. The relevant details shall thereafter continue to be retained and maintained.

Reason: In order to secure appropriate features to conserve and enhance wildlife habitats and biodiversity measures within the development, in accordance with the requirements of policy 7.19 of the London Plan 2011 and policy CS15 of the London Borough of Camden Local Development Framework Core Strategy.

- 23 The development hereby permitted shall not be commenced until detailed design, method statements and load calculations (in consultation with London Underground), have been submitted to and approved in writing by the local planning authority which:
- Provide details of ground movement analysis and any associated mitigation measures before any load changes occur
- The development shall thereafter be carried out in all respects in accordance with the approved design and method statements, and all structures and works comprised within the development hereby permitted which are required by the approved design statements in order to procure the matters mentioned in paragraphs of this condition shall be completed, in their entirety, before any part of the building hereby permitted is occupied.

Reason: To ensure that the development does not impact on existing London Underground transport infrastructure, in accordance with London Plan 2011 Table 6.1 and 'Land for Industry and Transport' Supplementary Planning Guidance 2012.

Informative(s):

- 1 You are advised that this proposal will be liable for the Mayor of London's Community Infrastructure Levy (CIL) as the additional floorspace exceeds 100sqm GIA or one unit of residential accommodation. Based on the Mayor's CIL charging schedule and the information given on the plans, the charge is likely to be £1,950,100 (39,003 sqm x £50). This amount is an estimate based on the information submitted in your planning application. The liable amount may be revised on the receipt of the Additional Information Requirement Form or other changing circumstances.
- 2 Your proposals may be subject to control under the Building Regulations and/or the London Buildings Acts which cover aspects including fire and emergency escape, access and facilities for people with disabilities and sound insulation between dwellings. You are advised to consult the Council's Building Control Service, Camden Town Hall, Argyle Street WC1H 8EQ, (tel: 020-7974 2363).
- 3 Noise from demolition and construction works is subject to control under the Control of Pollution Act 1974. You must carry out any building works that can be heard at the boundary of the site only between 08.00 and 18.00 hours Monday to Friday and 08.00 to 13.00 on Saturday and not at all on Sundays and Public Holidays. You are advised to consult the Council's Environmental Health Service, Camden Town Hall, Argyle Street, WC1H 8EQ (Tel. No. 020 7974 2090 or by email env.health@camden.gov.uk or on the website www.camden.gov.uk/pollution) or seek prior approval under Section 61 of the Act if you anticipate any difficulty in carrying out construction other than within the hours stated above.
- 4 Your attention is drawn to the need for compliance with the requirements of the Environmental Health regulations, Compliance and Enforcement team, [Regulatory Services] Camden Town Hall, Argyle Street, WC1H 8EQ, (tel: 020 7974 4444) particularly in respect of arrangements for ventilation and the extraction of cooking fumes and smells.
- 5 You are advised that condition 7 means that no customers shall be on the premises and no noise generating activities associated with the use shall be carried out otherwise than within the permitted time.
- 6 The works proposed to the highway on Museum Street would need to be undertaken by the Council (as highway authority) at the applicant's expense. The proposed highway works shown on the approved plans are indicative only and remain subject to submission and approval of further details. The approved highway works would need to be secured by way of a legal agreement under section 278 of the Highways Act 1980 between the Council and the applicant.
- 7 This consent is without prejudice to, and shall not be construed as derogating from, any of the rights, powers, and duties of the Council pursuant to any of its statutory functions or in any other capacity and, in particular, shall not restrict the Council from exercising any of its powers or duties under the Highways Act 1980 (as

amended). In particular your attention is drawn to the need to obtain permission for any part of the structure which encroaches on or over the public highway (including footway). Permission should be sought from the Council's Engineering Service Network Management Team, Town Hall, Argyle Street WC1H 8EQ, (tel: 020 7974 2410) or email highwayengineering@camden.gov.uk.

- 8 The applicant is advised to contact London Underground Infrastructure Protection in advance of preparation of final design and associated method statements, in particular with regard to: demolition; drainage; excavation; and construction methods.
- 9 You are reminded that this decision only grants permission for permanent residential accommodation (Class C3). Any alternative use of the residential units for temporary accommodation, i.e. for periods of less than 90 days for tourist or short term lets etc, would constitute a material change of use and would require a further grant of planning permission.
- 10 Your attention is drawn to the fact that there is a separate legal agreement with the Council which relates to the development for which this permission is granted. Information/drawings relating to the discharge of matters covered by the Heads of Terms of the legal agreement should be marked for the attention of the Planning Obligations Officer, Sites Team, Camden Town Hall, Argyle Street, WC1H 8EQ.

In dealing with the application, the Council has sought to work with the applicant in a positive and proactive way in accordance with paragraphs 186 and 187 of the National Planning Policy Framework.

You can find advice about your rights of appeal at:

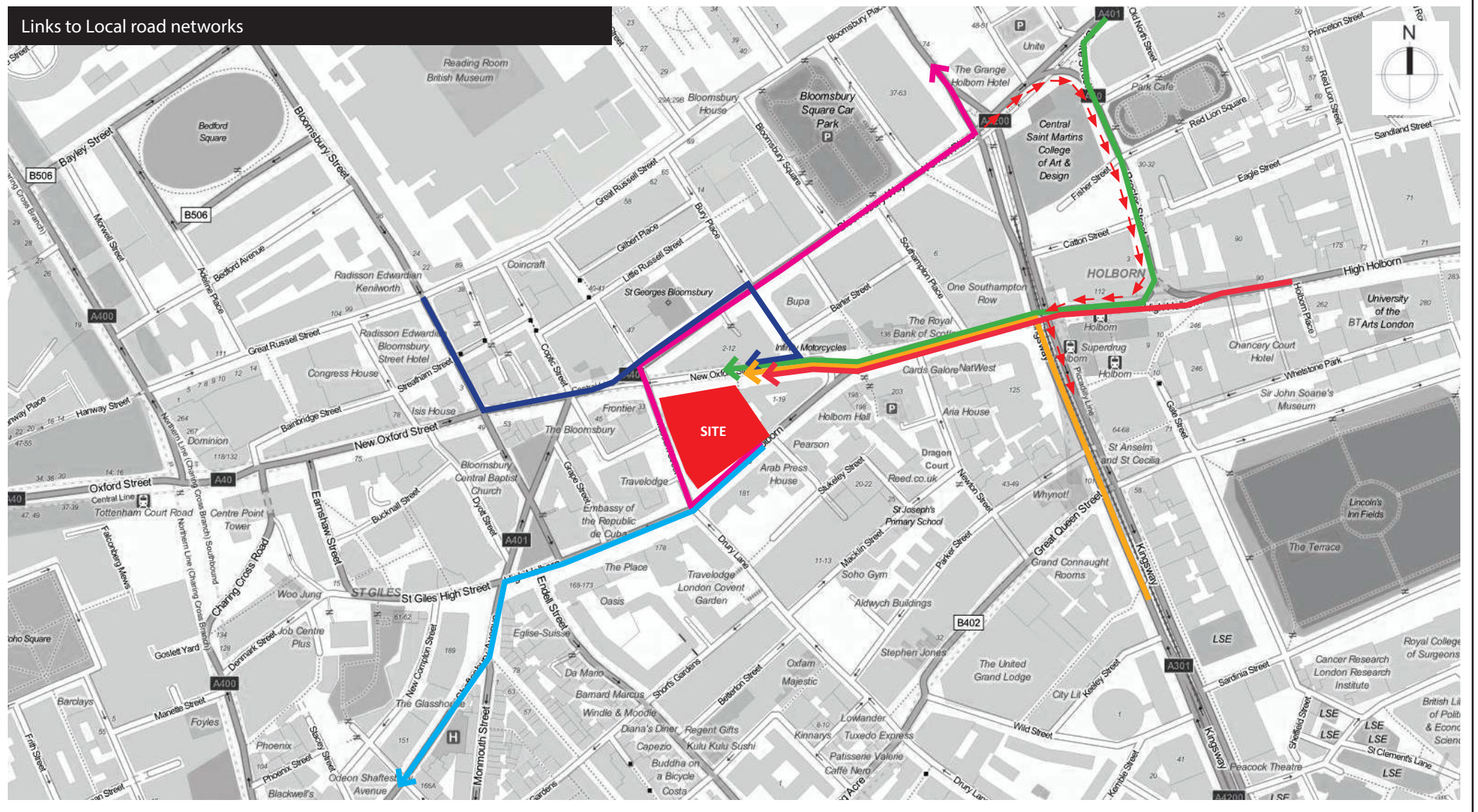
<http://www.planningportal.gov.uk/planning/appeals/guidance/guidancecontent>

Yours faithfully



Ed Watson
Director of Culture & Environment

Links to Local road networks



LEGEND

- Route to site from High Holborn
- Route from site from Bloomsbury Way
- Route from Site to South West
- Route to site from South West/West Via Embankment
- Route to site from the East
- Route to site from North & North West
- Exit back out to South West



NOTES

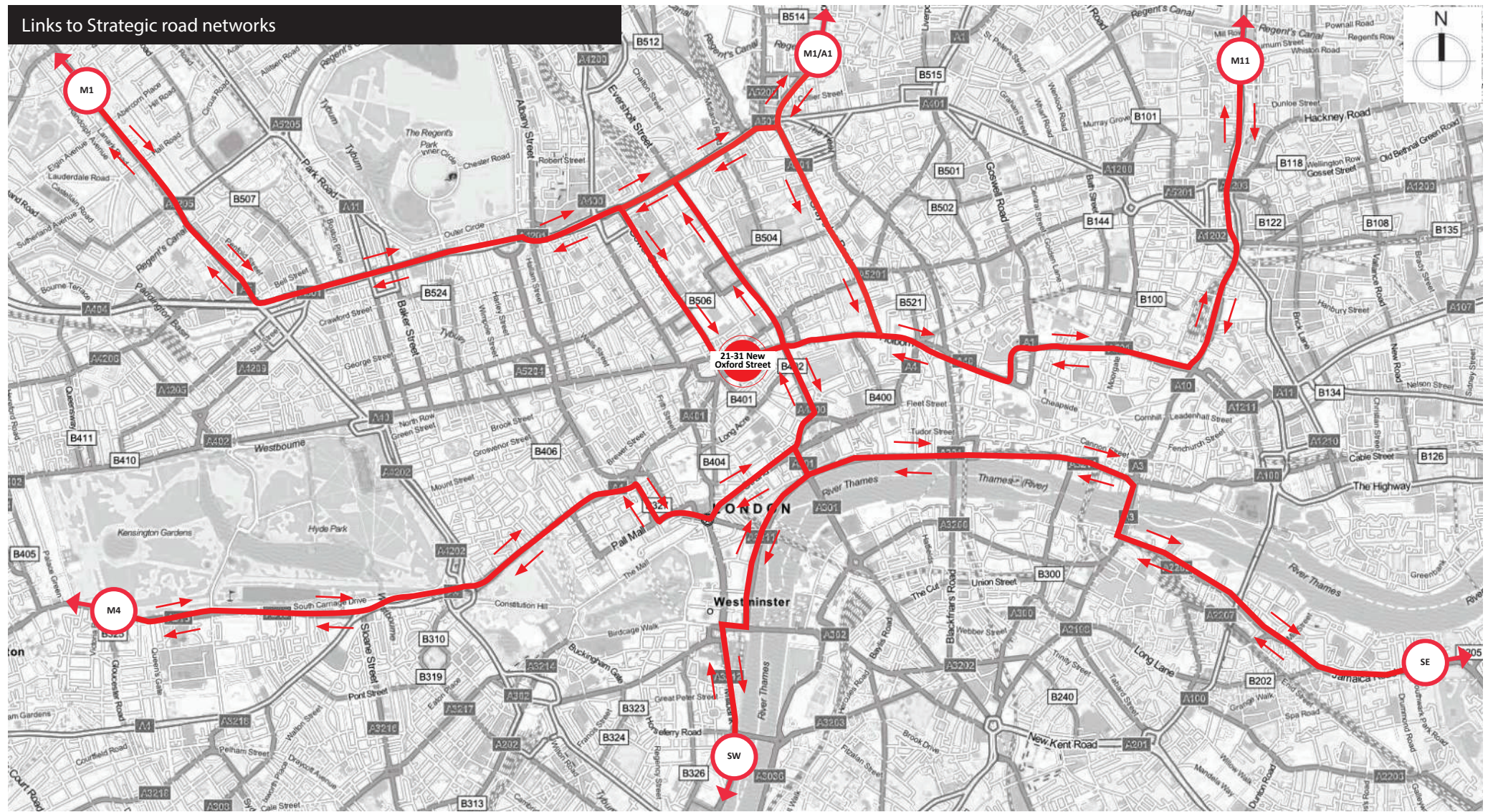
1. Site construction traffic through adjacent residential & commercial streets to be kept to a strict minimum,
2. Parking bays will need to be temporarily suspended during construction works.

Project LT: 21-31 New Oxford Street

Drawing Title:	Links to local road networks
Drawn by:	YK
Checked by:	AB
Date:	02/05/2014
Scale:	NTS
Drawing No:	ARUP/PL/SK003 Rev: -

ARUP

Links to Strategic road networks



Project LT: 21-31 New Oxford Street

Drawing Title:	Links to Strategic road networks
Drawn by:	YK
Checked by:	AB
Date:	02/05/2014
Scale:	NTS
Drawing No:	ARUP/PL/SK004 Rev: -

ARUP

THE THIRD SCHEDULE
Construction Management Plan
Highway Measures

A Construction Management Plan outlines how construction work will be carried out and how this work will be serviced (e.g. delivery of materials, set down and collection of skips), with the objective of minimising traffic disruption and avoiding dangerous situations and minimising the impact on local amenity. A Construction Management Plan should cover both demolition and construction phases of development. Details of the Construction Management Plan will relate to the scale and kind and location of the development and they should assess the impact on transport and on local amenity including road user amenity. Should any one of these criteria be considered not to be relevant, then specific justification, as to why that particular criterion is not relevant, will need to be provided. The Construction Management Plan should demonstrate that the following has been considered and where necessary the impacts mitigated:

(Note the term 'vehicles' used here refers to all vehicles associated with the implementation of the development, e.g. demolition, site clearing, delivering of plant, material and construction, staff parking etc)

- a) A brief description of the site, surrounding area and development proposals for which the Construction Management Plan applies.
- b) Proposed start and end dates for each phase of construction.
- c) The proposed working hours within which vehicles will arrive and depart.
- d) The access arrangements for vehicles.
- e) Proposed routes for vehicles between the site and the Transport for London Road Network (TLRN). Consideration should also be given to weight restrictions, low bridges and cumulative effects of construction on the highway. A map of the TLRN can be downloaded from the following site:-

http://www.tfl.gov.uk/assets/downloads/TFL_Base_Map_Master.pdf

- f) Typical sizes of all vehicles and the approximate frequency and times of day when they will need access to the site, for each phase of construction.
- g) Swept path drawings for any tight manoeuvres on vehicle routes to the site.
- h) Details (including accurate scaled drawings) of any highway works necessary to enable construction to take place.
- i) Parking and loading arrangement of vehicles and delivery of materials and plant to the site.

- j) Details of proposed parking bays suspensions and temporary traffic management orders.
- k) Proposed overhang (if any) of the public highway (scaffolding, cranes etc.).
- l) Details of hoarding required or any other occupation of the public highway.
- m) Details of how pedestrian and cyclist safety will be maintained, including any proposed alternative routes (if necessary), and any Banksman arrangements.
- n) Details of how traffic associated with the Development will be managed in order to reduce congestion.
- o) Details of any other measures designed to reduce the impact of associated traffic (such as the use of construction material consolidation centres).
- p) Details of how any significant amounts of dirt or dust that may be spread onto the public highway will be cleaned or prevented.
- q) Details of consultation on a draft Construction Management Plan with local residents, business, local groups (e.g. residents/tenants and business associations) and Ward Councillors. Details should include who was consulted, how the consultation was conducted and the comments received in response to the consultation. In response to the comments received, the Construction Management Plan should then be amended where appropriate and where not appropriate a reason should be given why not. The revised Construction Management Plan should also include a list of all the comments received. You are advised to check your proposed approach to consultation with the Council before carrying it out.
- r) Details of any Construction Working Group that will be set up, addressing the concerns of surrounding residents, as well as contact details for the person responsible for community liaison on behalf of the developer, and how these contact details will be advertised to the community.
- s) Details of any schemes such as the "Considerate Contractors Scheme" that the project will be signed up to should form part of the consultation and be notified to the Council. Contractors will also be required to follow the "Guide for Contractors Working in Camden" also referred to as "Camden's Considerate Contractor's Manual"
- t) Details of other construction sites in the local area and how your Construction Management Plan takes into consideration the cumulative effects of construction local to your site.
- u) All contractors and sub-contractors operating HGVs must meet all of the following conditions:-

- 1) Operators must be a member of TfL's Fleet Operator Recognition Scheme (www.tfl.gov.uk/fors) or similar at the Bronze level.
- 2) All drivers must have undertaken cycle awareness training such as the Safe Urban Driver module through FORS or similar.
- 3) All vehicles associated with the construction of the Development must:
 - i. Have Side Guards fitted, unless it can be demonstrated to the reasonable satisfaction of the Employer, that the Lorry will not perform the function, for which it was built, if Side Guards are fitted.
 - ii. Have a close proximity warning system fitted comprising of a front mounted, rear facing CCTV camera (or Fresnel Lens where this provides reliable alternative), a Close Proximity Sensor, an in-cab warning device (visual or audible) and an external warning device to make the road user in close proximity aware of the driver's planned manoeuvre.
 - iii. Have a Class VI Mirror
 - iv. Bear prominent signage on the rear of the vehicle to warn cyclists of the dangers of passing the vehicle on the inside.
- v) Any other relevant information with regard to traffic and transport.
- w) The Construction Management Plan should also include the following statement:-

"The agreed contents of the Construction Management Plan must be complied with unless otherwise agreed with 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 and complied with thereafter."

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

THE SECOND SCHEDULE
Construction Management Plan
Air Quality and Carbon Reduction

Requirements to control and minimise NO_x, PM₁₀, CO₂ emissions from construction sites and avoid nuisance and dust complaints.

A method statement shall be prepared and adopted as part of the Construction Management Plan to minimise gaseous and particulate matter emissions generated during the Construction Phase. The method statement shall identify the specific measures which will be implemented to control air pollution emissions during each of the following stages of the Construction Phase: (a) demolition; (b) ground breaking; and (c) construction/build.

The Construction Phase shall be carried out in accordance with the Best Practise Guidance Note "Control of dust and emissions from construction and demolition" published by London Councils, 2006. The risk rating of the site shall be defined in the method statement and determined using the risk assessment methodology in the Best Practise Guidance. Techniques to control dust from construction activities and emissions from vehicles and plant, and undertake air quality monitoring, shall conform to the 'medium' or 'high' risk categories outlined in the Best Practice Guidance.

The following best practise measures shall be included as a minimum in the method statement:-

A - Techniques to control PM₁₀ and NO_x emissions from vehicles and plant

- a) Low emission plant fitted with catalysts, diesel particulate filters or similar devices shall be used;
- b) Plant shall be well maintained, with routine servicing of plant and non-road mobile machinery (NRMM) to be completed in accordance with the manufacturers recommendations;
- c) Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment;
- d) Non-road mobile machinery (NRMM) shall use ultra low sulphur tax-exempt diesel and be fitted with appropriate exhaust after-treatment such as catalysts, diesel particulate

filters as stated on the approved list managed by the Energy Saving Trust. Details of the plant and control equipment shall be included in the method statement.

- e) All construction vehicles shall comply with the Euro 4 emissions standard and where possible use low emission fuels and alternative technology.
- f) Plant and vehicles shall be located way from the closest receptors or house in closed environments where possible.

B - Techniques to control dust emissions from construction and demolition

- a) Keep site fencing, barriers and scaffolding clean using wet methods;
- b) Buildings to be demolished shall be wrapped
- c) Provide easily cleaned hard standing for vehicles and clean using wet sweeping methods;
- d) Provide the use of wheel-wash facilities near the site exit. Fit wheel-washes with rumble grids to dislodge accumulated dust and mud prior to leaving the site to avoid carrying dust or mud off the site;
- e) Inspect internal haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable;
- f) Routinely clean the Public Highways and accesses using wet sweeping methods especially during dry periods;
- g) Impose and signpost maximum speed limits of 10 mph on surfaced haul routes and work areas within the Site;
- h) Ensure all vehicles carrying loose or potentially dusty material to or from the site are fully sheeted;
- i) Store materials with the potential to produce dust away from site boundaries;
- j) Sheet, seal or damp down stockpiles of excavated material held on site;
- k) Any loose materials brought onto the site shall be protected by appropriate covering
- l) The site shall be dampened down during the working day and again at the end of the day to reduce the amount that is re-suspended dust.
- m) Ensure water suppression is used during demolition operations;
- n) Ensure mobile crushing and screening plant and cement batching plant which are regulated under the Local Air Pollution Prevention and Control regime operate in compliance with a Part B Permit. This shall be submitted to the local authority prior to operation.
- o) Site personnel shall be trained in dust mitigation and a manager shall be present for managing dust on site.

C - Air Quality Monitoring

- a) Throughout the Construction Phase continuous particulate matter (PM10) monitoring shall be undertaken. Two instruments will be deployed at the site boundary in a transect orientated to the prevailing wind direction, with a third monitor located at the nearest sensitive receptor. One monitor shall be co-located with an anemometer.
- b) Adequate quality assurance/quality control procedures shall be in place including monitor maintenance and calibration as well and data checking. PM10 data shall be collected automatically on an hour basis.
- c) A trigger action level for PM10 concentrations of $200\mu\text{g.m}^{-3}$ (15 minute average) shall be used to identify incidences of elevated dust emissions at the site boundary. The development site shall comply with the trigger action throughout the demolition and construction phases.
- d) An on-site alert system (email or SMS) shall be in place to notify appropriate staff that the trigger action level has been reached. Immediate and appropriate measures can be put in place to rectify abnormal particulate emissions. A procedure shall be established to deal with abnormal dust emissions. All incidences of abnormal particulate emissions leading to breaches of the trigger action level, shall be documented in the site log book (date and time), with details of the action take to remediate dust emissions.
- e) An e-mail specifying details of any alert to be sent out to the Council's air quality officer as soon as practicable following any breach of the site trigger action level.
- f) An electronic report shall be submitted to the Council's air quality officer every three months summarising the following information from each monitoring site – 24 hour average PM10 concentration, date and time of any breach of the trigger action level with the 15 minute mean concentration, prevailing wind direction and details of the cause of elevated dust emissions and mitigation measures.
- g) The Council shall be notified of any changes to the location and operation of dust PM10 monitoring instrumentation.

- h) A 24-hour phone hotline shall be set up so that residents can complain about high dust or PM10 levels directly to the developer.

The following items shall be included in the method statement:

- a) A specific timetable identifying the start and finish dates of each phase, including dust generating activities and PM10 monitoring.
- b) An inventory of stationary and fugitive dust, PM10 and NOx emission sources with an explanation of how these will be mitigated in accordance with the London Council's Best Practise Guidance.
- c) A map identifying the location of dust generating activities, plant equipment associated with emissions to air and PM10 monitors.
- d) An air quality monitoring protocol prepared in accordance with the requirements of section C.

D - Techniques to reduce CO₂ emissions from construction vehicles

A commitment from the Owner that contractors' vehicles involved in construction and demolition work will adopt 'green fleet management practices' that will result in a 10% reduction in tail-pipe CO₂ emissions over the duration of the construction phase. A green fleet management plan included in the method statement identifying measures to improve vehicle efficiency and reduce CO₂ emissions from construction vehicles. This could include the use of fuel monitoring equipment in vehicles, eco-driver training, accreditation with FORS (Freight Operator Recognition Scheme run by TfL) or SAFED (Safe and Fuel Efficient Driving run by the DfT) and use of low carbon vehicles such as hybrid electric, electric and bio-methane.

Construction/ Demolition Management Plan

pro forma

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Introduction

The purpose of the **Construction Management Plan (CMP)** is to help developers to minimise construction impacts, and relates to both on site activity and the transport arrangements for vehicles servicing the site.

It is intended as a living 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 kind 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 Transport for London's (TfL's Standard for Construction Logistics and Cyclist Safety (**CLOCS**) scheme) and Camden's Minimum Requirements for Building Construction (**CMRBC**).

The approved contents of this CMP must be complied with unless otherwise agreed with the Council. The project manager shall work with the Council to review this CMP if problems arise in relation to the construction of the development. 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 for 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.

(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.)

Contact

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

Address:

Planning ref:

Type of CMP - Section 106 planning obligation/Major sites framework:

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

Name:

Address:

Email:

Phone:

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:

Address:

Email:

Phone:

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.

Name:

Address:

Email:

Phone:

Site

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

2. 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).

3. 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.).

4. 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 and proposed site access locations.

5. 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).

6. Please confirm the standard working hours for this 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

7. 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.

8. Please provide details of consultation on a draft CMP with local residents, businesses, local groups (e.g. residents/tenants and business associations) and Ward Councillors. Details should include who was consulted, how the consultation was conducted and a summary of the comments received in response to the consultation. In response to the comments received, the CMP should then be amended where appropriate and, where not appropriate, a reason should be 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 boroughs then we would recommend contacting the relevant neighbouring planning authority.

9. Please provide details of community liaison proposals including any Construction Working Group that will be set up, addressing the concerns of the community affected by the works. Please confirm how the contact details of the person responsible for community liaison 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.

10. Please provide details of any schemes such as the 'Considerate Constructors Scheme', such details should form part of the consultation and be notified to the Council. Contractors will also be required to follow the "Guide for Contractors Working in Camden" also referred to as "Camden's Considerate Contractors Manual".

11. 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.

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 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 the council to ensure compliance. Please refer to the CLOCS Standard when completing this section. Guidance material is available here [TBC]. Please contact CLOCS@camden.gov.uk for further advice or guidance on any aspect of this section.

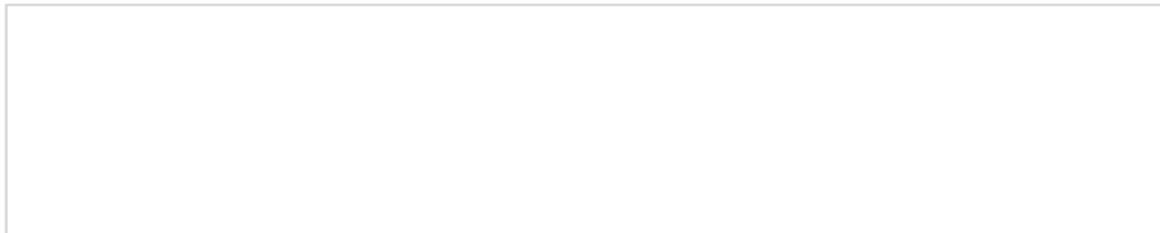
Name of Principle contractor:

1. Traffic routing: 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, public buildings, museums etc. Where appropriate, routes that use high risk junctions (ie. those that attract high volumes of cycling traffic) may consider installing Trixi mirrors at junctions.

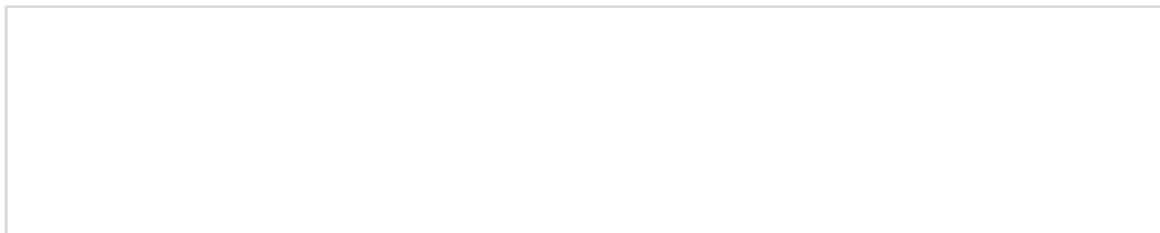
Consideration should also be given to weight restrictions, low bridges and cumulative impacts of construction (including neighbouring construction sites) on the public highway network. Consideration should also be given as to whether the roads on the route(s) to and from the site are suitable for the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

This should then be communicated to all contractors and sub-contractors servicing the site and not deviated from unless unavoidable.

a. Please indicate routes on a drawing or diagram showing the public highway network in the vicinity of the site including details of links to the Transport for London Road Network (TLRN).



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



2. Control of site traffic, particularly at peak hours: Traffic servicing the site should be controlled using a delivery booking system to manage site traffic. Construction vehicle movements are generally acceptable between 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 between 9.30am and 3pm on weekdays during term time. (Refer to the *Guide for Contractors Working in Camden*).

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. Consideration should be given to the location of any necessary holding areas for large sites with high volumes of traffic. Vehicles must not wait 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.

a. Please provide details of the typical sizes of all vehicles and the approximate frequency and times of day when they will need access to the site, for each phase of construction. You should estimate the average daily number of vehicles during each major phase of the work, including their dwell time at the site. High numbers of vehicles per day and/or long dwell times may require vehicle holding procedures.

b. Please provide details of other developments in the local area or on the route.

c. Please outline the system that is to be used for booking system that is to be used to ensure that the correct vehicle attends the correct part of site at the correct time.

d. Please identify the locations of any off-site holding areas (an appropriate location outside the borough may need to be identified, particularly if a large number of delivery vehicles are expected) and any measures that will be taken to ensure the prompt admission of vehicles to site in light of time required for necessary compliance checks.

3. Site access and egress: Vehicles entering and leaving the site should be carefully managed, using gates that are clearly marked and free from obstacles. Traffic Marshalls must ensure the safe passage of pedestrians, cyclists and other traffic when vehicles are entering and leaving site, particularly if reversing.

a. Please detail the proposed access and egress routes to and from the site

b. Please describe how the access and egress arrangements for construction vehicles will be managed.

c. Please provide swept path drawings for any tight manoeuvres on vehicle routes to and from the site including proposed access and egress arrangements at the site boundary (if necessary).

d. Provision of wheel washing facilities should be considered if necessary.

4. Vehicle loading and unloading: vehicles should be loaded and unloaded on-site as far as is practicable. If this is not possible, 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 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 loading is to take place off site, please identify where this is due to take place and outline the measures you will take to ensure that loading/unloading is carried out safely. Please refer to Q4 under the Highways section if any parking bay suspensions will be required.

5. Where one is assigned, please submit your principal contractor's proposed method for checking vehicle and driver compliance.

6. Please provide details of any other measures designed to reduce the impact of associated traffic (such as the use of construction material consolidation centres).

7. Please sign-up to join the CLOCS community to receive up to date information on the standard by expressing an interest online: www.clocs.org.uk/clocs-community/.

I confirm I have registered to receive information on the CLOCS standard

8. Please confirm that you as the client/developer and your principal contractor have read and understood the CLOCS Standard [\[link\]](#).

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

Highways

1. Please provide details of any temporary structures which would overhang the public highway (e.g. scaffolding, gantries, cranes etc.)

2. Please provide details of hoarding requirements or any other occupation of the public highway.

3. Please provide accurate scaled drawings of any highway works necessary to enable construction to take place (e.g. construction of temporary vehicular accesses). 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. You must submit a detailed (to-scale) plan showing the impact on the public highway that includes the extent of any hoarding, pedestrian routes, parking bay suspensions and remaining road width for vehicle movements. 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. Please provide details of all safety signage, barriers and accessibility measures such as ramps and lighting etc.

4. Please provide details of any proposed parking bay suspensions and temporary traffic management orders which would be required to facilitate construction.

5. Where applicable, please supply details of any diversion, disruption or other anticipated use of the public highway during the construction period (alternatively a plan may be submitted).

6. If pedestrians and/or cyclists are diverted, Please provide details describing how pedestrian and cyclist safety will be maintained, including any proposed alternative routes (if necessary), and any Traffic Marshall arrangements. Vulnerable footway users include wheelchair users, the elderly, people with walking difficulties, young children, people with prams, blind and partially sighted people, etc. A secure hoarding will generally be required to the site boundary with a lockable access. 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. Lighting and signage should be used on temporary structures/skips/hoardings, etc. Appropriate ramping must be used if cables, hoses, etc. are run across the footway.

Environment

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

1. Please provide details of the times of noisy operations, outlining how the construction works are to be carried out.

2. 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.

3. Please provide predictions for noise and vibration levels throughout the proposed works.

4. Please provide details describing mitigation measures to be incorporated during the construction/demolition 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.

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

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

7. 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.

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

9. Please confirm that a Risk Assessment has been undertaken in line with the GLA's Control of Dust and Emissions Supplementary Planning Guidance (SPG), and the risk level that has been identified, with evidence.

10. Please confirm that all relevant mitigation measures from the SPG will be delivered onsite.

11. If the site is a High Risk Site, 4 real time dust monitors will be required, as detailed in the SPG. Please confirm that these monitors 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.

12. 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 copies of receipts (if work undertaken).

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

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

Agreement

The agreed contents of this Construction Management Plan must be complied with unless otherwise agreed with 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 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:

Date:

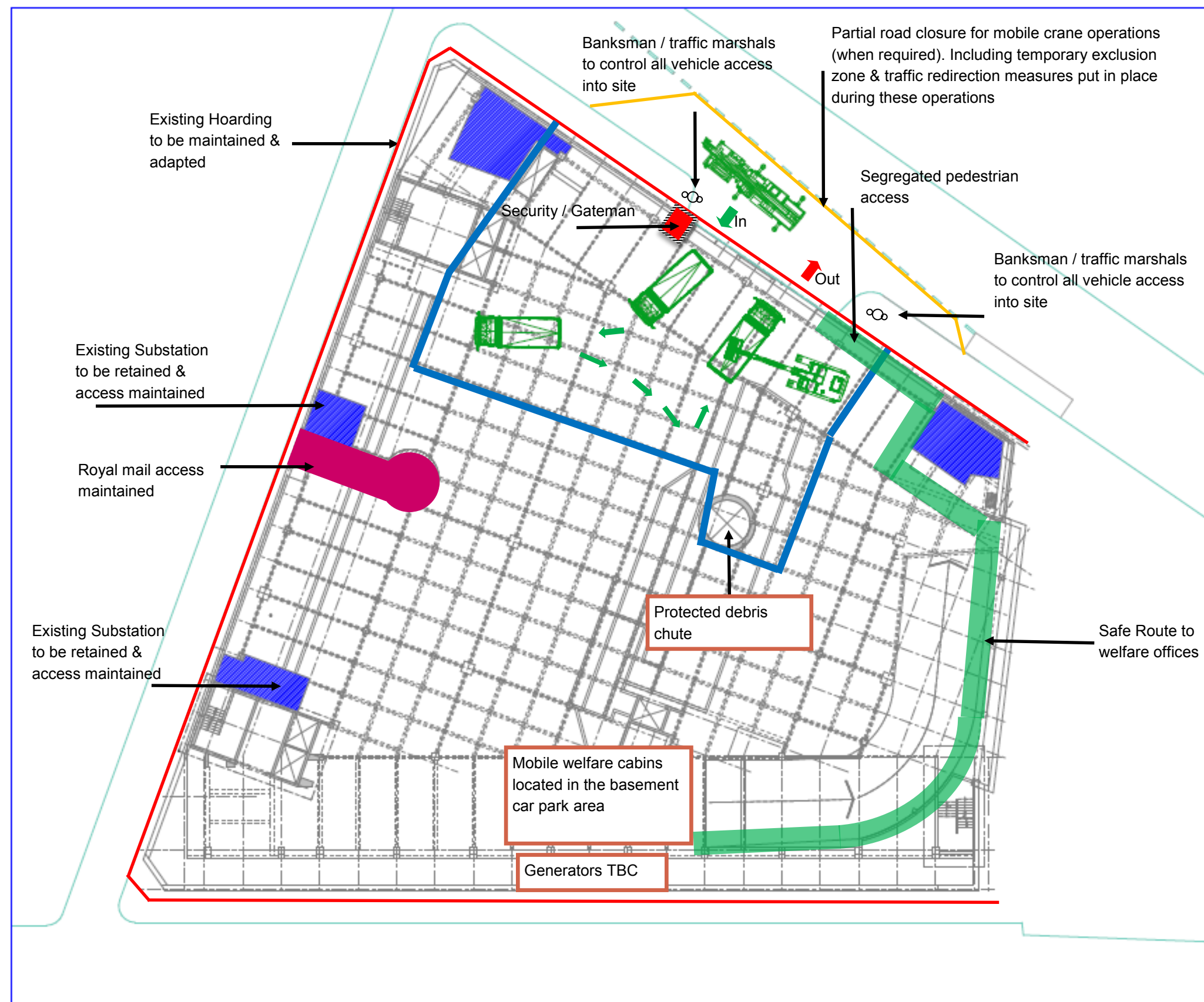
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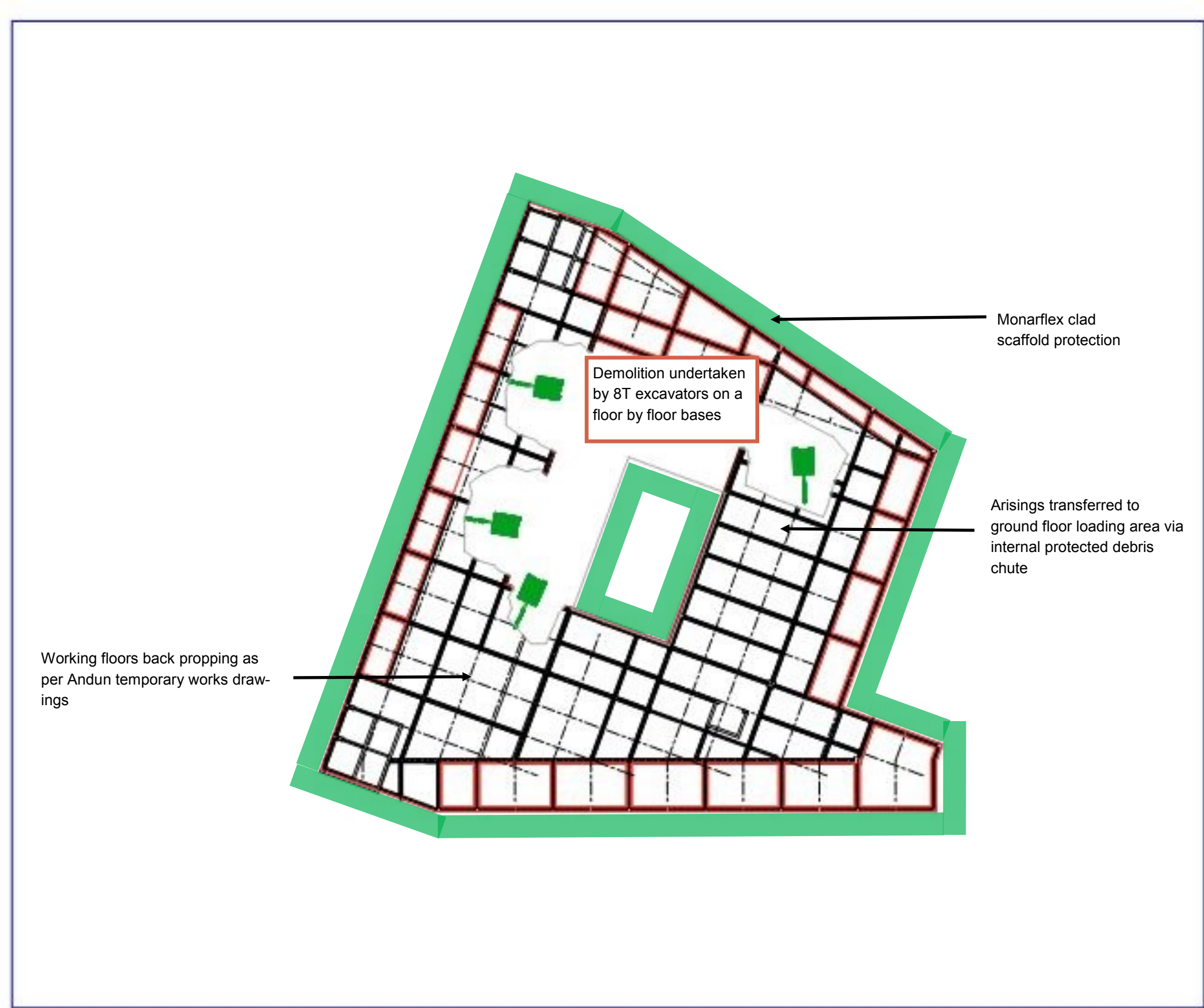
Please submit to: planningobligations@camden.gov.uk

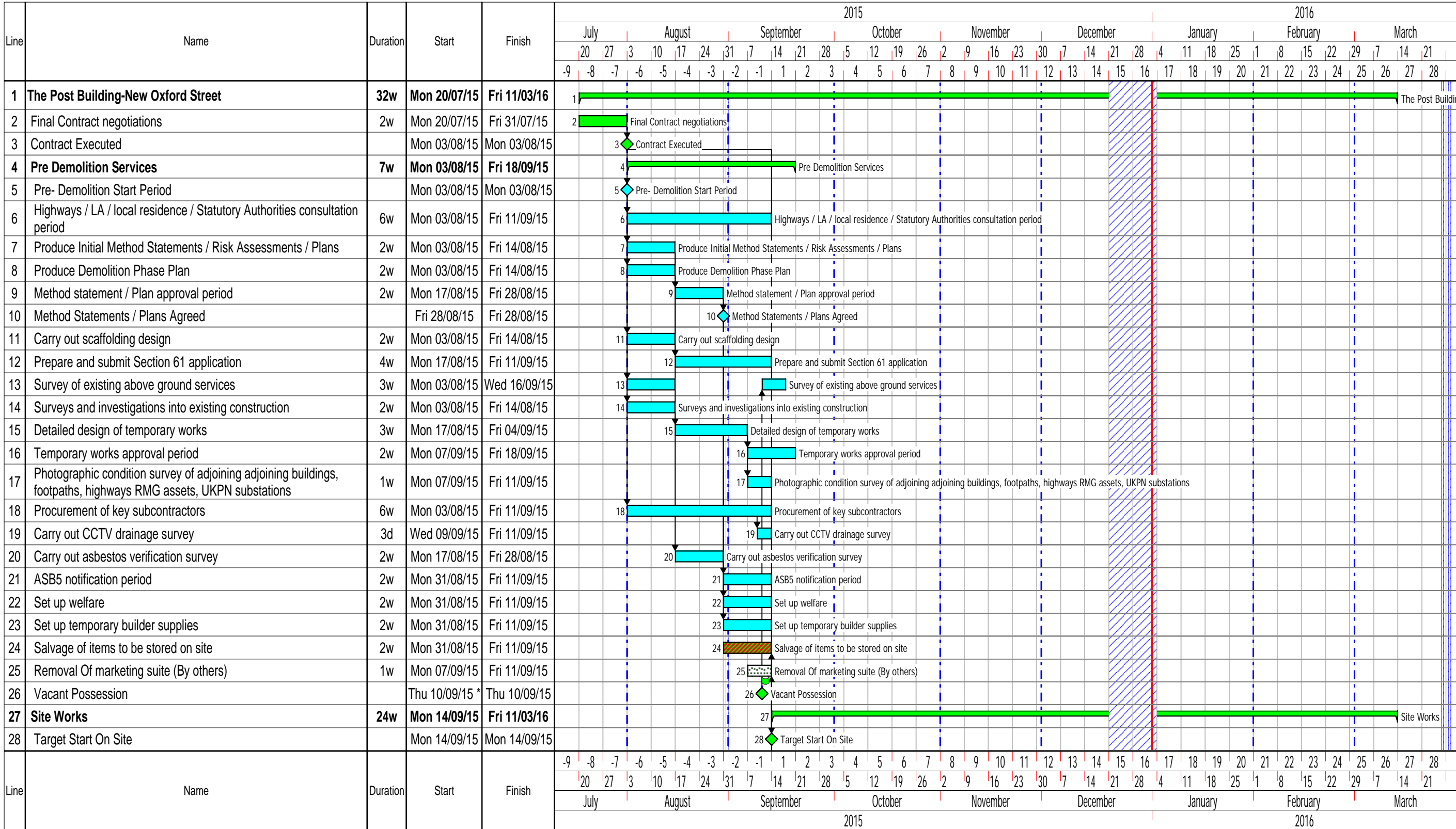
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Logistic plan

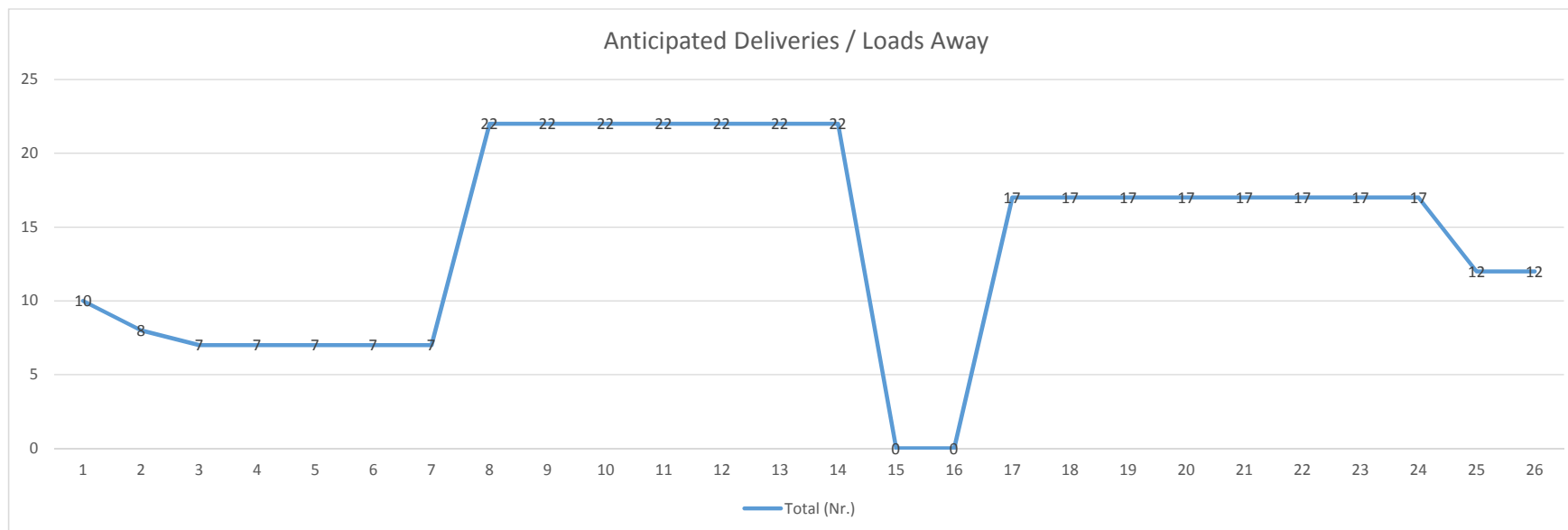


Logistic plan





Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Christmas Shutdown		17	18	19	20	21	22	23	24	25	26	
40yard "RORO"	5	5	5	5	5	5	5	6	6	6	6	6	6	6			1	1	1	1	1	1	1	1	1	1	87
20yard tippers								15	15	15	15	15	15	15	0	0	15	15	15	15	15	15	15	15	10	10	245
Deliveries	5	3	2	2	2	2	2	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	35
Total (Nr.)	10	8	7	7	7	7	7	22	22	22	22	22	22	22	0	0	17	17	17	17	17	17	17	17	12	12	



New Oxford Street Ltd.
21 -31 New Oxford Street
Construction Management Plan

RP/230602/003

Planning | 5 September 2014

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 230602

Ove Arup & Partners Ltd
4 Pierhead Street
Capital Waterside
Cardiff CF10 4QP
United Kingdom
www.arup.com

ARUP

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Appendices

Appendix A

Site Location Plan and Photographs

Appendix B

Programme

Appendix C

Site Access Routes

Appendix D

Construction Sequence Sketches

1 Introduction

Ove Arup and Partners (Arup) have been commissioned by New Oxford Street Ltd to provide a Construction Traffic Management Plan (CTMP) in connection with the proposed development at 21 -31 New Oxford Street, with regards to the currently anticipated methodology for constructing the works and the logistics requirement for implementation.

This document supports the Planning Application for the scheme.

When the Main Contractor is appointed for the project they will be required to take account of this document and submit their own CTMP for approval by the London Borough of Camden (LBC).

2 Building Location

The building is situated in London WC1 and is bounded on 3 sides by public highway:

- To the North by New Oxford Street which is a one way street East to West,
- The South by High Holborn which is a one way street from East to West and
- On the West side by Museum Street which is a one way street from South to North.

On the East side of the building is Commonwealth House a multi storey, multi tenanted building with two party wall connections to the site, one on the New Oxford Street elevation and one on High Holborn, both connected from level 1 to level 4. Between the two buildings is a private access road, which belongs to Commonwealth House. There is also a narrow pedestrian footway, Dunns Passage, which is presently closed at both ends, which is part owned by Commonwealth House and part by the applicant. Refer to **Appendix A** for a site location plan and photos.

3 Existing Building

The building was built in the 1960s and fitted out as a bespoke structure for use by Royal Mail.

The existing building is a 5 storey building over the full footprint of the site with a further 4 storey level of upper offices above inset from the perimeter of the main building.

There is a single deep basement over the full perimeter of the site accessed by a double width ramp from ground floor. The basement extends in places below the surrounding footpath. Below the single basement there is a cable tunnel that formerly provided access to the now redundant Royal Mail railway system. This will be partially maintained to allow for cable connections to the Royal Mail Group (RMG) system.

Vehicular access into the building is provided by 2 number full height roller shutter doors on the New Oxford Street elevation.

The structure of the suspended floors is a mixture of steel and concrete framing, supporting reinforced concrete slabs. In the interior of the lower floors primary steel beams support secondary concrete grillages. Around the perimeter are areas of slab supported by steel beams, and other areas of slab supported by concrete beams. The upper floors are concrete slabs and steel beams and steel columns throughout.

Concrete shafts form the cores and there are 2 number concrete drums that contained lifts and are the full height of the main building previously used for mail movement.

The cantilevered areas to the South side of the building (High Holborn elevation) are all concrete structure.

Appendix A includes sketches SK001, showing the site location map and SK002 showing photographs of the existing building.

4 The Proposal

The proposed development is for the remodelling, refurbishment and extension of the existing building in connection with the change of use to offices, retail and affordable housing along with associated highway, landscaping and public realm improvement works as described below.

The development includes the retention and recladding of the lower three floors of the building. The existing set back upper floors are proposed to be removed and reconstructed.

The majority of the building is proposed to be for flexible office use taking advantage of the existing double height internal spaces and inserting mezzanines around a new core.

The ground and lower ground floors will be animated with flexible retail use. The development will include the provision of active public uses at ground and lower ground floor levels to reactivate street frontages, with a mix of uses such as shops, cafés, galleries and restaurants

The proposed development includes up to 21 new affordable homes in the south east corner of the site fronting High Holborn.

The development includes public realm enhancement works including reopening Dunn's Passage, creating a new public open space on Museum Street and improving the surrounding public highway.

5 The Works

A brief outline of the works, which is not intended to be exhaustive but to assist in informing the construction methodology and logistical requirements for the project, will include:

- Asbestos removal and soft strip.
- Enabling works, surveys, utility diversions and new utility connections.

- Demolition of the existing upper office levels down to the level of the underside of the current level 4 slab.
- Remodel the ground floor slab at new levels.
- Demolish existing cores, the existing 2 mail drums and infill.
- Piling works to facilitate new structure to support the new core and strengthen the existing raft.
- Create new main core structure towards West side of the site.
- Create further additional cores in new locations.
- Build affordable housing element of the project.
- Remove existing cladding for replacement with panellised glazed cladding system.
- Reconstruct the upper section of the building to give a 9 storey building.
- Extend the building on the South side to match the adjoining building line.
- Create mezzanine levels at Ground, 1st 2nd and 8th generally using a steel frame, metal deck and concrete topping solution.
- New roof and roof systems.
- New Lifts
- Brick and Blockwork partitioning.
- Fit outs as required for retail areas and a cat A fit out to office areas including dry lining systems, full MEP replacement and installation, metalwork requirements and decoration.
- The vehicular access for deliveries for the new building will be via a new opening from High Holborn adjacent to the affordable housing.

6 Packaging the Works

The procurement route for the project has not yet been confirmed however the following are possible routes that could be adopted.

6.1 Option 1

Split the works into 2 packages:

1. Enabling package – to include investigation surveys, probing works, utility diversions, asbestos removal and demolition.
2. Main Contract – remainder of the works.

Benefits of this approach will enable an earlier start on site before completion of final design for Main Contract procurement.

6.2 Option 2

1. Single Main Contract package to include all of the works.

Benefits of this approach will enable greater overlap of early activities e.g. overlap demolition with piling.

A two stage approach to procurement could be considered and could fit into both the above solutions.

7 Programme

7.1 Introduction

We have set out earlier our understanding of the outline scope of works for the major elements that will impact both on the scale of the logistics to be considered and their effect on the construction programme.

In this section we set out our assessment of the main quantities that will inform the overall programme duration.

We enclose, in **Appendix B**, our outline Level 1 & Level 2 construction programmes for the works. We currently anticipate an overall build period in the order of 109 weeks including demolition and enabling works. Our programme assumes a single main contract to include all of the works, and breaks down into 36 weeks for demolition and enabling works, 88 weeks for the main works and a 15 week overlap of the 2 phases.

7.2 Programme Assumptions

We have identified the following with regards to the project.

- 12 bored piles of 1500mm diameter with a production rate of 1 per day.
- 55 piles of 600mm diameter for the extension area to the High Holborn elevation and strengthening of the existing structure at a production rate of 2 per day.
- 2 No. Reinforced concrete transfer beams in the basement that are about 35m long x 5m tall x 1.25m wide to span across the RM station, supporting the weight of the new core.
- External new cladding has an assumed circa 1500 panels to be installed by tower crane or on floor machines with an installation rate of circa 10 per day with an overall 32 week programme.
- New structure from level 4 to roof has an assumed 12 week period.
- The extension of the High Holborn elevation out to a new line has an assumed programme period of 1 week per floor.
- Mezzanine floors have an assumed installation rate of 2 weeks per floor.
- Cat A fit-out has been planned on 2.5 week floor cycles between commencing each floor.

8 Logistics Associated with Implementing the Works

8.1 Introduction

We will set out in this section our assessment of the logistical requirements to undertake the activities that are required to undertake the works.

This CTMP will be subject to review and amendments agreed with LBC by the Main Contractor when they are appointed for implementing the construction.

8.2 Considerations

In establishing a logistics strategy we are taking into account the following local conditions:

- Local occupants including offices, hotels, residential and other amenities.
- Requirements of London Borough of Camden.
- Other construction projects
- Local traffic conditions
- Noise and dust control
- Crossrail vehicle holding point

8.3 Macro Logistics – Road Access

Please refer to sketch numbers SK003 and SK004, included as **Appendix C**, which show the wider road network and the local road network.

To enter the site vehicles must come East to West along New Oxford Street, this can only be accessed from High Holborn coming up from Chancery Lane/Grays Inn Road and Holborn Circus.

Vehicles from the East, including North East will approach from this direction.

From the West including North West vehicles will approach from the Euston Road, along Gower Street and Bloomsbury, turning left into New Oxford Street heading Eastward. Vehicles will go around the one way system along Bloomsbury Way, turning right into Bury Place and right again into New Oxford Street and the entrance to the site being on the left.

From the South and South West we anticipate the use of the Embankment with vehicles entering the area along Kingsway and turning right into High Holborn and on into New Oxford Street.

We would encourage vehicles to avoid the West End areas.

At an appropriate time in the construction process the new permanent entrance on High Holborn will be opened and used for deliveries enabling the entrances on New Oxford Street to be closed for redevelopment. Minor adjustments will be required to the traffic flow which will be advised by the Main Contractor at the time of change.

8.4 Site Logistics

8.4.1 Site Access

As described above all vehicles gaining access to the site will do so via the roller shutter doors on New Oxford Street. Vehicles can be parked either on the ground floor or basement level for loading and unloading.

With 2 number roller shutters on the New Oxford Street elevation an “in” and “out” arrangement will be adopted.

Personnel will control vehicles entering the site and a communication system will be implemented to prevent the likelihood of vehicles backing up on New Oxford Street awaiting entry into the site.

We will investigate the local area in order to try and identify a possible vehicle holding point that can assist in controlling the flow of vehicles to the site.

This location will be discussed and agreed with the London Borough of Camden.

We shall investigate the opportunity to open up an exit gate on the South side of the building enabling vehicles to exit onto High Holborn. This will need to be agreed with the Highways Departments and the Crossrail project as it may affect their current vehicle holding point.

As the project develops to the fit-out stage we will bring into use the new permanent vehicle access into the building from High Holborn. This will allow the Contractor to close or reduce the openings on the New Oxford Street elevation to facilitate the permanent facade works.

See sketches SK005, SK006 and SK007, **Appendix D**, that indicate the anticipated site layout plan during demolition, construction and fit-out.

8.4.2 Vehicles and Equipment

In the early stages of the project there will be a variety of vehicles and plant and equipment requiring access to the site. Some of the vehicles will be coming through the site on a regular turnover basis and some on a “one off” or infrequent basis. In the early stages we anticipate the following vehicles accessing the site:

- Asbestos removal vehicles.
- Demolition removal vehicles – constant daily turnover.
- Skip lorries – regular replacement process.
- Steel delivery lorries.
- Concrete wagons
- General small vehicles

Equipment to be delivered will include:

- Demolition equipment including compressors
- Piling machines
- Mini cranes and fixed crane

- Specialist accommodation

It is likely that road closures will be required for certain of the major plant items e.g. tower crane. High Holborn may be the most appropriate elevation to undertake this exercise when considering the overall width of this carriageway and parking areas. It may be possible to carry this out with a “half road” closure. The appropriate notices will be submitted by the Contractor for these activities.

8.4.3 Storage

The site sits in a relatively confined location and the new structure will fill the site footprint. Opportunities for significant storage are therefore limited. As the building progresses the new floor plates become available and a level of storage, within the floor plate load capacity, becomes available for localised storage for immediate installation.

A system of “just in time” deliveries will be required which is likely to increase the flow of vehicles in and out of the site and will require good management by the contractor.

8.4.4 Plant and Equipment

Consideration has been given to the type of plant that is likely to be used during the construction works. The anticipated vehicle type and use, as well as the anticipated plant and equipment associated with the construction process are set out in the table below.

Vehicle Type	Use	Distribution
Rigid Heavy Goods Vehicle	Excavated material Removal	Strategic road network to motorway
Small Articulated Vehicle	Plant, steel bar, bricks and cladding panels	Strategic road network to motorway
Specialised Articulated HGV	Tower crane erection & dismantle, Mechanical & electrical Plant, Cladding panels. Roofing materials	Strategic road network to motorway
Specialised Equipment Low loader	Occasional Delivery of Plant	Strategic road network to motorway
Vans	Plant service, materials, other Suppliers.	Distributed to local and strategic network
Cars	Occasional deliveries, Couriers etc.	Distributed to local and strategic road network

Table 1 Summary of Vehicle Type, Use and Distribution

Plant	Demolition	Substructure	Superstructure	Fit out
Rotary Bored piling rigs		✓		
Excavators	✓	✓		
Compressors	✓	✓	✓	✓
Muck away lorries	✓	✓		
Goods hoist	✓	✓	✓	✓
Tower crane	✓	✓	✓	

Plant	Demolition	Substructure	Superstructure	Fit out
Mobile concrete pump		✓	✓	
General waste skips	✓	✓	✓	✓
Power tools	✓	✓	✓	✓
Delivery vehicles	✓	✓	✓	✓
Forklifts	✓	✓	✓	✓
Scaffold access platforms	✓	✓	✓	
Mobile towers	✓	✓	✓	✓

Table 2 Estimated Types of Plant and Equipment for Demolition & Construction

8.4.5 Potential Impacts during Construction

A review has been undertaken of the potential source of adverse impacts, which can be associated with carrying out demolition and construction works. The results of this are presented in the table below;

Issue	Potential Impacts	Mitigation
Noise	Increased road noise levels from vehicles. Increased noise levels from plant during excavation, piling and general construction works (e.g. from the use of air compressors and diamond cutters).	Defined working hours, baffles to certain plant, local acoustic screening. Vehicle routing. Beepers, radios etc. to be silenced. Engines turned off and all measures outlined in the considerate contractors scheme
Vibration	Increased vibration levels from vehicles. Increased vibration levels from plant during demolition, piling and general construction works. Defined working hours. Selection of appropriate plant and work procedures.	Phased deliveries to minimise numbers of vehicles attending site, Vehicle routing. Engines to be switched off when vehicles are idle or on site

Issue	Potential Impacts	Mitigation
Dust / Air Quality	Windblown dust from ground surfaces, stockpiles, vehicles, work faces and cutting and grinding of materials. Exhaust emissions from lorries and plant delivering and removing materials including dust and particulates.	Cover all open backed vehicles, 'water down' demolition activities; switch off vehicle engines when parked.
Waste	Waste generation and its disposal.	Instigate Site Waste Management Plan and re-cycling programme
Water	Increased sediment loadings to storm water system. Potentially contaminated storm-water runoff.	Do not allow direct discharge of water into sewerage collection system.
Traffic	Traffic congestion caused by site traffic. Local traffic diversions will be required for tower crane erection and dismantle and mobile crane lift Increased vehicle movements mainly consisting of Heavy Goods Vehicles (HGVs). Nominal levels of transfer of mud and material from vehicles onto the public highway. Disruption from abnormal or hazardous loads. Exhaust emissions.	Phased deliveries to minimise numbers of vehicles attending site, switch off vehicle engines when parked, minimise abnormal loads. Wheel washing Vehicle routing
Storage of fuels and construction materials	Accidental spills, discharges to drains/storm-water systems. Contamination to ground.	All fuel tanks etc. to be bunded, no discharge allowed into the sewerage collection system.
Pedestrian access	Restrictions on pedestrian access to walkways, footpaths and roads.	Erect protective gantries pedestrian tunnels over footways.

Issue	Potential Impacts	Mitigation
Hazardous and contaminated materials	Exposure of the workforce to deleterious / hazardous materials and contaminated land, mobilisation of any source contaminants and creation of pathway from source to groundwater receptor.	Site investigation reports to indicate if any contaminated fill is present. COSHH assessments and careful implementation of associated working method statements to ensure that no hazardous materials find a path to groundwater source.
Ecology	Water / mud run off into the drains.	Do not allow direct discharge of water into sewerage collection system, utilise interceptors where necessary.
Energy usage	Indirect impacts associated with energy consumption such as CO2 emissions, depletion of natural resources, air pollution etc.	Site environmental plan to implement.
Views	Views impacted and/ or impeded from construction equipment, particularly cranes.	Tower crane to be positioned to have minimal impact upon adjacent views

Table 3 potential Impacts and Headline Mitigation Measures during Demolition and Construction

8.4.6 Mitigation Measures

Industry accepted practical means of preventing, reducing and minimising noise generation will be adopted in agreement with LBC.

Appropriate procedures need to be followed in order to mitigate noise, vibration and air pollution (e.g. through dust and fume generation) impacts.

Measures currently planned include:

- No works will be undertaken outside the specified working hours; except in cases of emergency, where safety is an issue, or where conditions of dispensation apply
- The contractor will comply with the requirements of the COPA 1974, with particular reference to Part III of the Environmental Protection Act 1990, The Control of Noise at Work Regulations 2005 and the Health and Safety at Work Act 1974
- All plant and equipment to be used for the works will be properly maintained, silenced where appropriate to prevent excessive noise and switched off when not in use and where practical
- Hydraulic machinery and plant will be used in preference to percussive techniques where practical

- The contractor will erect and maintain throughout the construction period temporary hoarding around all working areas to assist in the screening of noise and dust generation from low-level sources
- Plant will be certified to meet relevant current legislation and Noise and Vibration Control on Construction and Open Sites (BS 5228). All subcontractors will be made familiar with current noise legislation and the guidance in BS 5228 (Parts 1 and 2), and this CTMP which will form a prerequisite of their appointment
- Loading and unloading of vehicles, dismantling of equipment such as scaffolding or moving equipment or materials around the site will be conducted in such a manner as to minimise noise generation
- Noise complaints, or exceeding of agreed levels will be reported to the contractor and immediately investigated
- Vehicles transporting materials capable of generating dust to and from site will be suitably sheeted on each journey to prevent the release of materials and particular matter

8.4.7 Scaffolding

We anticipate the need for a full scaffold to the 3 elevations fronting onto the highways during the early phases of the works. This provides, in addition to the necessary access, a level of both noise and dust control to the surrounding areas.

On the New Oxford Street elevation we propose closing the footpath for safety reasons and diverting pedestrians onto the North side footpath opposite. We would then erect a full height scaffold to this elevation and cover the outside with a monoflex type screen.

Openings would be created at ground floor to maintain the access and egress into and out of the building via the 2 roller shutters.

On both the High Holborn elevation and Museum Street elevation we will partially close the pavement extending approximately 2.2m from the face of the existing building. The scaffold will be full height and again the outside face will be enclosed with a monoflex type screen.

A protective gantry will be provided along the line of the scaffold to provide protection to personnel walking in this area.

Limited road closures will be required to facilitate the delivery and off loading of the scaffold systems.

The extent of the duration of the scaffold will be dictated by the types of new cladding systems to be installed and the techniques that are required to install them. See sketches SK005, SK006 and SK007 (Appendix D) for scaffold proposals during demolition, construction and fit-out.

8.4.8 Party Wall

With the close proximity of the adjacent office building, Commonwealth House, it will be necessary to provide a dust screen to the full height of the building with a protective fan at the lower level.

The screen will extend from the ground level and be full height of the buildings and extend between the 2 party wall connections that are on the New Oxford Street elevation and High Holborn elevation.

Agreement will be required with the adjacent building owner to occupy a narrow strip of their access yard on which to erect a scaffold that will carry the dust screen.

See sketches SK005, SK006 and SK007 (Appendix D) for proposals.

8.4.9 Tower Cranes

For the purpose of early activities and other parallel operations we anticipate a single tower crane being adopted.

This will be located either within an existing building penetration towards the western end of the site or mounted centrally on a higher level slab, please see sketch SK005 for the proposals.

The crane is likely to have a jib radius of approximately 55m. It will be necessary to electronically limit the rotation of the jib to prevent it oversailing the adjacent buildings.

As the project moves from partial demolition to new construction including the new central core, outer cores and southern elevation extension and for ongoing general deliveries 2 tower cranes will be provided. These will be suitably located to minimise impact on the construction process and to give adequate coverage of the building. Again they will electronically limited to prevent oversailing.

Please see sketch SK006 for indicative locations.

The “pick” point for the tower cranes is indicated on the above sketches in New Oxford Street. Alternative/additional “pick” points need to be considered and locations in High Holborn and Museum street need to be developed.

The duration of the tower cranes will be dependent on the construction techniques to be adopted.

There will also need to be occasions when mobile cranes will be needed to support the use of the tower cranes for specific operations. Their use and impact on the surrounding road network will be discussed and agreed with LBC.

8.4.10 Site Security

The site security for the project will be in operation from the outset. Initially it will be manned during the working hours and extend either side of the working day by approximately 1 hour. As the project develops and the work extends the security will increase to a 24 hour/7 day operation.

The security organisation will be required to undertake the following functions:

- Security control on the site for all operatives accessing and egressing the works.
- Control of vehicles accessing and egressing the site.

- Implement and operate an electronic system of booking in vehicle deliveries to the site and refusing access to the site those vehicles not booked in.
- Site induction courses, under the control of the Main Contractor, and issuing of security passes.
- Controlling visitor access to the site.
- Site patrols including inspection of hot works permit areas.
- Issuing permits, as directed by the Main Contractor.
- Monitoring CCTV installations as progressively installed.
- Manage the temporary fire alarm system when installed and assist the Main Contractor in keeping the system up to date and undertaking fire drills.
- First line of communication for the general public.

Security will also be responsible, within the site, for the security associated with the Mail Rail as works are required to modify the access to these areas.

The site security points will initially be New Oxford Street to control entry to the offices and welfare facilities and then be relocated to High Holborn when the accommodation and welfare relocates.

Please refer to sketches SK005, SK006 and SK007 (Appendix D) for indicative proposals during demolition, construction and fit-out.

8.4.11 Hoisting

During the early partial demolition periods we would anticipate a single hoist being provided to transport operatives and materials to the roof podium level.

We have indicated this hoist to be integrated within the external scaffold on the New Oxford Street elevation and will link the ground floor, offices and welfare at 1st floor level and the podium level.

Please see sketches SK005, SK006 and SK007 (Appendix D) for indicative positions.

As the works progress and the internal operations develop both internal and external hoists will be provided that serve all levels and be used for both operative and material movement. These will be sited in locations that minimise the effect on the construction activities.

Consideration will be given to early beneficial use of the new goods lifts enabling timely removal of temporary hoists. The beneficial use lifts will be fully refurbished prior to handover to the Client.

8.4.12 Accommodation

The accommodation will initially be provided in 2 entities. The Main Contractor accommodation will be positioned within the scaffold on the New Oxford Street elevation.

It will be located in line with the 1st floor of the existing building and a walkway for the accommodation will cantilever over the road and above the minimum height for buses passing.

Facilities will include:

- Management offices
- Client and Design Team spaces
- Meeting Rooms
- Tea/coffee stations
- Toilets

An early opening will be created within the cladding adjacent to these offices and will give access onto the existing 1st floor slab.

On this slab area will be provided the welfare facilities including:

- Canteen and cooking facilities.
- Drying rooms and changing facilities.
- Sub-Contractor accommodation.
- Toilets
- Induction Room
- Ancillary spaces

These facilities will all be constructed in line with the current codes for constructing temporary accommodation within buildings.

As the project develops it will be necessary to relocate both the Management Offices and Welfare accommodation. Office accommodation will be relocated to areas of finished spaces that have low fit-out requirements. We have indicated this to be on the south side of the ground floor area.

Frequency of moves will be limited due to their disruptive nature on the progress of the works.

See sketches SK005, SK006 and SK007 (Appendix D) for proposals.

8.4.13 Waste Management

The early works contractors e.g. asbestos removal, soft strip and partial demolition will be required to manage their own waste management disposal.

They will provide their own vehicles on a regular rotation basis to remove waste from site. There will be a limited skip provision for ad hoc material disposal.

As the project develops and a more sub-contractors are utilised on the site a central waste disposal system will be implemented and managed by the logistics company.

This will consist of centrally located skips with “wheelie bins” positioned at the work faces. Waste materials will be deposited in the “wheelie bins” by the sub-contractors and they will be emptied into the skips by the logistics operators leaving empty bins behind on the floors.

Larger items of waste will deposited directly into the skips.

The skips will be regularly changed over to ensure space is always available for waste material.

Segregation of waste will be undertaken off site where it is most appropriately undertaken.

8.4.14 Working Hours

The working hours for the project will be in line with London Borough of Camden planning approval documents and is anticipated to be:

- Monday to Friday - 08.00 to 18.00
- Saturday - 08.00 to 13.00
- Sundays and Bank Holidays – No working

Any further restrictions applied to vehicle movements in the City and/or West End will be incorporated in tender documentation for all Contractors and Sub-Contractors.

8.4.15 Good Neighbour Policy

A key aspect of the successful management of the project will be to establish and maintain good relationships with all site neighbours. Once a contractor has been appointed, a construction liaison group will need to be established with the closest neighbours and interested parties who would be affected by the demolition and construction works.

Regular news letters will be distributed to all relevant parties advising of construction progress and future activities that may impact on the surrounding areas and neighbours.

Formal and informal meetings may be arranged to communicate to all relevant parties when specific high intensity or high risk activities are to be undertaken.

Prior to commencement of works a single point of contact (usually the contractor's Construction or Logistics Manager) will be established as the neighbours point of liaison. This person will be named at the site entrance with a telephone number for queries/complaints. Outside normal working hours, site security will act as the main point of contact via a dedicated phone number.

Security will alert the Construction or Logistics Manager if necessary (available 24 hours).

The Construction or Logistics Manager will keep accurate records of complaints received, which will be made available to LBC for inspection.

The Contractor's Construction or Logistics Manager will inform local residents likely to be affected by the impact of construction activities, such as erecting scaffolding/hoarding, operating mobile cranes, aerial platform operations, or any such equipment and shall advise of these planned events with suitable notice either via dedicated mail drops, the newsletter or meetings as identified earlier. In the event of unusual activities or events that cannot be anticipated, these will be

notified to LBC and to relevant property owners or occupiers wherever possible, in advance of the activity.

The contractor will inform LBC as soon as reasonably practicable, should any emergency works arise at short notice, confirmed as essential for reasons of safety, which could cause environmental disturbance and/or require working outside the agreed working hours.

8.4.16 Considerate Contractors Scheme

The contractor will be required to register and to comply with the requirements of the Considerate Constructors Scheme throughout the duration of the works (all phases).

This scheme encourages contractors to carry out their operations in safe and considerate manner, with due regard to residents, passing pedestrians and road users.

The scheme is monitored against identified criteria and awards given annually to those projects that have achieved the highest standards.

8.4.17 Operative Parking

There will be no provision for the parking of operative's vehicles on the site.

All operatives attending the site will be encouraged to use public transport, to which the site is well connected.

Appendix A

Site Location Plan and Photographs



Project LT: 21-31 New Oxford Street

Drawing Title:	Site Location
Drawn by:	YK
Checked by:	AB
Date:	02/05/2014
Scale:	NTS
Drawing No:	ARUP/PL/SK001

Rev: -

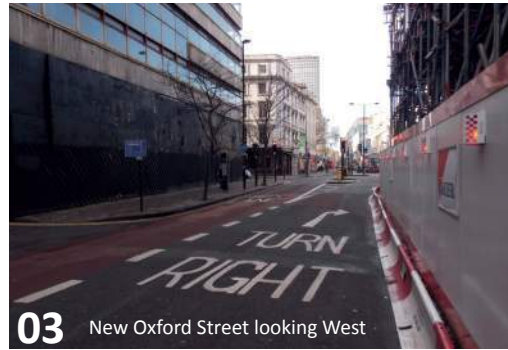
ARUP



01 Junction of Museum St and New Oxford St



02 New Oxford Street looking East



03 New Oxford Street looking West



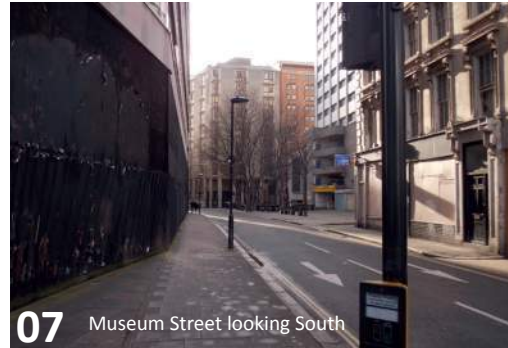
04 New Oxford Street looking East



05 Vehicle Access between development and Neighbouring building



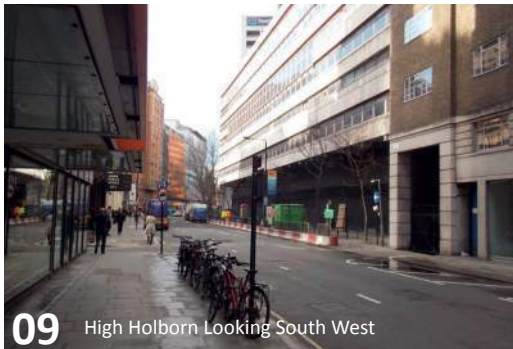
06 Access to Basement from New Oxford St



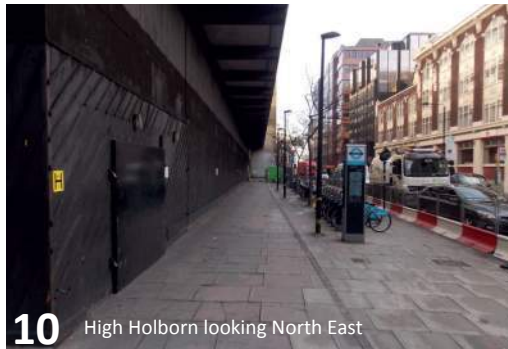
07 Museum Street looking South



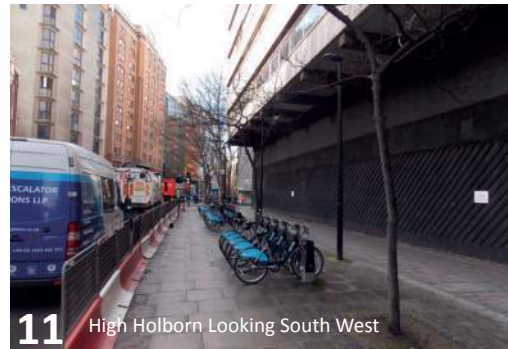
08 Museum Street looking North



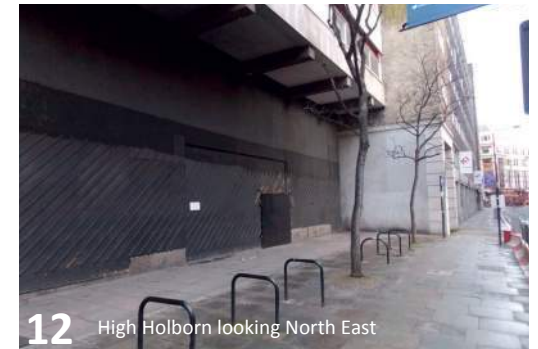
09 High Holborn Looking South West



10 High Holborn looking North East



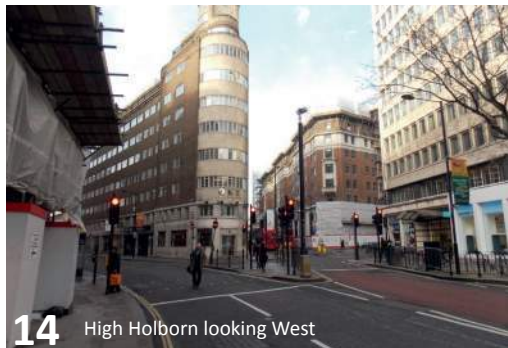
11 High Holborn Looking South West



12 High Holborn looking North East



13 Junction of Museum Street and High Holborn



14 High Holborn looking West

Project LT: 21-31 New Oxford Street

Drawing Title:	Site Photography
Drawn by:	YK
Checked by:	AB
Date:	02/05/2014
Scale:	NTS
Drawing No:	ARUP/PL/SK002

Rev: -

ARUP

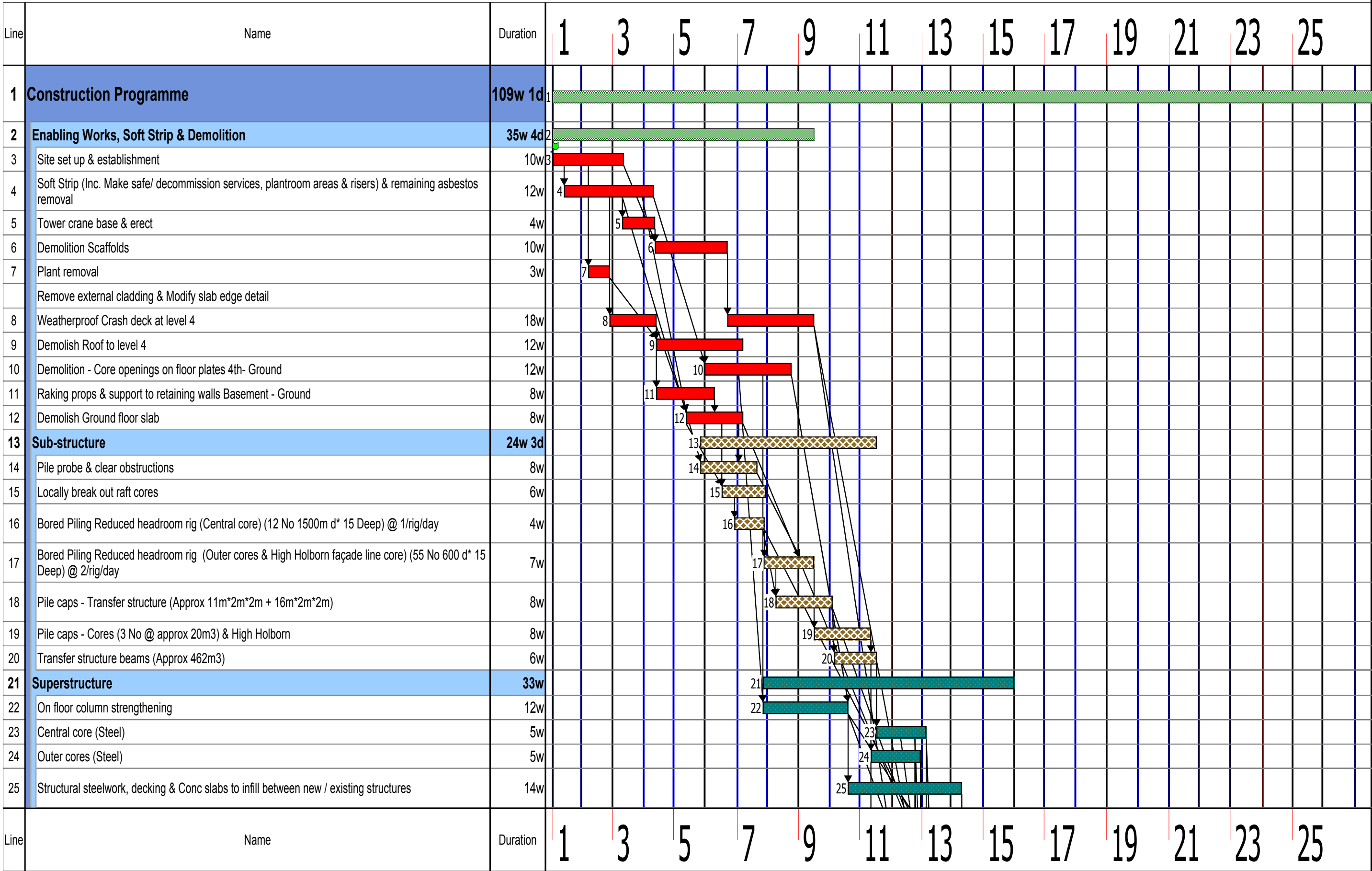
Appendix B

Programme

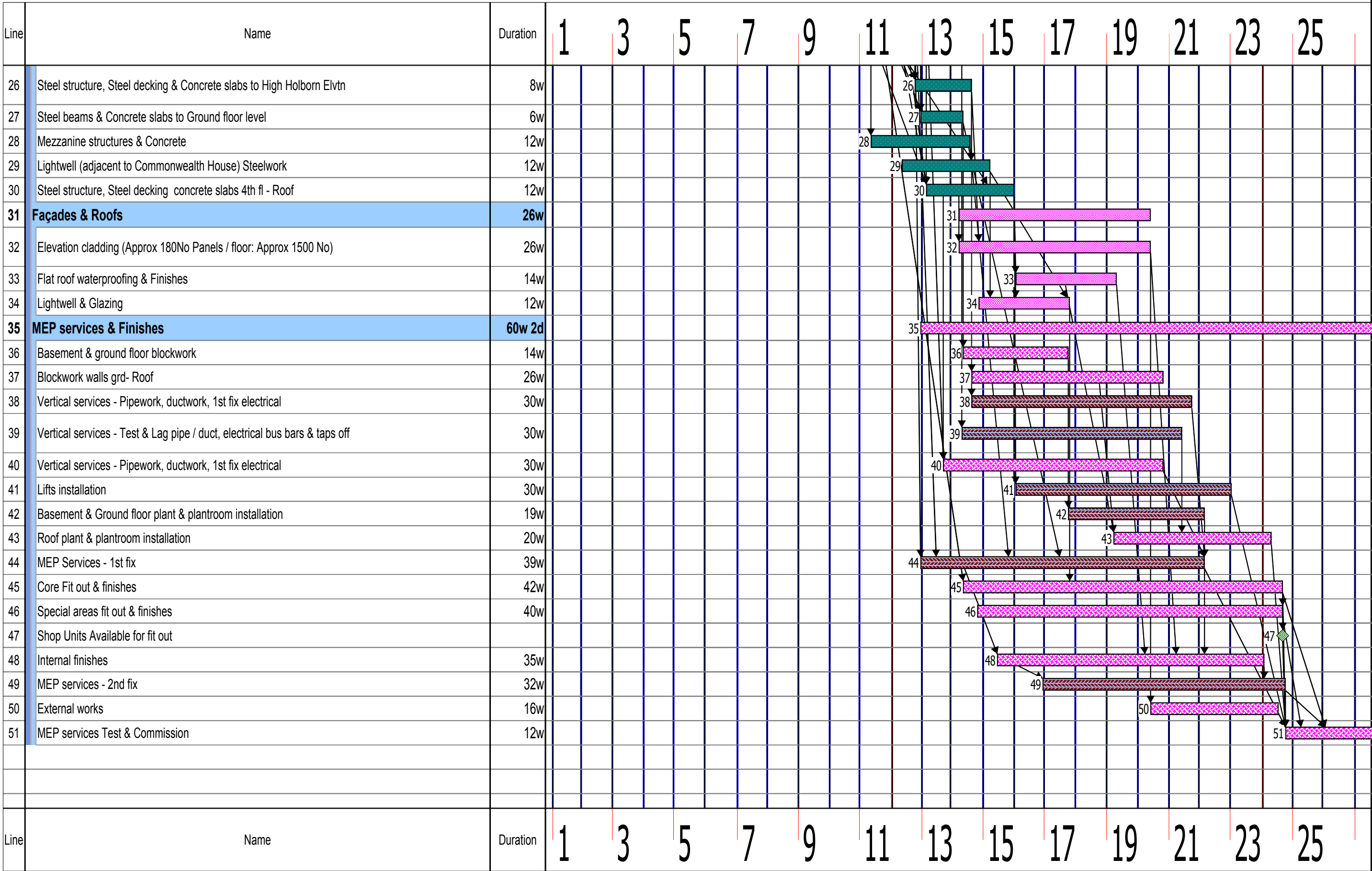


21-31, New Oxford Street, London WC1
Level 2 Outline Construction Programme

ARUP



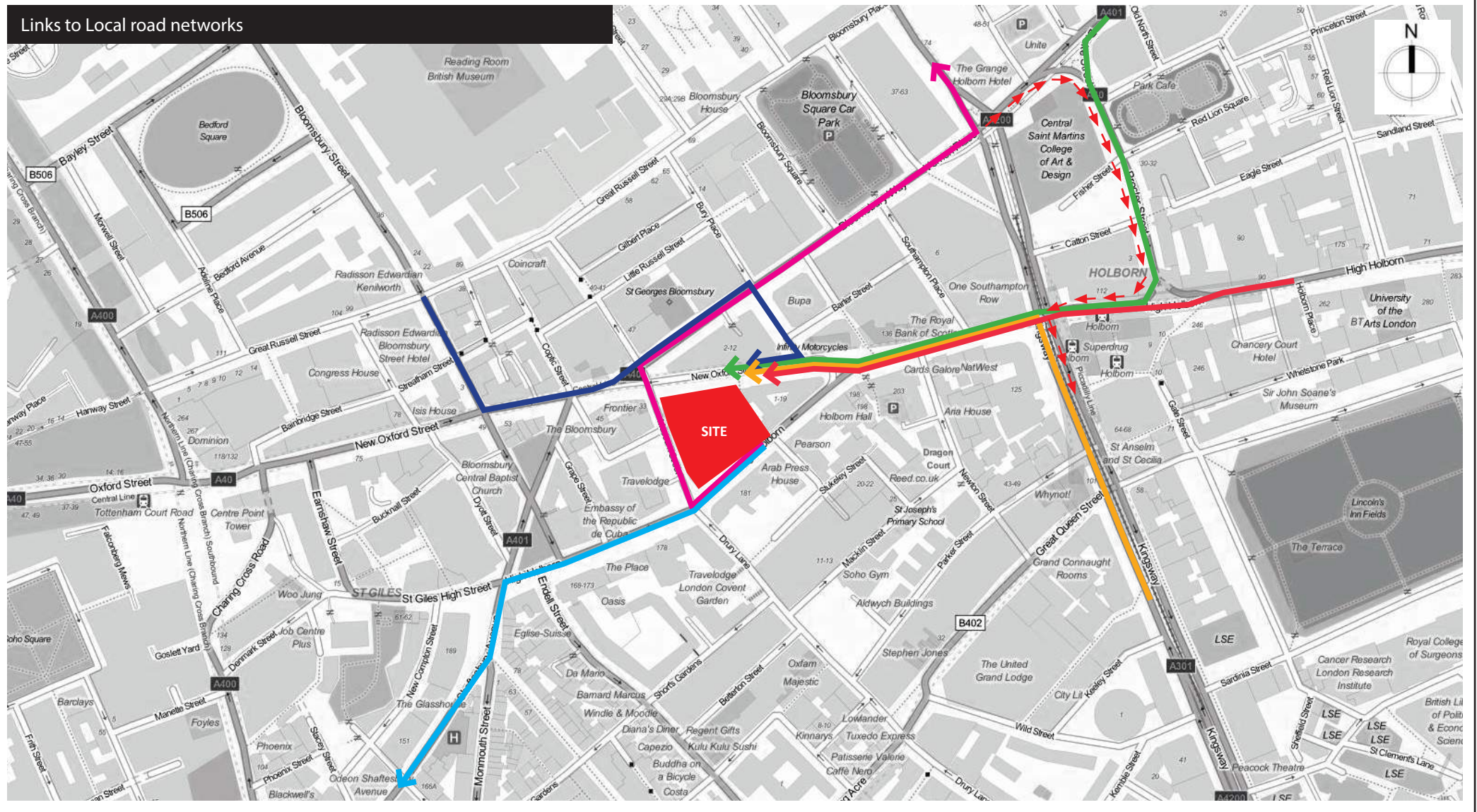
21-31, New Oxford Street, London WC1
Level 2 Outline Construction Programme



Appendix C

Site Access Routes

Links to Local road networks



LEGEND

- Route to site from High Holborn
- Route from site from Bloomsbury Way
- Route from Site to South West
- Route to site from South West/West Via Embankment
- Route to site from the East
- Route to site from North & North West
- Exit back out to South West



NOTES

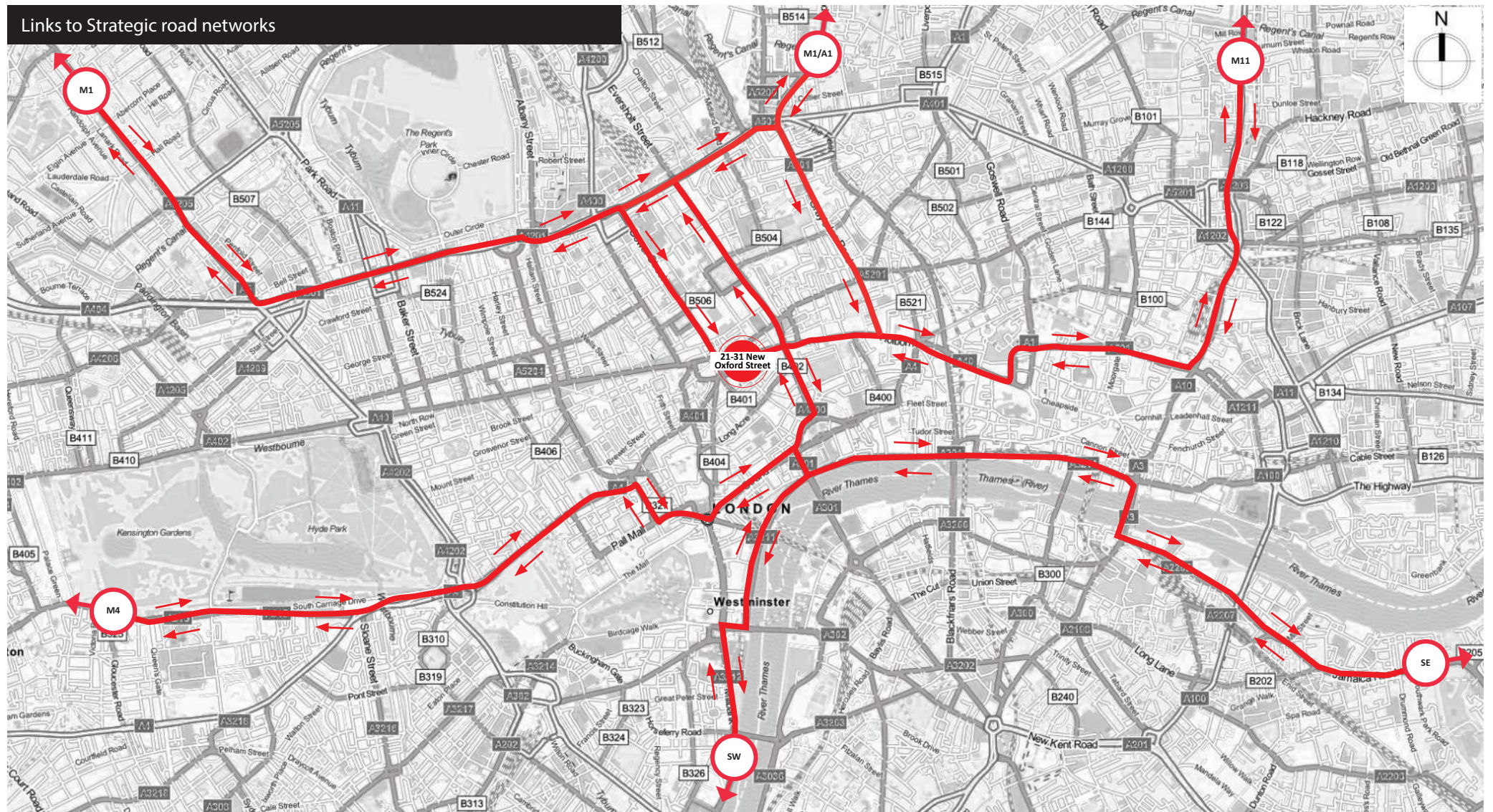
1. Site construction traffic through adjacent residential & commercial streets to be kept to a strict minimum,
2. Parking bays will need to be temporarily suspended during construction works.

Project LT: 21-31 New Oxford Street

Drawing Title:	Links to local road networks
Drawn by:	YK
Checked by:	AB
Date:	02/05/2014
Scale:	NTS
Drawing No:	ARUP/PL/SK003 Rev: -

ARUP

Links to Strategic road networks



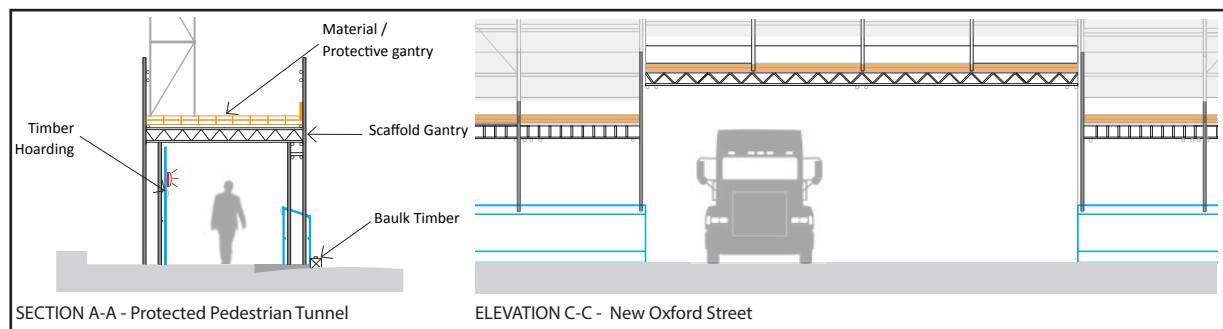
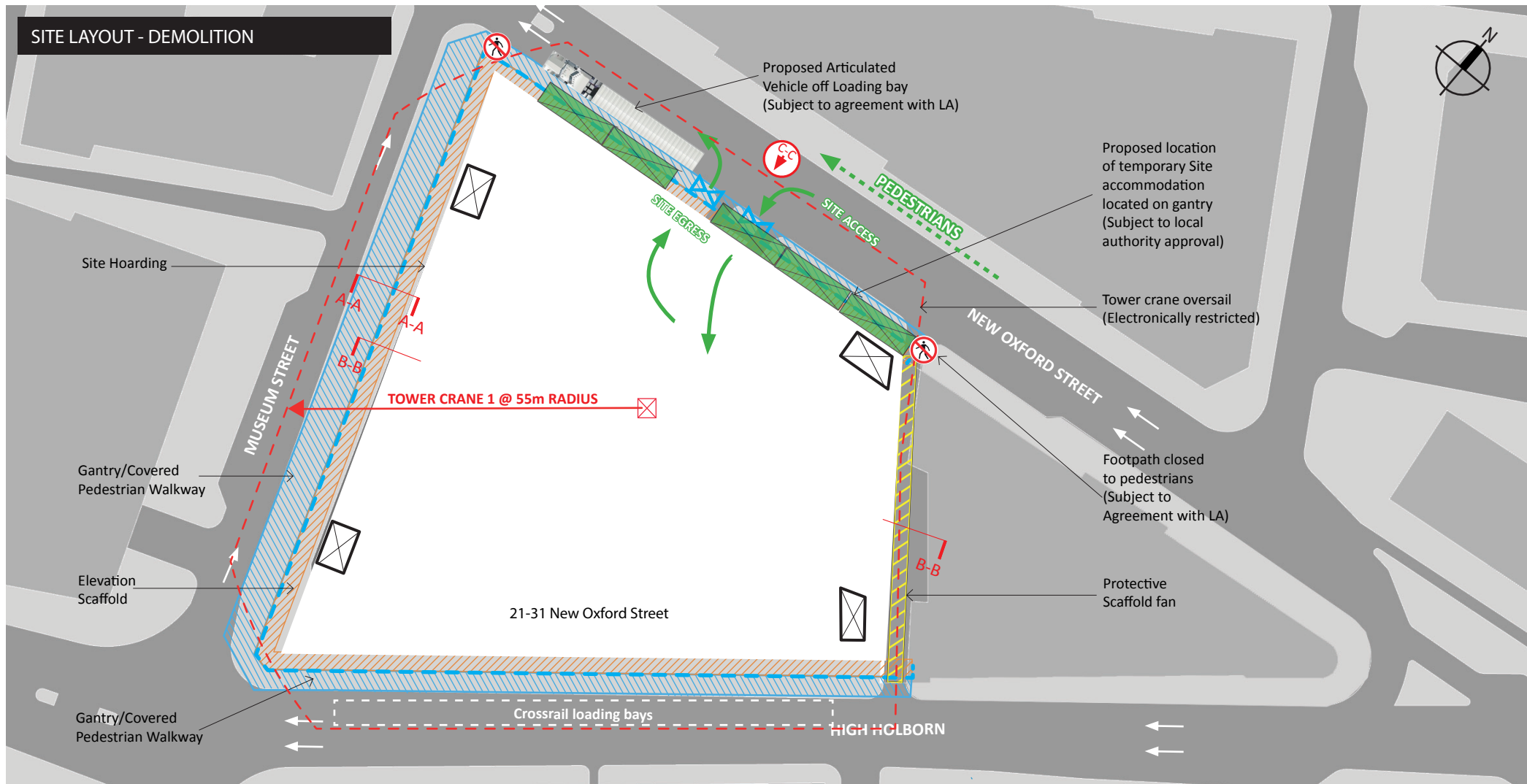
Project LT: 21-31 New Oxford Street

Drawing Title:	Links to Strategic road networks
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Checked by:	AB
Date:	02/05/2014
Scale:	NTS
Drawing No:	ARUP/PL/SK004 Rev: -

ARUP

Appendix D

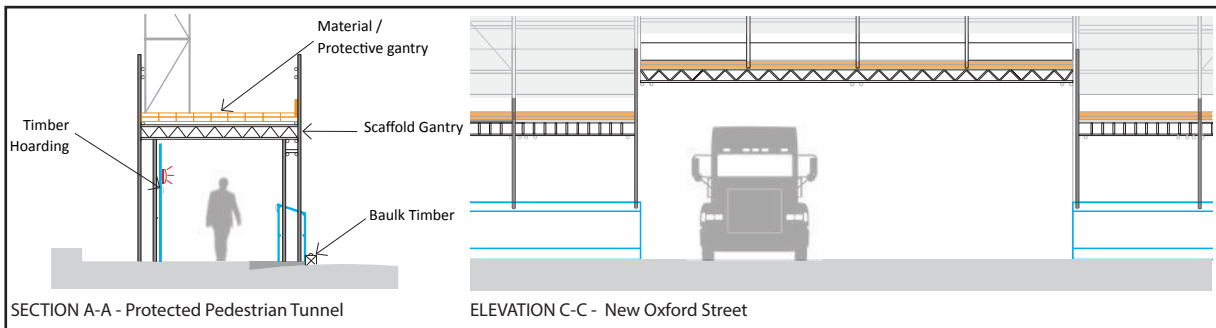
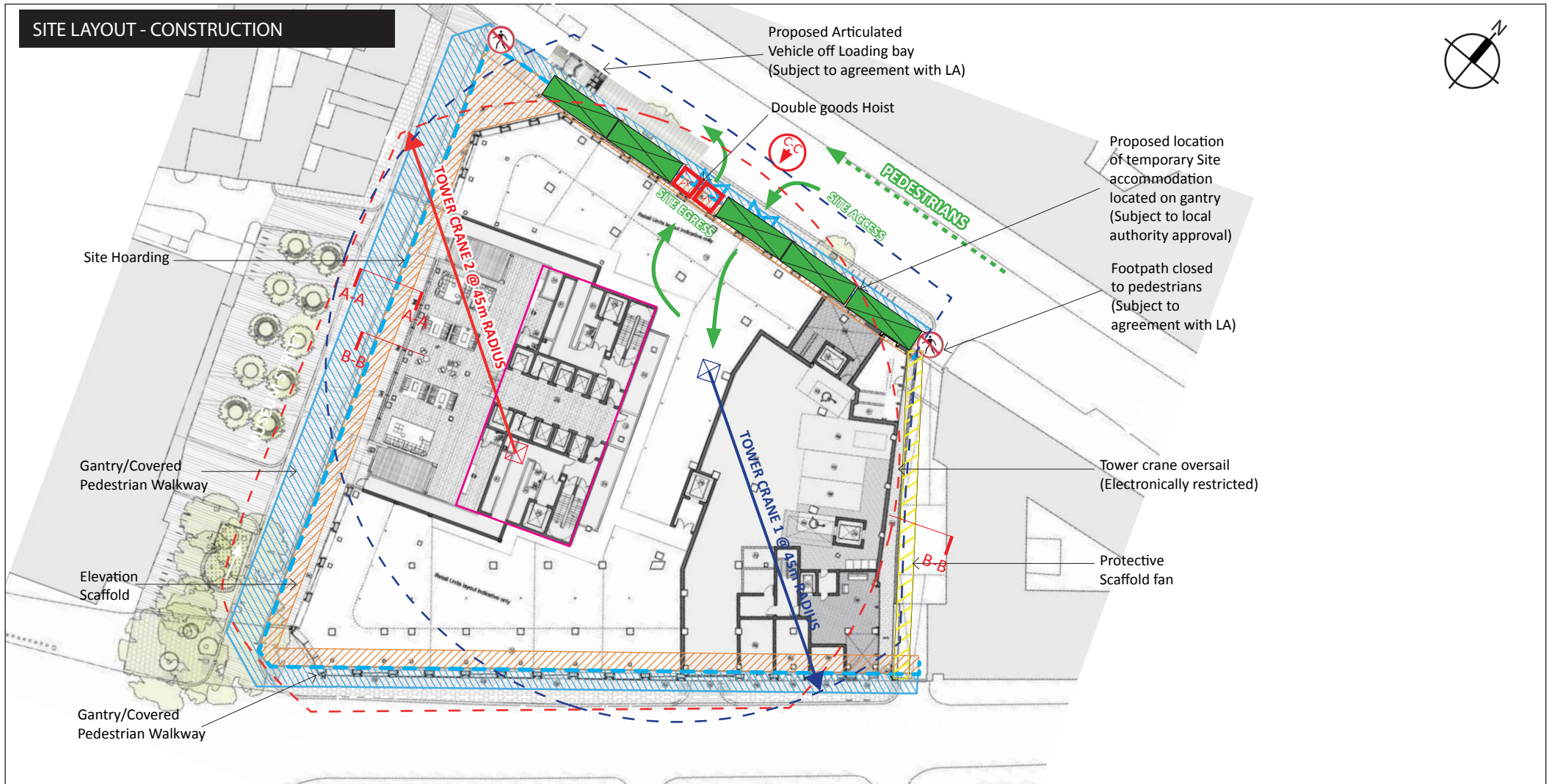
Construction Sequence Sketches



Project LT: 21-31 New Oxford Street		
Drawing Title:	Assumed Site Layout Plan during Demolition Phase	
Drawn by:	YK	
Checked by:	AB	
Date:	02/05/2014	
Scale:	NTS	
Drawing No:	ARUP/PL/SK005	Rev: -

ARUP

SITE LAYOUT - CONSTRUCTION

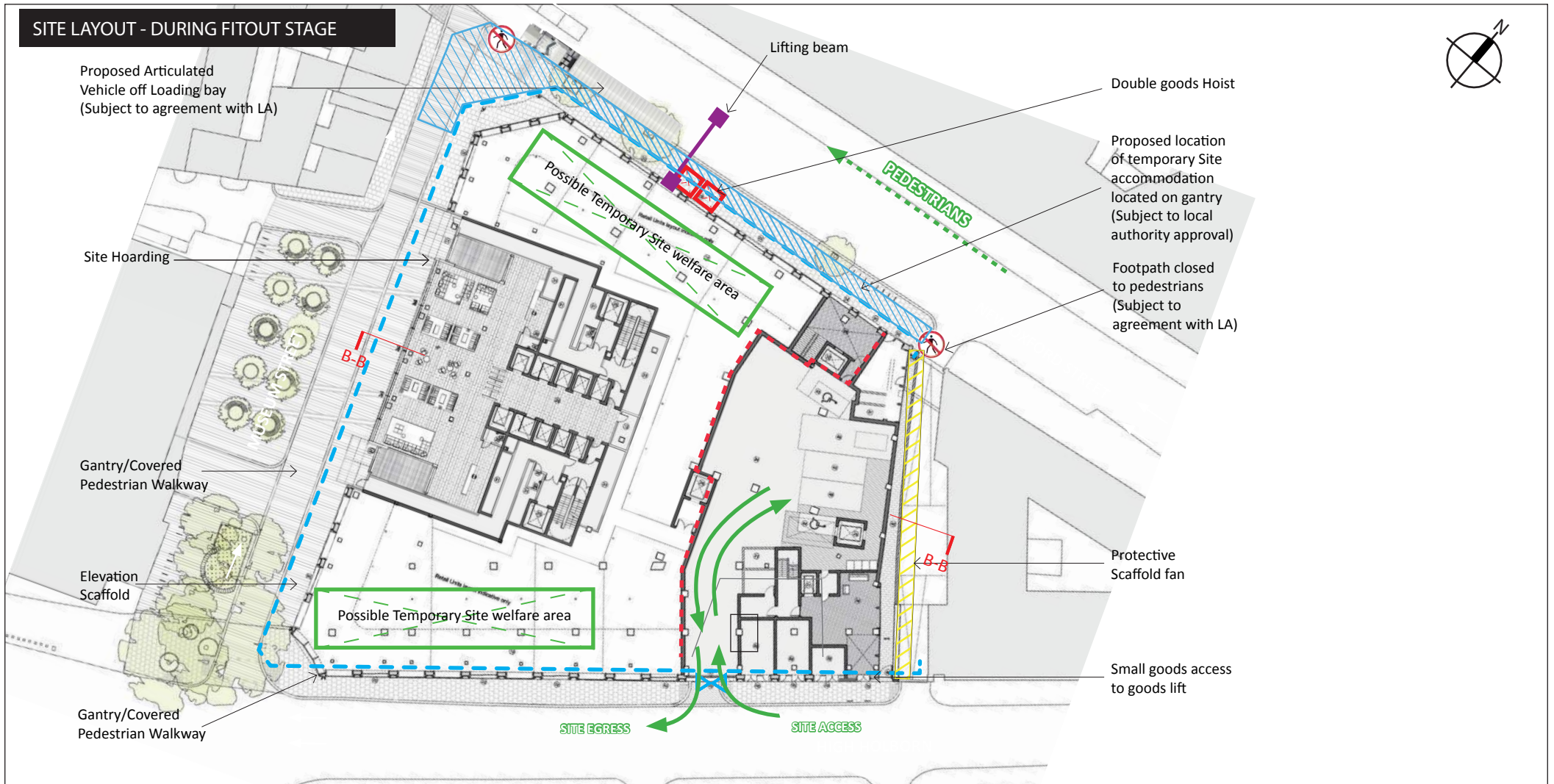


Project LT: 21-31 New Oxford Street

Drawing Title:	Assumed Site Layout Plan during Construction Phase		
Drawn by:	YK		
Checked by:	AB		
Date:	02/05/2014		
Scale:	NTS		
Drawing No:	ARUP/PL/SK006	Rev:	-

ARUP

SITE LAYOUT - DURING FITOUT STAGE



21-31 New Oxford Street

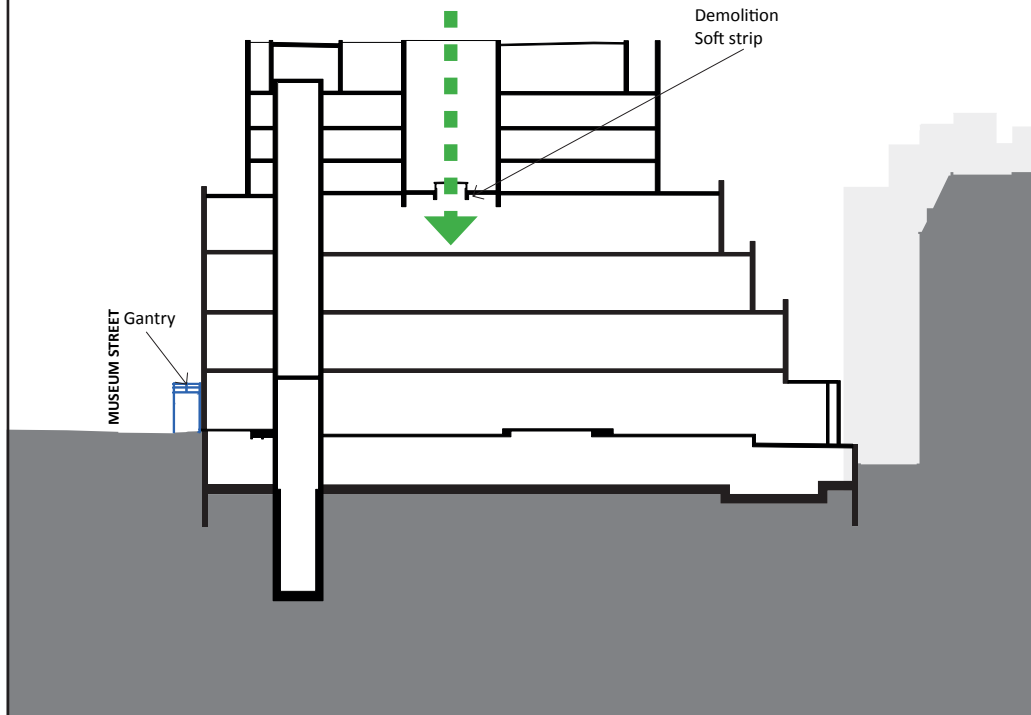
Project LT: 21-31 New Oxford Street

Drawing Title:	Assumed Site Layout Plan during During fitout
Drawn by:	YK
Checked by:	AB
Date:	02/05/2014
Scale:	NTS
Drawing No:	ARUP/PL/SK007 Rev: -

ARUP

Sequence 1: Softstrip & Prep Site

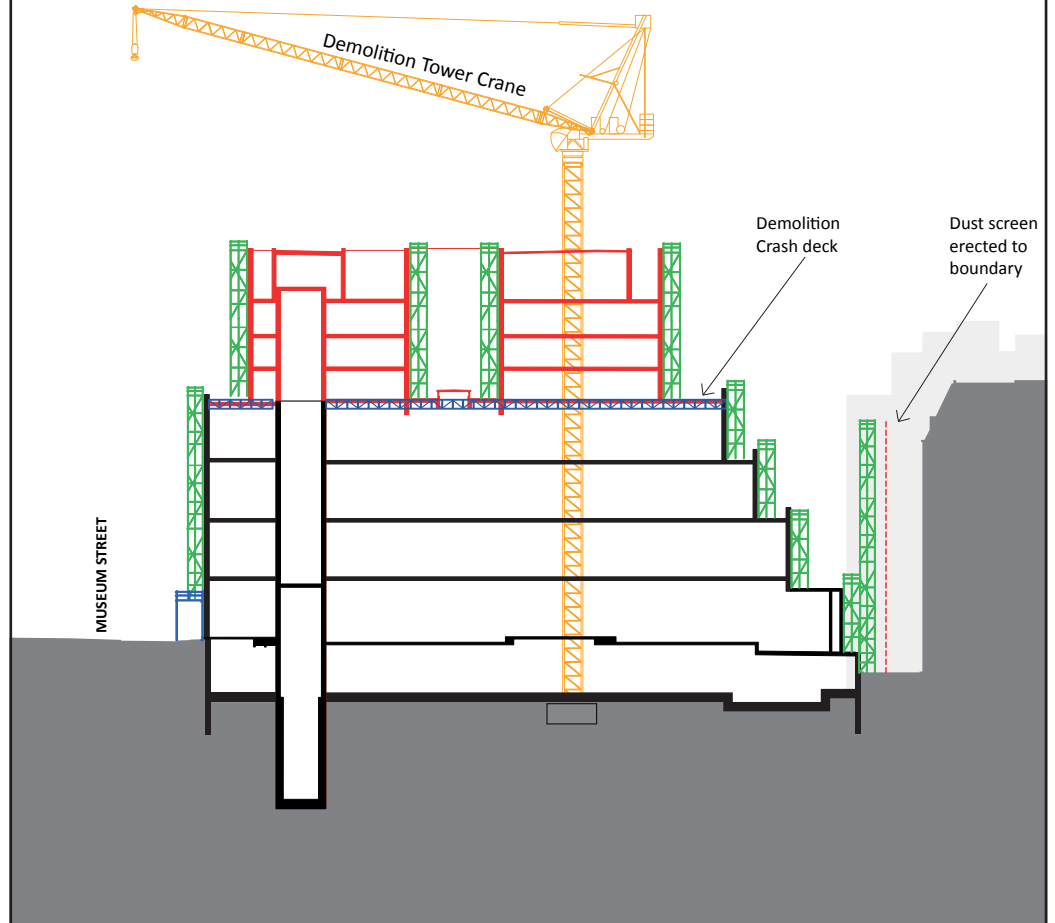
- Erect goods hoist internally
- Softstrip & Clear top to bottom of the building



SECTION C-C

Sequence 2: Erect Tower crane and Crash deck

- Erect Tower crane to enable demolition.
- Scaffold erection
- Construct demolition crash deck at podium roof level



SECTION C-C

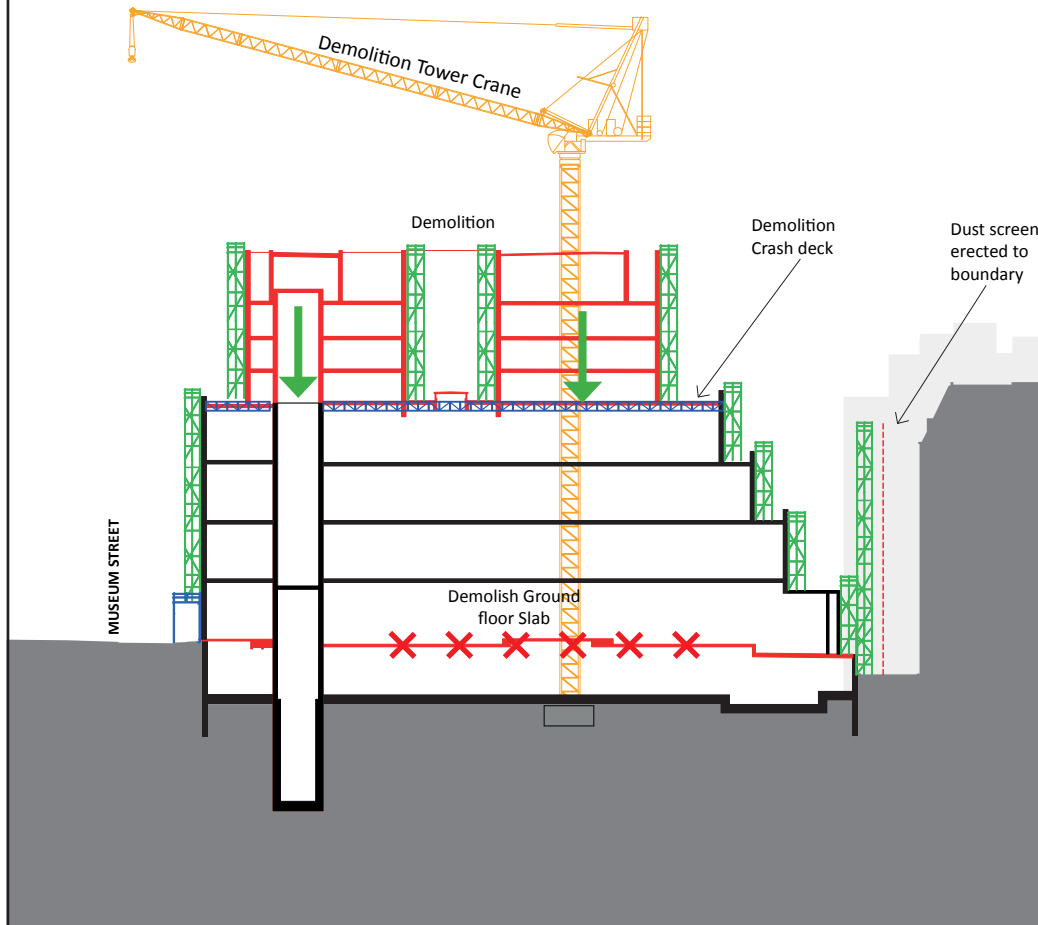
Project LT: 21-31 New Oxford Street

Drawing Title:	Construction Sequence sketches
Drawn by:	YK
Checked by:	AB
Date:	02/05/2014
Scale:	NTS
Drawing No:	ARUP/PL/SK008 Rev: -

ARUP

Sequence 3: Demolish Sky deck & Ground floor Slab

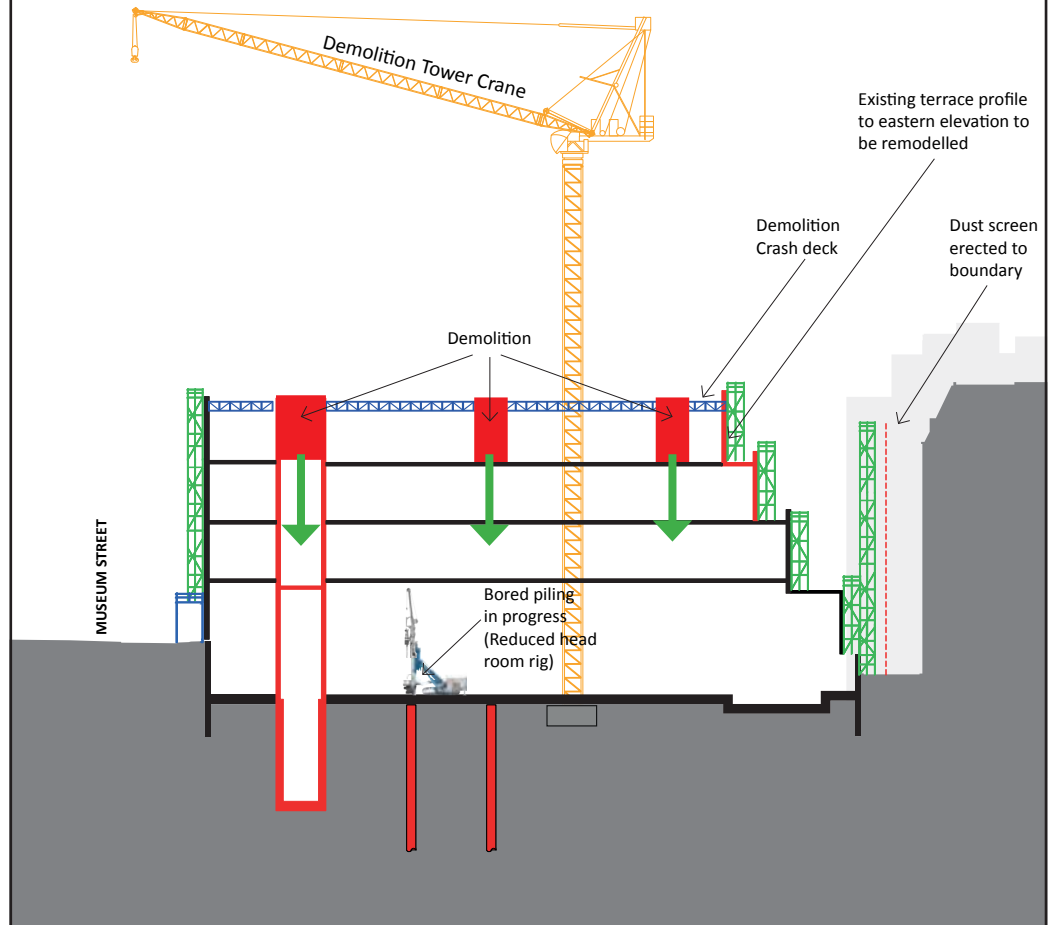
- Demolish ground floor slab to enable piling rig access
- Demolish sky deck levels



SECTION C-C

Sequence 4: Bored piling & on floor demolition

- Demolish cores
- Piling



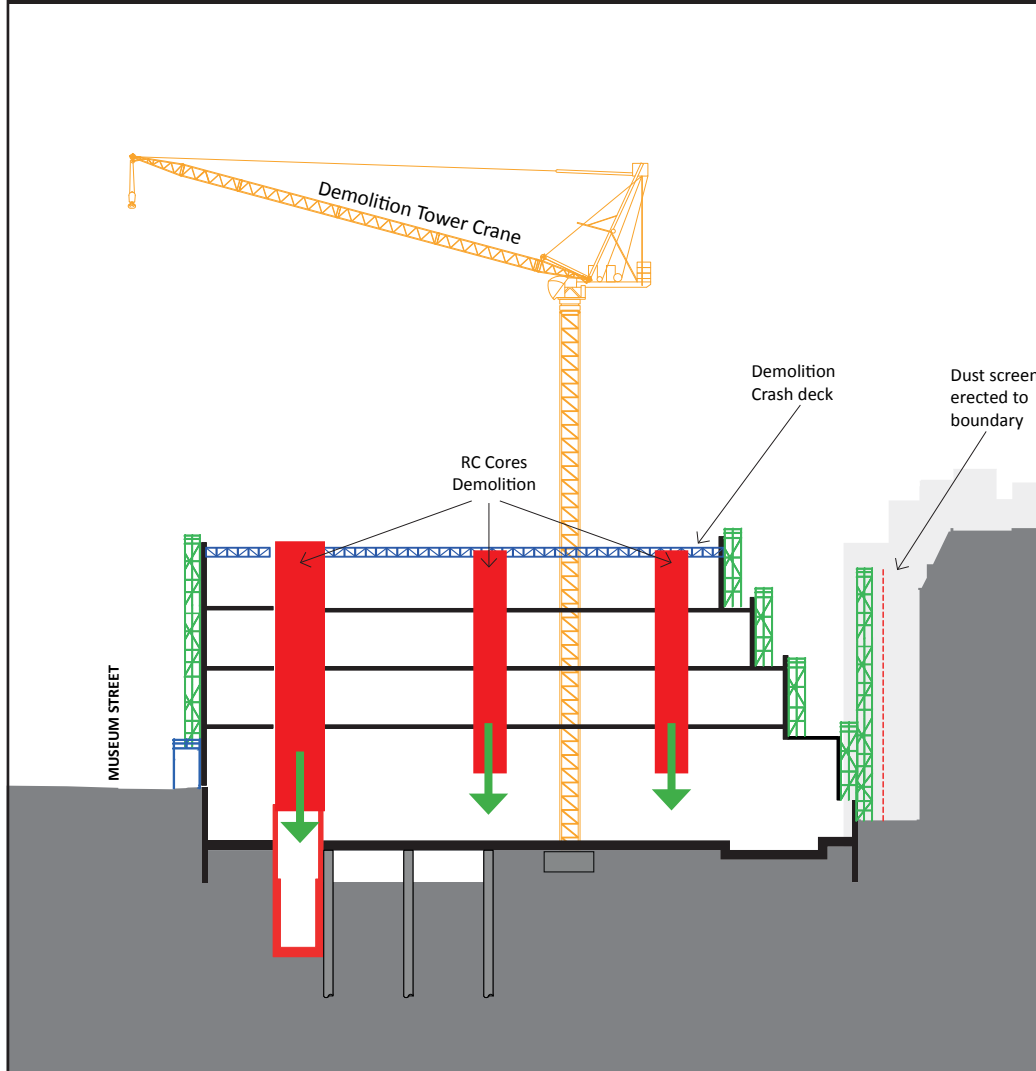
SECTION C-C

Project LT: 21-31 New Oxford Street

Drawing Title:	Construction Sequence sketches
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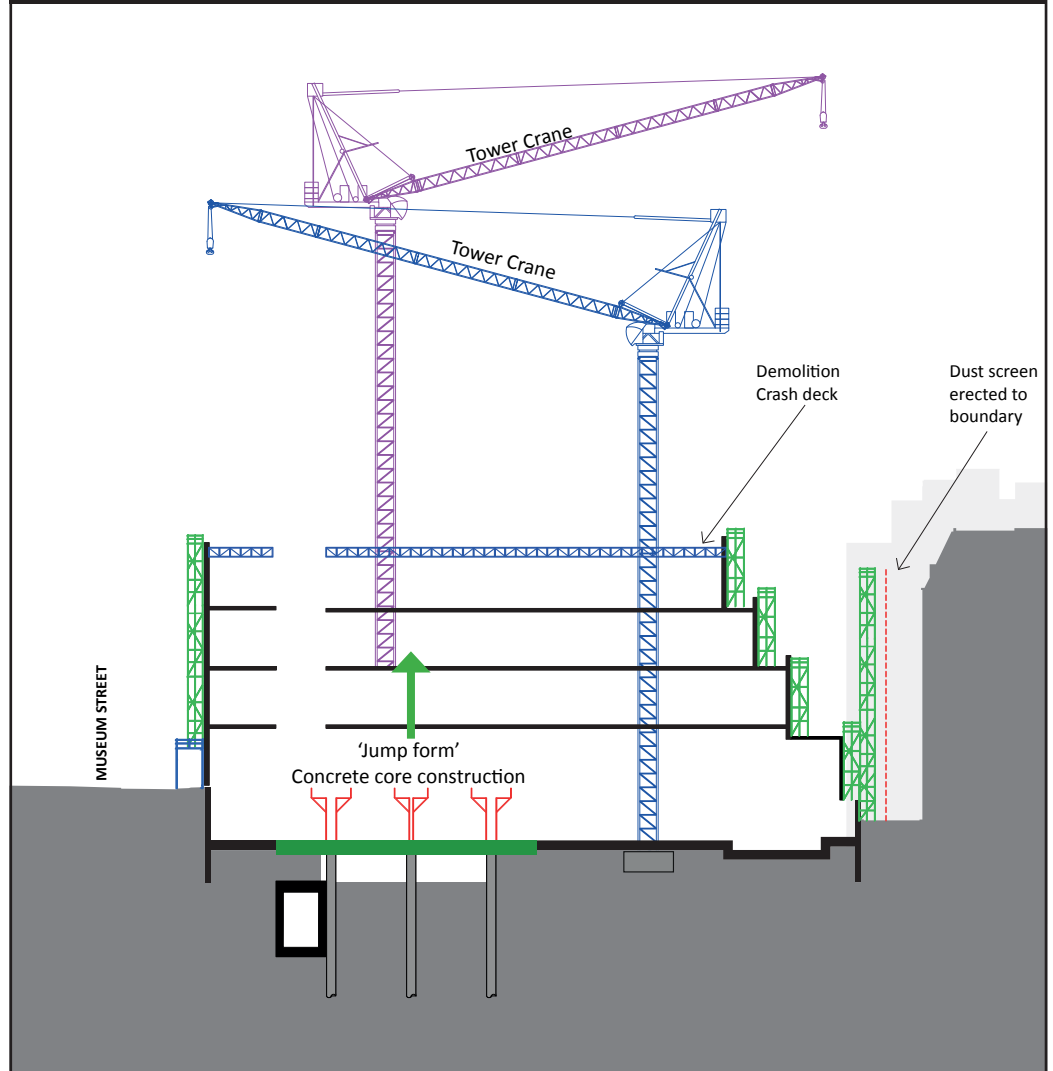
ARUP

Sequence 5: Completion of on floor demolition



SECTION C-C

Sequence 6: Construct Superstructure



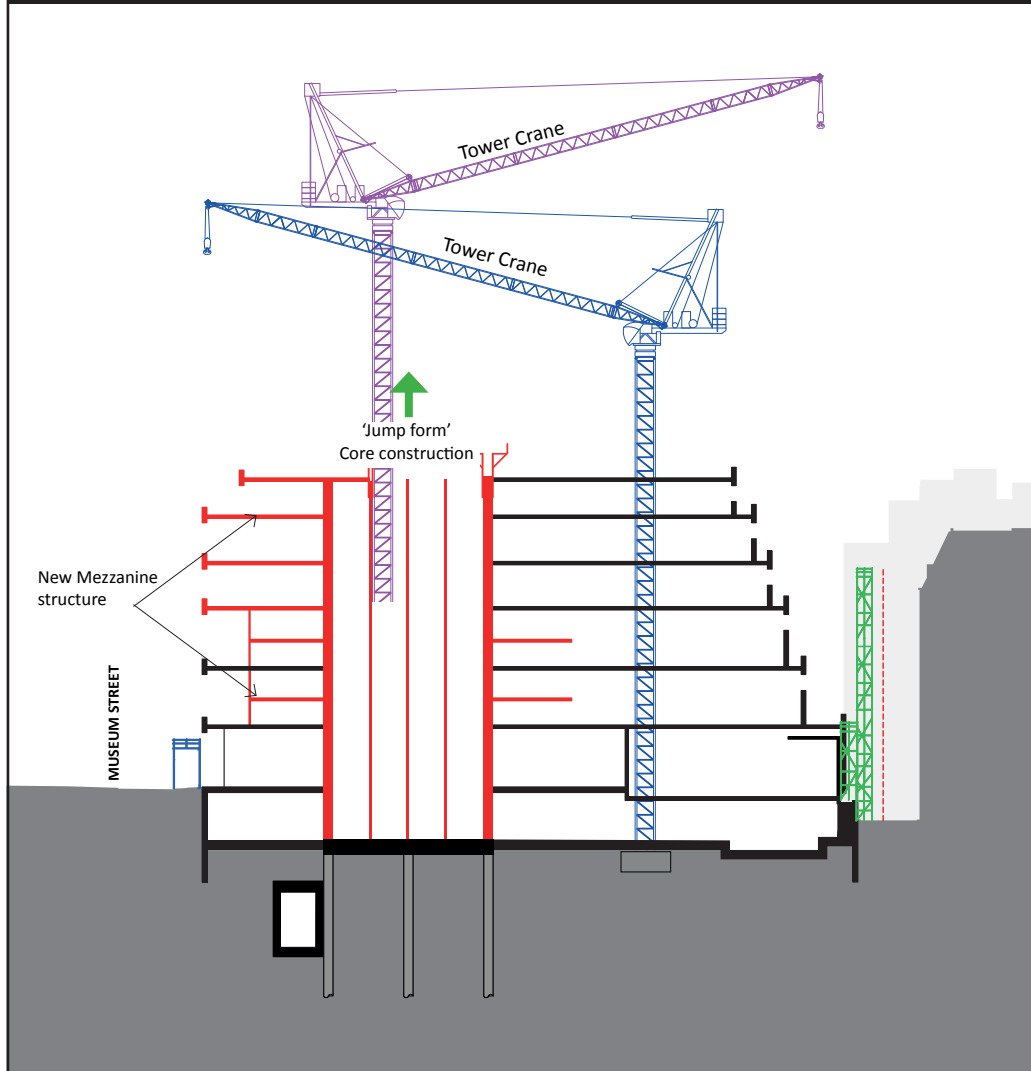
SECTION C-C

Project LT: 21-31 New Oxford Street

Drawing Title:	Construction Sequence sketches
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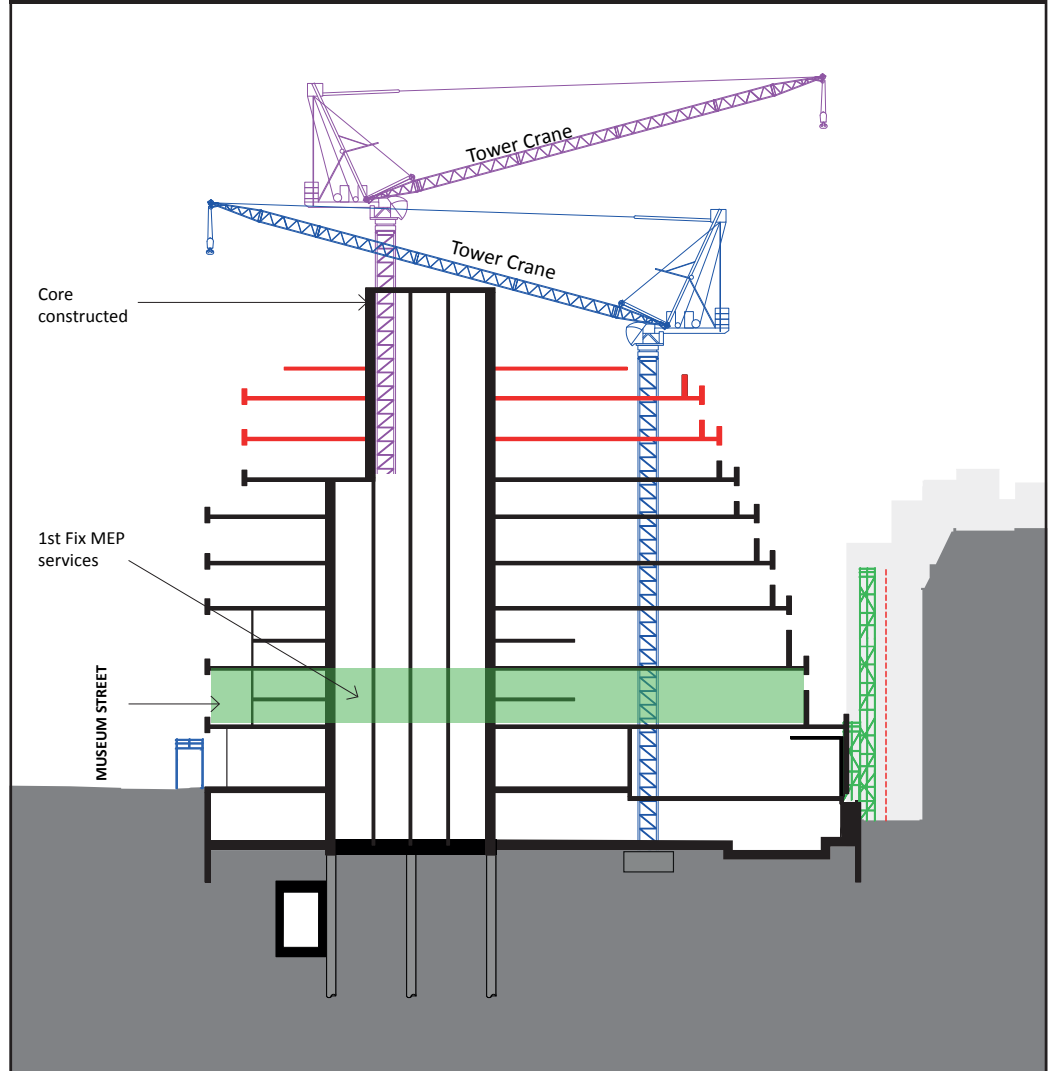
ARUP

Sequence 7: Construct RC cores & Superstructure



SECTION C-C

Sequence 8: RC Cores complete, Progress Superstructure, on floor MEP Services



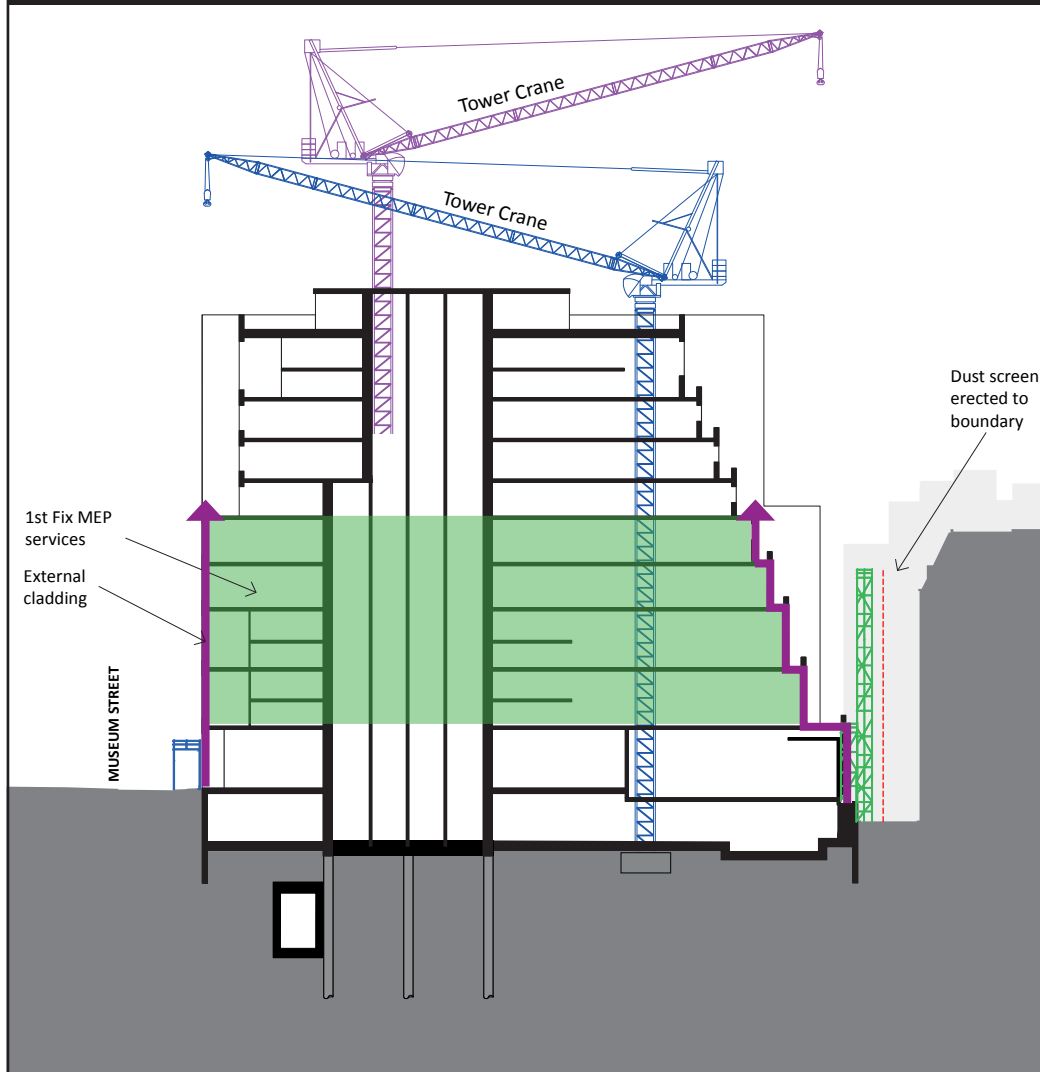
SECTION C-C

Project LT: 21-31 New Oxford Street

Drawing Title:	Construction Sequence sketches
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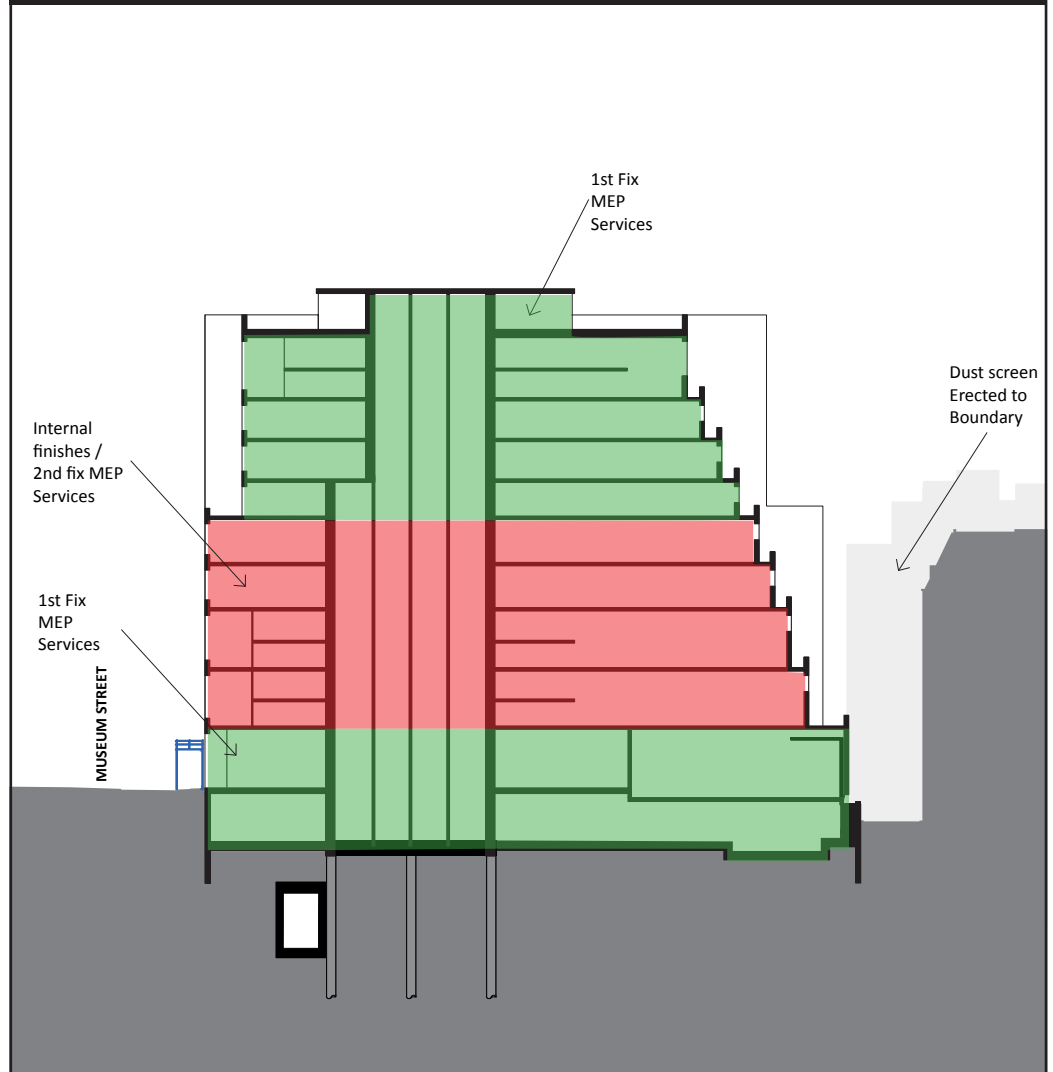
ARUP

Sequence 9: Superstructure complete, External cladding in progress



SECTION C-C

Sequence 10: External envelope complete, Internal fitout in progress



SECTION C-C

Project LT: 21-31 New Oxford Street

Drawing Title:	Construction Sequence sketches
Drawn by:	YK
Checked by:	AB
Date:	02/05/2014
Scale:	NTS
Drawing No:	ARUP/PL/SK012 Rev: -

ARUP

New Oxford Street Ltd
21 -31 New Oxford Street
Planning: Acoustics

RP/230602/004

Planning | 5 September 2014

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 230602

Document Verification

ARUP

Job title		21 -31 New Oxford Street		Job number	
				230602	
Document title		Planning: Acoustics		File reference	
Document ref		RP/230602/004			
Revision	Date	Filename	AcousticsPlanningIssue_14May14.docx		
Issue	14 May 2014	Description	Issue		
			Prepared by	Checked by	Approved by
		Name	Angus Deuchars BEng CEng MIOA ASA	Ian Knowles BSc, AUS, CPhys, MInstP, FIOA	Ian Knowles BSc, AUS, CPhys, MInstP, FIOA
		Signature			
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		Signature			
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Appendices

Appendix A

Glossary

Appendix B

Noise survey

Executive Summary

Arup has undertaken an assessment of environmental noise, groundborne noise, and vibration for the planning application for 21 -31 New Oxford Street, based upon London Borough of Camden (LBC) planning requirements. The assessment has reached the following conclusions:

Environmental noise

- Noise along High Holborn satisfies LBC's residential planning policy requirements during the day and evening subject to mitigation being provided.
- Noise along High Holborn marginally exceeds LBC's residential planning policy requirements during the night.
- However, the premise of government National Planning Policy Framework (NPPF) planning guidance is to allow local authorities to grant planning permission to developments that create a sustainable legacy for the local community. With careful acoustic design of the façade and using mechanical ventilation, British Standard BS8233 standards for intrusive environmental background noise could be achieved.
- Given the intent of the NPPF planning guidance, and that the affordable housing component will provide a sustainable legacy for the development, it could be considered appropriate to grant planning permission.
- Winter gardens have been designed to minimise environmental noise within external residential amenity space. It is likely that BS8233 standards for external amenity will be exceeded from mezzanine up to fifth floor level. However, BS8233 recognises that where residential development is required in urban areas a compromise needs to be struck between the traits of an urban setting and realistic environmental noise conditions within the external amenity.

Groundborne noise and vibration

- Residential suitability - the results from the study indicate that groundborne noise and vibration at the proposed locations of residential dwellings (from mezzanine to 7th floor) satisfies London Borough of Camden (LBC) planning requirements.
- Commercial suitability - the results from the study indicate that vibration at the proposed locations for commercial offices satisfy LBC planning requirements.

1 Introduction

This report covers the acoustics planning submission for 21-31 New Oxford Street and includes the following main topics:

- summary of the environmental noise survey
- summary of the groundborne noise and vibration survey
- Relevant London Borough Camden (LBC) planning requirements
- Assessment of the prevailing environmental and groundborne noise, and vibration climates in light of LBC's requirements

Appendix A includes a glossary of the technical terms used in this report.

2 Environmental noise

2.1 Noise survey

A long-term noise survey has been undertaken to verify the prevailing noise climate at the site. Measurements have been made at grade and at different heights up the building to determine attenuation due to distance and any screening caused by the building setback at Level 4. Attended spot measurements and long-term unattended monitoring (5-minute sampling) has been undertaken between 7/06/13 and 20/06/13.

The noise climate is dominated by traffic noise along New Oxford Street and High Holborn. During the day, intermittent noise from a construction site directly opposite the proposed site along New Oxford Street interfered with measurements on this side of the building. The evening and night-time noise data was not affected by construction noise.

Table 1 and Table 2 below list the results from the noise loggers and Table 3 a summary of results from the spot measurements. Figure 1 shows the approximate measurement locations. To avoid façade effects the logger microphones were all located at least 1m from any façade. The results are the level averaged over the prescribed / defined periods along with the range (maximum and minimum measured level) in brackets.

In dense urban environments it is common for traffic noise levels to remain relatively constant with little fluctuation throughout the day and evening. The noise climate measured along High Holborn documented in Table 1 substantiates this. To allow the data measured at Location C to inform the planning assessment, the daytime noise data has been averaged over 0700 to 0800 and 1700 to 1900 to reduce the likelihood of it being contaminated by construction noise. Data obtained at location D was at the 5th floor level and recessed from the building edge. Consequently data obtained at this location was much lower in level, and less affected by the construction activity. The measured data has therefore been included.

Logger location	Approx. height above grade	Average ambient noise level, dBL _{Aeq,T}		
		0700-1900	1900-2300	2300-0700
Location A (Museum Street)	22m (third floor)	62 (+2, -1)	63 (0, -1)	60 (+1, -1)
Location B (High Holborn)	9m (first floor)	69 (+1, -2)	69 (+2, -1)	67 (+1, -1)
Location C (New Oxford Street)	9m (first floor)	73 ¹	72 (+1, -1)	70 (+1, 0)
Location D (New Oxford Street)	31m (fifth floor)	63 (+2, -4)	59 (+1, -1)	56 (+2, -1)
Location E (High Holborn)	31m (fifth floor)	61 (+1, -2)	60 (+2, -2)	58 (0, -1)
Location F (Eastern light well)	20m (third floor)	59 (+1, -1)	55 (0, -1)	54 (+2, -2)

Table 1: Noise survey results – ambient noise

Notes¹

Noise data averaged over the period 0700 to 0800 and 1700 to 1900 to reduce the likelihood of the data being contaminated by construction noise.

Logger location	Approx. height above grade	Lowest background noise level, dBL _{A90,5min}		
		0700-1900	1900-2300	2300-0700
Location A (Museum Street)	22m (third floor)	50	52	48
Location B (High Holborn)	9m (first floor)	52	53	59
Location C (New Oxford Street)	9m (first floor)	62	63	60
Location D (New Oxford Street)	31m (fifth floor)	54	55	50
Location E (High Holborn)	31m (fifth floor)	56	55	54
Location F (Eastern light well)	20m (third floor)	53	51	49

Table 2: Noise survey results - background noise

Location	Measurement period	Average ambient noise level, dBL _{Aeq,5min}	Average background noise level, dBL _{A90,5min}	Average peak noise level, dBL _{A10,5min}
Location 1 (High Holborn)	1145 – 1248	69 (+2, 0)	65 (+2, -1)	72 (+3, -1)
Location 2 (Museum Street)	1126 – 1250	65 (+2, -1)	60 (+1, -1) ¹	68 (+2, -2) ¹
Location 3 (New Oxford Street)	1126 – 1159	70 (+1, -1)	64 (+1, -2)	73 (+0, -1)

Table 3: Attended daytime noise data taken at grade around the site perimeter

Notes

¹ Due to instrumentation error the measurements made at Museum Street on 7th June 2013 recorded L_{A95,5min} and L_{A05,5min} in place of the L_{A90} and L_{A10}. The latter have been included in the analysis.

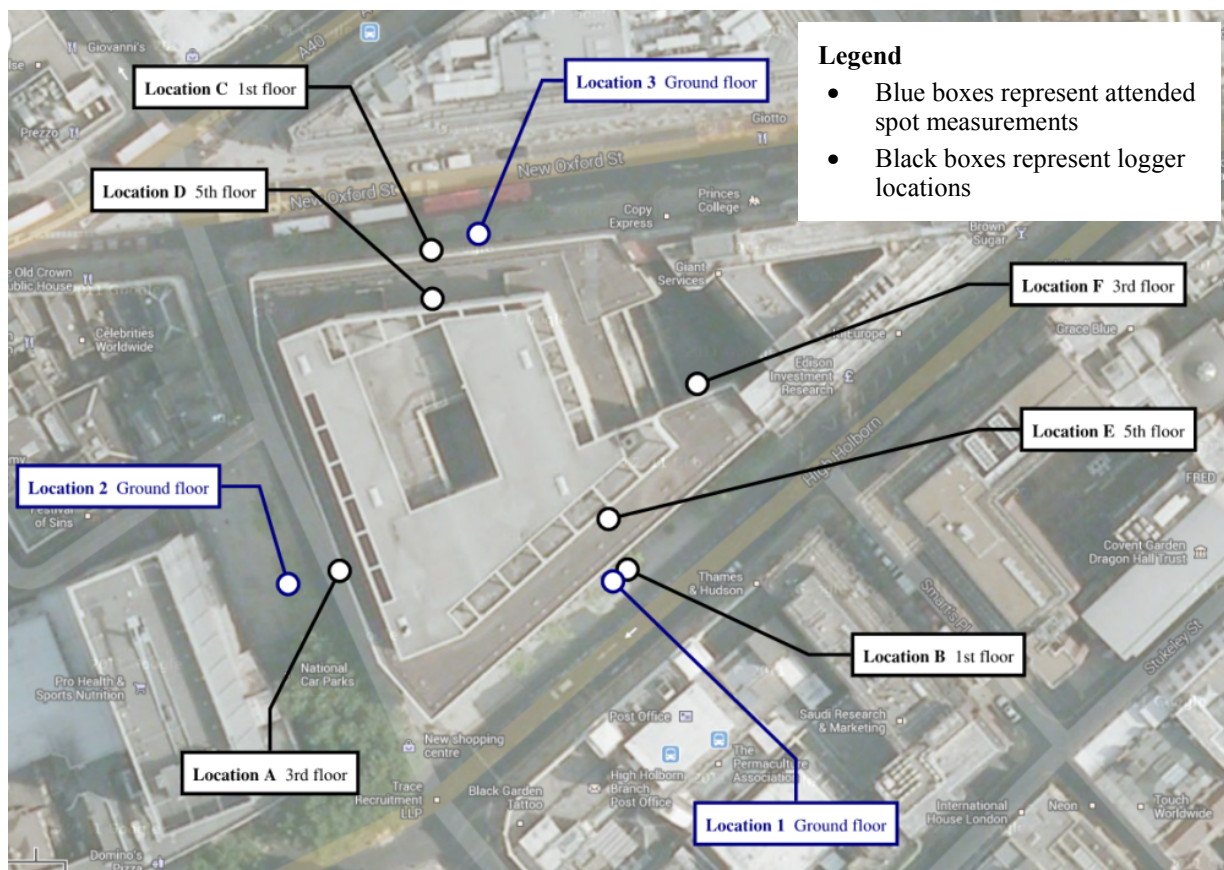


Figure 1: Noise survey locations

Appendix B includes more detail regarding the noise survey including 24-hour time histories from the logger locations.

2.2 LBC residential requirements

2.2.1 Planning

Table 4 below lists LBC's environmental noise planning requirements for sites adjacent to roads.

LBC requirements	Permissible limit, $dBLeq,T$		
	0700-1900	1900-2300	2300-0700
Where mitigation is required	62	57	52
Where planning permission will not be granted	72	72	66

Table 4: LBC's environmental noise planning requirements for sites adjacent to roads

The results from the noise survey indicate the following:

- Noise along High Holborn satisfies the requirements for planning approval during the day and evening provided mitigation is provided.
- Noise along High Holborn exceeds the requirements for planning approval during the night.
- Noise along New Oxford Street exceeds the requirements during the day, evening and night.

2.2.2 Noise intrusion

LBC planning requirements do not include permissible limits for noise intrusion to residential dwellings or external amenity such as winter gardens. Arup spoke with the EHO from LBC to agree in principle these limits.

LBC has requested that the development target the standards provided in BS8233:2014¹ for noise intrusion within the dwellings and the winter gardens. Table 5 lists these standards.

Activity	Location	Time period	
		0700 – 2300	2300 – 0700
Resting	Living room ¹	35dB _L Aeq, 16hr	-
Dining	Dining room / area ¹	40dB _L Aeq, 16hr	-
Sleeping (day resting)	Bedroom ¹	35dB _L Aeq, 16hr	30dB _L Aeq, 16hr
N/a	Winter gardens ²	55dB _L Aeq, 16hr	-

Table 5: BS8233 noise intrusion limits for residential dwellings

Notes

¹ BS8233 states the following regarding relaxing internal noise levels where development is considered necessary in high noise environments:

“Where development is considered necessary or desirable, despite external noise levels above WHO guidelines, the internal target levels may be relaxed by up to 5 dB and reasonable internal conditions still achieved.”

² BS8233 states the following regarding noise to external amenity space in high noise environments:

“...it is also recognized that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport

¹ BS8233:2014 *Guidance on sound insulation and noise reduction for buildings*

network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited.”

The following section considers mitigation measures for the residential dwellings.

2.2.3 Mitigation

Noise intrusion to residential dwellings

NPPF published by the government does not measure whether a site is suitable based upon prescriptive standards for noise. Instead, it was developed to allow planners to grant planning permission based upon a balanced need for sustainable development. However, it does not prevent planning departments from establishing prescriptive standards.

A key principle of NPPF is to support developments that create a sustainable legacy for the local community.

The proposed development at 21-31 New Oxford Street will bring affordable housing to a central London location in a high quality development. With an appropriately designed façade including mechanical ventilation, it will be possible to satisfy background noise levels within the dwellings in accordance with BS8233. Designing to this standard will provide dwellings that achieve national standards for noise ingress to habitable spaces.

Note – if designing to the BS8233 standards in Table 5 result in impractical constructions (such as secondary glazing or glazing that does not fit within a standard frame) the development will target the “reasonable standards” as defined in the standard.

Given the intent of the NPPF planning guidance, and that the affordable housing component will provide a sustainable legacy for the development, it can be considered appropriate to grant planning permission.

Noise intrusion to winter gardens

Winter gardens have been designed to reduce the impact of the prevailing noise climate on the external amenity. The gardens will be recessed into the building and be partially enclosed using glazing.

In light of the desire by the Greater London Authority to provide apartment block residents with external space and that the development is following the design intent of BS8233 to achieve the lowest practical levels in the gardens, this should not preclude planning permission being granted.

2.3 Building services noise

LBC planning requirements include permissible limits of noise from plant and machinery. Table 6 lists these limits and Table 7 sets out the limits that apply to sensitive facades near the development, based on the lowest measured background noise shown in Table 2.

Table 7 shows limits for Museum Street (represented by Logger A), High Holborn (represented by Logger B and E), New Oxford Street (represented by Logger C and D) and in the eastern light well (represented by Logger F). Where sensitive receivers are represented by two logger locations the limit is determined by the lower measurement.

Noise description and location of measurement	Period	Time	Noise level
Noise at 1 metre external to a sensitive façade	Day, evening and night	0000 - 2400	$5\text{dB(A)} < L_{A90}$
Noise that has a distinguishable continuous note (whine, hiss, screech, hum) at 1 metre external to a sensitive façade			$10\text{dB(A)} < L_{A90}$
Noise that has distinct impulses (bangs, clicks, clatters, thumps) at 1 metre external to a sensitive façade			$10\text{dB(A)} < L_{A90}$
Noise at 1 metre external to a sensitive façade where $L_{A90} > 60\text{dB}$			55dBL_{Aeq}

Table 6: LBC permissible limits of noise from plant and machinery

Sensitive façade location	Building services noise emission limit at 1m external to sensitive façade, $\text{dBL}_{Ar, Tr}$			
	Type	0700-1900	1900-2300	2300-0700
Museum Street	Noise from plant	45	47	43
	Noise from plant that has a distinguishable continuous note or distinct impulses	40	42	38
High Holborn	Noise from plant	47	48	49
	Noise from plant that has a distinguishable continuous note or distinct impulses	42	43	44
New Oxford Street	Noise from plant	49	50	45
	Noise that from plant has a distinguishable continuous note or distinct impulses	44	45	40
Eastern light well	Noise from plant	48	46	44
	Noise from plant that has a distinguishable continuous note or distinct impulses	43	41	39

Table 7: Limits of noise from plant at sensitive receivers near to the site

3 Groundborne noise

3.1 Vibration survey

Arup visited the site on 12 and 18 July 2013 to undertake vibration measurements in the existing building. Measurements were taken on the basement, ground, first, second, and third floor slabs. Measurements were taken at approximately the same location on each floor. Figure 2 shows a typical measurement location plan and Table 8 lists a selection of results.

Location	Predicted groundborne noise level, $\text{dBL}_{\text{Amax, S}}$	Vibration dose value (VDV), $\text{ms}^{-1.75}$
Basement, Loc A	50	0.006
Basement, Loc B	47	0.006
Basement, Loc C	30	0.001
Basement, Loc D	36	0.001
Ground Floor Loc A	48	0.009
Ground Floor Loc B	37	0.007
Ground Floor Loc C	34	0.005
Ground Floor Loc D	35	0.004
1st floor Loc A	45	0.010
2nd floor Loc A	43	0.017
Second floor mezzanine	33	0.003
Third Floor Loc A	33	0.014

Table 8: Groundborne noise and vibration results

Note: the tabulated groundborne noise results are predictions of noise in a sample fitted-out room based upon the data from the field measurements, calculation methodology included in the Transportation Noise Reference Book², and our experience of similar projects. The levels are the mean plus one standard deviation. The tolerance of the predicted groundborne noise levels is approximately $\pm 3\text{dB}$. The vibration dose values are also the mean plus one standard deviation, are calculated from the raw survey data, and represent the amplitudes in the existing structure.

The groundborne noise results listed above have been quantified using slow time weighting. This is identified in the parameter by the letter S. Acoustic signals can either be measured with a fast or slow time weighting. Different weightings are used based upon the type of noise being measured / quantified. A noise that is transient in nature, such as a horn or car alarm, would be measured using fast weighting to ensure the event is captured. A noise that is deterministic / periodic, such as a train pass-by, would be measured using a slow time weighting.

² Nelson, P. M., *Transportation Noise Reference Book*, Butterworth & Co Ltd., 1987



Figure 2: Groundborne noise measurement locations

3.2 LBC groundborne noise and vibration planning requirements

LBC planning requirements include permissible limits for both groundborne noise and vibration (i.e. movement) in residential dwellings. A vibration limit is also provided for commercial office buildings. Table 9 below lists the vibration limits that apply to the development.

Location	Period	Time	Permissible vibration limit, $\text{ms}^{-1.75}$
Residential – day	Day and evening	0700 - 2300	0.2 to 0.4
Residential - night	Night	2300 - 0700	0.13
Office	Day, evening and night	0000 - 2400	0.4

Table 9: London Borough Camden planning department permissible vibration limits

The permissible groundborne noise limit for residential dwellings is $35\text{dB L}_{\text{Amax}}$ (Fast or Slow time weighting not stipulated).

LBC does not provide groundborne noise limits for commercial offices or retail uses, or vibration limits for retail use.

3.3 Discussions

3.3.1 Commercial and residential uses

In light of LBC's planning requirements, the results from the groundborne noise and vibration survey indicate the following:

- Commercial suitability - the results from the study indicate that vibration at the proposed locations for commercial offices satisfy LBC planning requirements.
- Residential suitability - the results from the study indicate that groundborne noise and vibration at the proposed locations of residential dwellings (from mezzanine to 7th floor) satisfies London Borough of Camden (LBC) planning requirements.

4 Conclusions

Arup has undertaken environmental noise and vibration surveys at 21-31 New Oxford Street. An assessment of the results from the surveys has been undertaken in light of London Borough of Camden's planning requirements. The assessment indicates that it is considered appropriate to grant planning permission in the presence of the prevailing noise and vibration climate in light of relevant UK planning guidance and British Standards.

Appendix A

Glossary

dBA

The unit generally used for measuring environmental, traffic or industrial noise is the A-weighted sound pressure level in decibels, denoted dBA. An A-weighting network can be built into a sound level measuring instrument such that sound levels in dBA can be read directly from a meter. The weighting is based on the frequency response of the human ear and has been found to correlate well with human subjective reactions to various sounds. It is worth noting that an increase or decrease of approximately 10 dB corresponds to a subjective doubling or halving of the loudness of a noise, and a change of 2 to 3 dB is subjectively barely perceptible.

Equivalent continuous sound level

Another index for assessment for overall noise exposure is the equivalent continuous sound level, L_{eq} . This is a notional steady level which would, over a given period of time, deliver the same sound energy as the actual time-varying sound over the same period. Hence fluctuating levels can be described in terms of a single figure level.

Frequency

The rate of repetition of a sound wave. The subjective equivalent in music is pitch. The unit of frequency is the Hertz (Hz), which is identical to cycles per second. A thousand hertz is often denoted kHz, eg 2 kHz = 2000 Hz. Human hearing ranges approximately from 20 Hz to 20 kHz. For design purposes, the octave bands between 63 Hz to 8 kHz are generally used. The most commonly used frequency bands are octave bands, in which the mid frequency of each band is twice that of the band below it. For more detailed analysis, each octave band may be split into three one-third octave bands or in some cases, narrow frequency bands.

Maximum noise levels

The maximum noise level identified during a measurement period. Experimented data has shown that the human ear does not generally register the full loudness of transient sound events of less than 125 ms. Fast time weighting has an exponential time constant of 125 ms which reflects the ear's response. The maximum level measured with fast time weighting is denoted as $L_{A\text{Max}, f}$. Slow time weighting (S) with an exponential time constant of 1s is used to allow more accurate estimation of the average sound level on a visual display.

Impulse (I) time weighting has a fast rise (35 ms) and a slow decay and is intended to mimic the ear's response to impulsive sounds.

Statistical noise levels

For levels of noise that vary widely with time, for example road traffic noise, it is necessary to employ an index which allows for this variation. The L_{10} , the level exceeded for ten per cent of the time period under consideration, has been adopted in this country for the assessment of road traffic noise. The L_{90} , the level exceeded for ninety per cent of the time, has been adopted to represent the background noise level. The L_1 , the level exceeded for one per cent of the time, is representative of the maximum levels recorded during the sample period. A weighted statistical noise levels are denoted L_{A10} , $dB L_{A90}$ etc. The reference time period (T) is normally included, eg $dB L_{A10, 5min}$ or $dB L_{A90, 8hr}$.

Structureborne noise

The transmission of noise energy as vibration of building elements. The energy may then be re-radiated as airborne noise. Structureborne noise is controlled by structural discontinuities, ie expansion joints and floating floors.

Vibration Dose Values (VDV)

This is a complex metric that has been identified as being the best objective measure of human disturbance from intermittent/transient vibration. The VDV is the fourth root of the time integral of the fourth power of the weighted acceleration. VDV are measured in units of $m/s^{1.75}$. The frequency weightings are defined in BS 6472: 1992 and in BS 6841: 1987.

The VDV doubles in magnitude with a doubling of vibration amplitude. However, a 16 fold increase in the duration of exposure to the vibration is required to double the VDV (without any change in amplitude).

Typical noise levels

Some typical noise levels are given below:

Noise level dB(A)	Example
130	Threshold of pain
120	Jet aircraft take-off at 100 m
110	Chain saw at 1 m
100	Inside disco
90	Heavy lorries at 5 m
80	Kerbside of busy street
70	Loud radio (in typical domestic room)
60	Office or restaurant
50	Domestic fan heater at 1m

Noise level dB(A)	Example
40	Living room
30	Theatre
20	Remote countryside on still night
10	Sound insulated test chamber
0	Threshold of hearing

Appendix B

Noise survey

B1 Dates, times and personnel

Ed Elbourne and Jay Reilly of Arup made attended noise measurements between:

- 11:50 and 13:00 on Friday 7th June 2013,
- 11:20 and 12:10 on Tuesday 11th June 2013, and
- 19:00 and 19:40 on Thursday 13th June 2013.

They also installed noise logging equipment around the façade. These measured between 7th June 2013 and 20th June 2013, as described in Section 2.1.

During the measurements the weather was generally dry with a low wind speed.

Measurement locations are shown in Figure 1 in Section 2.1

B1.1 Equipment and procedures

For all measurement locations, statistical levels were recorded, storing L_{Aeq} , L_{A10} , L_{A90} and $L_{Amax,f}$ indices. Attended measurements made on Museum Street on 7th June stored L_{A05} and L_{A95} indices instead of L_{A10} and L_{A95} . Octave band frequency spectra were also recorded.

Measurements were made over 5 minute intervals.

For all attended measurements, the microphone was located approximately 1.2m – 1.5m above the ground. Measurements at Location 1 (High Holborn) and Location 2 (Museum Street) were free field, being more than 3m from any vertical noise reflecting surface. Measurements at Location 3 (New Oxford Street) were approximately 1m from the building wall.

Table 10 details the equipment used for measurements. The sound level meters and microphones are Type 1 conforming to BS 61672-1:2003. The survey staff carried out a check of the calibration of the sound level meter and microphone before and after use, to confirm that there was no significant drift in meter response at the calibrator frequency and level. This verification indicated that there was no more than a 0.1dB variation between checks.

Each SLM kit used by Arup has a full traceable calibration carried out in a UKAS accredited laboratory on an annual basis. All measurements were made with a fast (0.125s) time constant.

Manufacturer	Type number	Description	Arup reference	Serial number
Brüel & Kjær	2260	Investigator	Kit A	1772228
	4189	½" Polarised Microphone		2620934
	4231	Sound Pressure Level Calibrator		2094627
Brüel & Kjær	2260	Investigator	Kit H	2370442
	4189	½" Polarised Microphone		1903808
	4231	Sound Pressure Level Calibrator		2402714

Manufacturer	Type number	Description	Arup reference	Serial number
Norsonic	Nor140	Sound Level Meter	Kit D	1405203
	1251	Sound Pressure Level Calibrator		33555
	1225	½” Microphone		151246
	1209	Preamplifier		15390
Rion	NL52	Sound Level Meter	Kit A	00120480
	UC-59	½” Microphone		03152
	NH-25	Preamplifier		10479
	NC-74	Sound Pressure Level Calibrator		35015346
Rion	NL52	Sound Level Meter	Kit B	00620958
	UC-59	½” Microphone		03876
	NH-25	Preamplifier		20999
	NC-74	Sound Pressure Level Calibrator		35015347

Table 10: Measurement equipment

4.1 Results

Tabulated below are results from the attended spot measurements.

Date	Start Time	L _{Aeq,5min}	L _{Afmax,5min}	L _{A10,5min}	L _{A90,5min}
07/06/2013	11:54	71	87	75	65
	12:05	69	85	72	65
	12:48	69	92	71	65
11/06/2013	11:36	69	79	71	64
	11:45	69	76	72	64
	12:01	69	79	71	67

Table 11: Results at Location 1 (High Holborn)

Date	Start Time	L _{Aeq,5min}	L _{Afmax,5min}	L _{A10,5min}	L _{A90,5min}
07/06/2013	11:54	65	81	69*	60*
	12:07	64	75	68*	60*
	12:50	64	80	66*	59*
11/06/2013	11:26	66	76	69	61
	11:42	65	77	68	60
	11:53	66	77	69	60
	12:04	67	78	70	61

Table 12: Results at Location 2 (Museum Street). Results marked with an asterix are L_{A05} and L_{A95}

Date	Start Time	L _{Aeq,5min}	L _{Afmax,5min}	L _{A10,5min}	L _{A90,5min}
11/06/2013	11:26	69	86	72	62
	11:34	70	81	73	63
	11:50	70	83	73	65
	11:59	71	83	73	65
13/06/2013	19:03	67	82	70	60
	19:12	68	87	69	59
	19:17	67	85	70	58
	19:23	68	79	71	61
	19:29	67	84	69	59

Table 13: Measurement results at Location 3 (New Oxford Street)

The following graphs are 24-hour time-histories from the noise loggers.

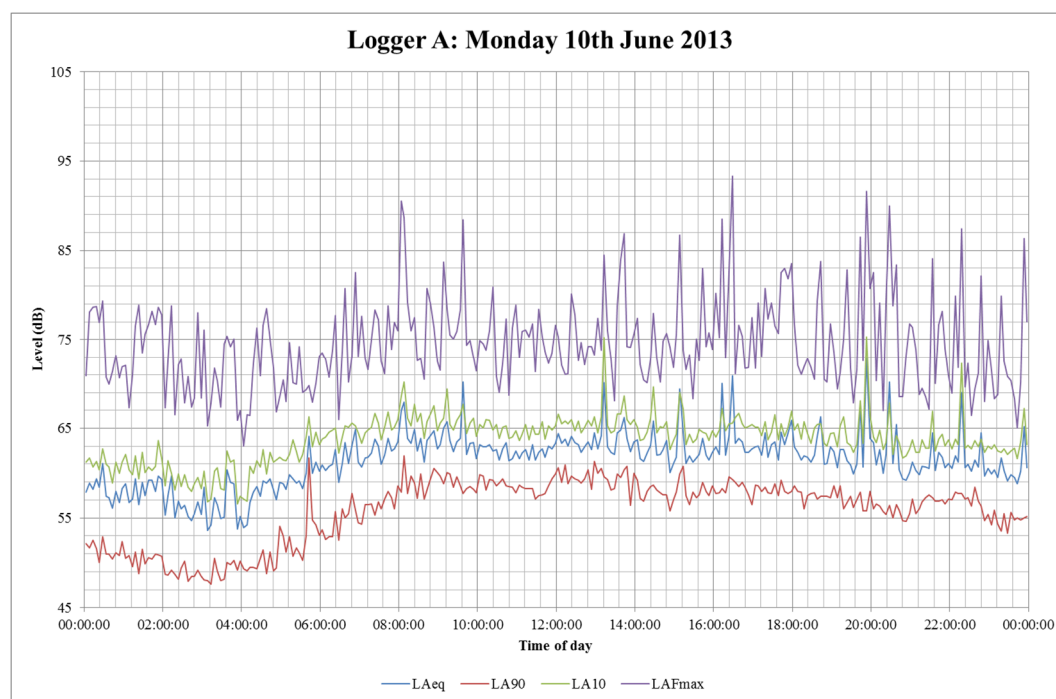


Figure 3: Typical 24-hour profile for Logger A (Museum Street 3F)

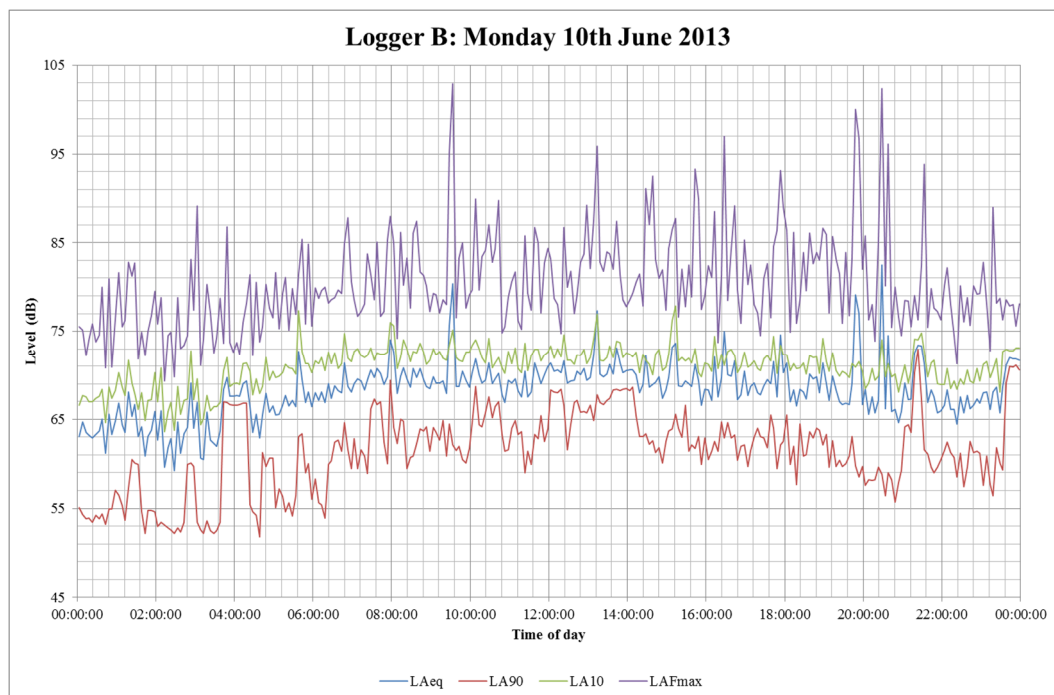


Figure 4: Typical 24-hour profile for Logger B (High Holborn 1F)

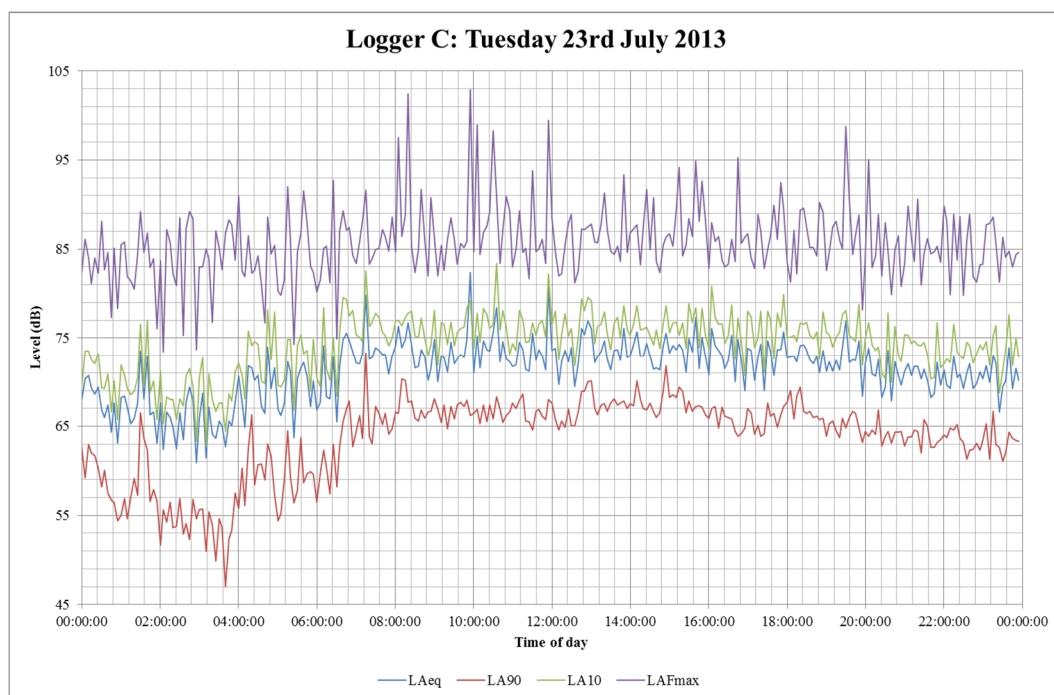


Figure 5: Typical 24-hour profile for Logger C (New Oxford Street 1F)

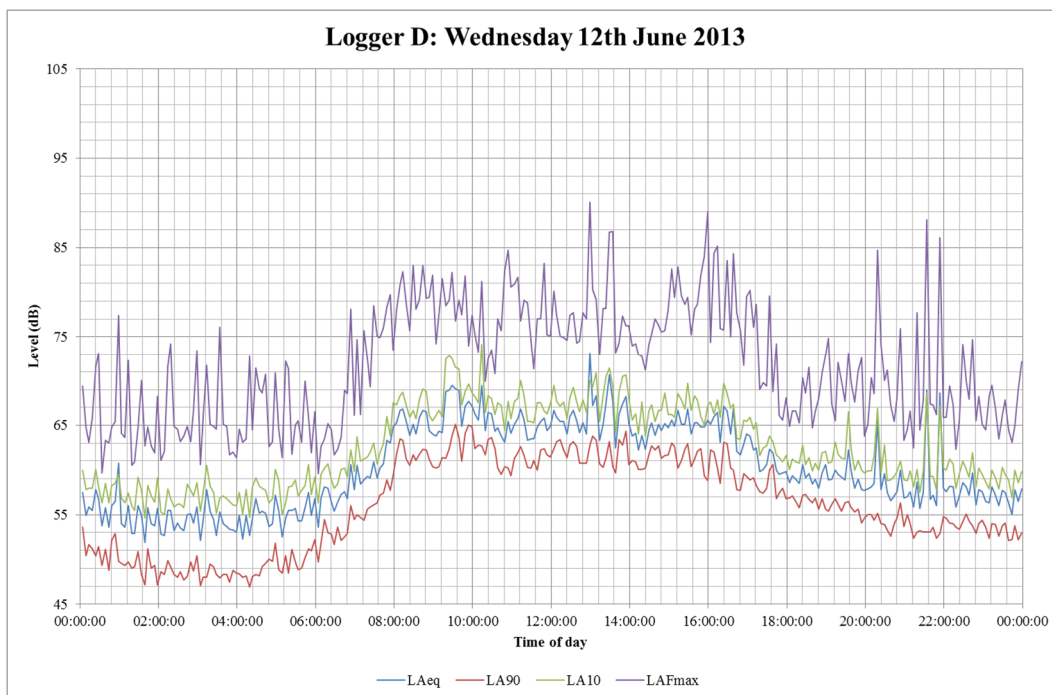


Figure 6: Typical 24-hour profile for Logger D (New Oxford Street 5F)

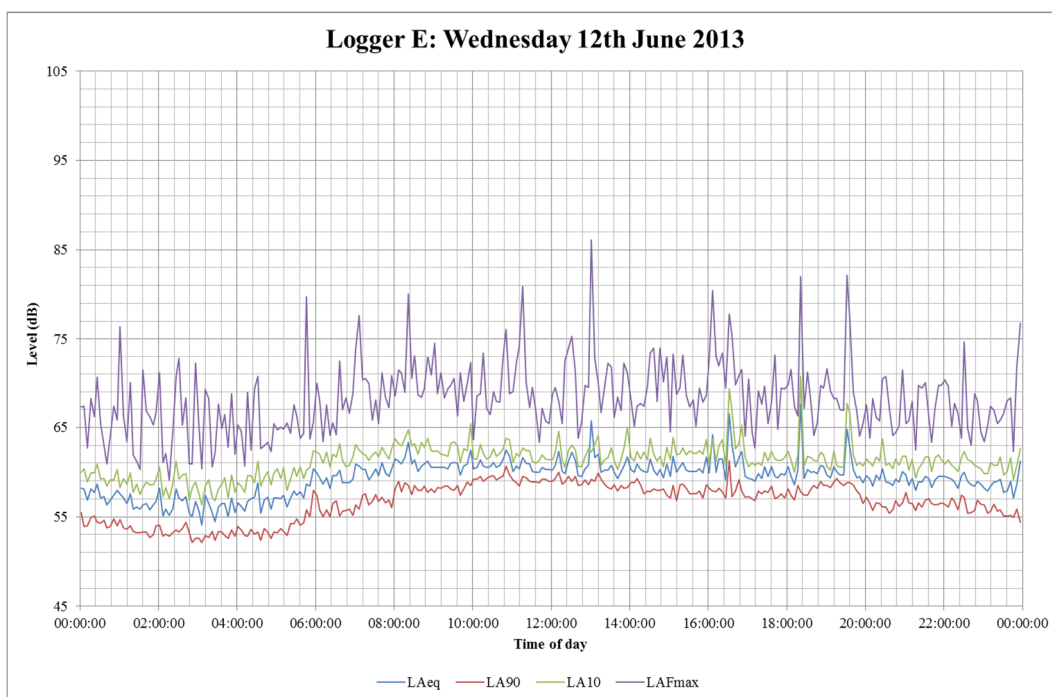


Figure 7: Typical 24-hour profile for Logger E (High Holborn 5F)

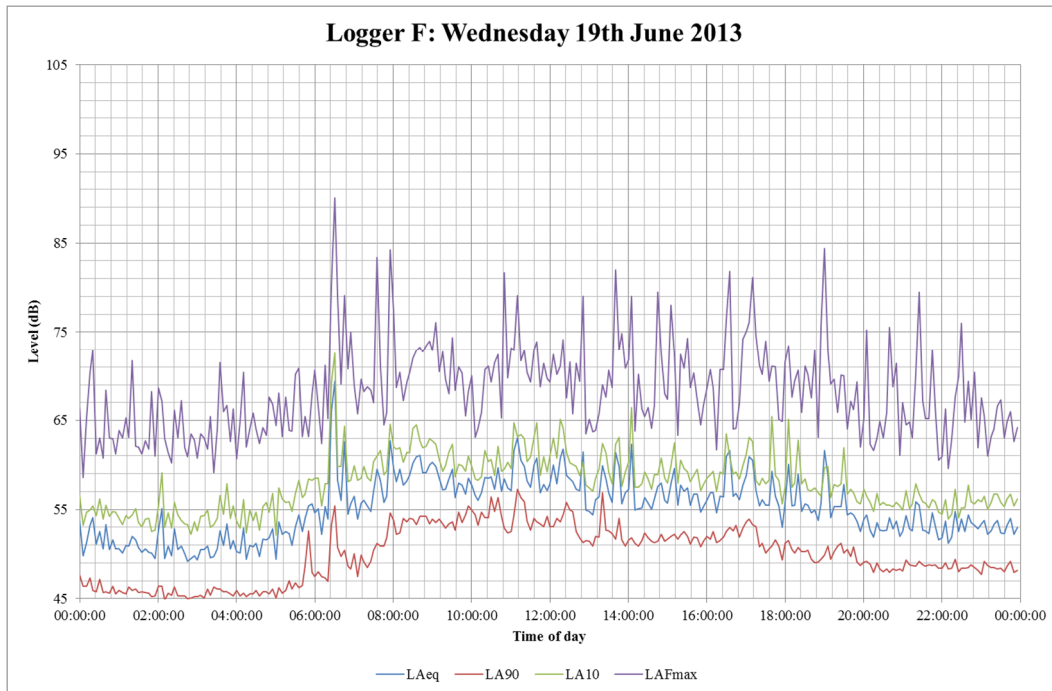


Figure 8: Typical 24 hour profile for Logger F (Eastern light well 3F)

New Oxford Street Limited
21 - 31 New Oxford Street
Air Quality Assessment

RP/230602/005

Planning | 5 September 2014

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 230602

Ove Arup & Partners Ltd
The Arup Campus
Blythe Gate
Blythe Valley Park
Solihull B90 8AE
United Kingdom
www.arup.com

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1 Introduction

Ove Arup and Partners Limited (Arup) has been commissioned to undertake an air quality assessment to assess the likely significant effects of the proposed development at 21-31 New Oxford Street in terms of air quality. The site proposed for development lies between Museum Street, New Oxford Street and High Holborn in the Camden area of London.

This report outlines the current regulatory system relevant to air quality assessment and management, the assessment methodology, the baseline conditions at the site and surroundings, the likely significant effects relating to air quality and the mitigation measures required to prevent, reduce or offset any significant adverse effects.

2 Air Quality Legislation

2.1 European Air Quality Management

In 1996 the European Commission published the Air Quality Framework Directive on ambient air quality assessment and management (96/62/EC). This Directive defined the policy framework for 12 air pollutants known to have harmful effects on human health and the environment. Limit values (pollutant concentrations not to be exceeded by a certain date) for each specified pollutant are set through a series of Daughter Directives, including Directive 1999/30/EC (the 1st Daughter Directive) which sets limit values for sulphur dioxide (SO₂), nitrogen dioxide (NO₂) and oxides of nitrogen (NO_x), particulate matter (PM₁₀) and lead in ambient air.

In May 2008 the Directive 2008/50/EC on ambient air quality and cleaner air for Europe came into force. This Directive consolidates the above (apart from the 4th Daughter Directive, which will be brought within the new Directive at a later date), provides a new regulatory framework for PM_{2.5} and makes provision for extended compliance deadlines for NO₂ and PM₁₀.

The Directives were transposed into legislation in England by the Air Quality Standards Regulations 2010. The Secretary of State for the Environment has the duty of ensuring the air quality limit values are complied with.

2.2 Environment Act 1995

Part IV of the Environment Act 1995 places a duty on the Secretary of State for the Environment to develop, implement and maintain an Air Quality Strategy with the aim of reducing atmospheric emissions and improving air quality. The Air Quality Strategy for England, Scotland, Wales and Northern Ireland provides the framework for ensuring the air quality limit values are complied with based on a combination of international, national and local measures to reduce emissions and improve air quality. This includes the statutory duty, also under Part IV of the Environment Act 1995, for local authorities to undergo a process of local air quality management.

2.3 Air Quality Objectives and Limit Values

Air quality limit values and objectives are quality standards for clean air. Some pollutants have standards expressed as annual average concentrations due to the chronic way in which they affect health or the natural environment (i.e. effects occur after a prolonged period of exposure to elevated concentrations) and others have standards expressed as 24-hour, one-hour or 15-minute average concentrations due to the acute way in which they affect health or the natural environment (i.e. after a relatively short period of exposure). Some pollutants have standards expressed in terms of both long-term and short-term concentrations. Table 1 sets out these EU air quality limit values and national air quality objectives for the pollutants currently of greatest concern for this development, NO₂, PM₁₀, PM_{2.5}.

In the majority of cases the air quality limit values and air quality objectives have the same pollutant concentration threshold and date for compliance. The key difference is that the Secretary of State for the Environment is required under European Law to ensure the air quality limit values are complied with whereas local authorities (including the Mayor of London) are only obliged under national legislation to undertake best efforts to comply with the air quality objectives. To assist local authorities in demonstrating best efforts, the Environment Act 1995 requires that when carrying out their local air quality management functions, local authorities shall have regard to guidance issued by the Secretary of State.

Table 1: Air Quality Objectives

Pollutant	Averaging Period	Limit Value/ Objective	Date for Compliance	Basis
Nitrogen Dioxide (NO ₂)	1 hour mean	200µg/m ³ , not to be exceeded more than 18 times a year	31 Dec 2005	UK
			1 Jan 2010	EU
	Annual mean	40µg/m ³	31 Dec 2005	UK
			1 Jan 2010	EU
Fine Particulates (PM ₁₀) Measurement Technique: Gravimetric	Daily Mean	50µg/m ³ , not to be exceeded more than 35 times a year	31 Dec 2004	UK
			None specified	EU
	Annual Mean	40µg/m ³	31 Dec 2004	UK
			None specified	EU
Very Fine Particulates (PM _{2.5})	Annual Mean	25µg/m ³	1 st January 2015	UK/EU

2.4 Dust Nuisance

Dust is the generic term used in the British Standard document BS 6069 (Part Two) to describe particulate matter in the size range 1–75µm in diameter. Dust nuisance is the result of the perception of the soiling of surfaces by excessive rates of dust deposition. Under provisions in the Environmental Protection Act 1990¹, dust nuisance is defined as a statutory nuisance.

¹ Environmental Protection Act 1990, Chapter 43, Part III Statutory Nuisances and Clean Air

There are currently no standards or guidelines for dust nuisance in the UK, nor are formal dust deposition standards specified. This reflects the uncertainties in dust monitoring technology and the highly subjective relationship between deposition events, surface soiling and the perception of such events as a nuisance. In law, complaints about excessive dust deposition would have to be investigated by the local authority and any complaint upheld for a statutory nuisance to occur. However, dust deposition is generally managed by suitable on-site practices and mitigation rather than by the determination of statutory nuisance and/or prosecution or enforcement notice(s).

3 Policy

National, regional and local planning policy relevant to air quality and the proposed site have been identified. These policies have been obtained from the following sources:

- The Department for Communities and Local Government website²;
- The Greater London Authority website³ and
- Camden Council website⁴

3.1 National Planning Policy

3.1.1 National Planning Policy Framework (2012)

The National Planning Policy Framework (NPPF) was published in March 2012 with the purpose of planning to achieve sustainable development. Paragraph 124 of the NPPF, on air quality, states that:

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

3.1.2 Planning Practice Guidance

As part of the NPPF, Planning Practice Guidance on various topics was recently published⁵. In relation to air quality, the guidance refers to the significance of air quality assessments to determine the impacts of proposed developments in the area and describes the role of local and neighbourhood plans with regard to air

² Department for Communities and Local Government, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf, Accessed February 2013

³ Greater London Authority, <http://www.london.gov.uk/>, Accessed January 2014

⁴ Camden Council <http://www.camden.gov.uk/ccm/navigation/environment/green-camden/air-quality/> [April 2014]

⁵ Department for communities and local government (2014) Planning Practice Guidance: Air Quality

quality. It also provides a flowchart method (provided in Appendix A) to assist local authorities in determining how considerations of air quality fit into the development management process.

3.1.3 Local Air Quality Management Policy Guidance (2009)

Policy guidance note LAQM.PG(09)⁶ provides additional guidance on the links between transport and air quality. LAQM.PG(09) describes how road transport contributes to local air pollution and how transport measures may bring improvements in air quality. Key transport related Government initiatives are set out, including regulatory measures and standards to reduce vehicle emissions and improve fuels, tax-based measures and the development of an integrated transport strategy.

LAQM.PG(09) also provides guidance on the links between air quality and the land use planning system. The guidance advises that air quality considerations should be integrated within the planning process at the earliest stage and is intended to aid local authorities in developing action plans to deal with specific air quality problems and create strategies to improve air quality. It summarises the main ways in which land use planning system can help deliver compliance with the air quality objectives.

3.2 Regional Planning Policy

3.2.1 The London Plan – Spatial Development Strategy for Greater London (2011)

The adopted London Plan⁷ forms part of the development strategy for the Greater London area until 2031 and integrates all economic, environmental, transport and social frameworks. Revised Minor Alterations⁸ to the London Plan were published in October 2013 for consistency with the NPPF. Some changes were made with regard to air quality including the removal of the term ‘air quality neutral’. Further alterations⁹ to the London Plan were published for consultation in January 2014; however these do not affect policies relating to air quality.

Specifically for new development proposals, the adopted London Plan tackles the issue of air quality by proposing the following measures:

- minimise increased exposure of poor air quality by the promotion of sustainable modes of transport;
- promote the use of sustainable design and construction methods in accordance to the Greater London Authority Best Practice Guidance;
- ensure provisions are made to reduce emissions from a development on-site; and

⁶ Defra, Local Air Quality Management Policy Guidance PG(09), February 2009

⁷ Greater London Authority, The London Plan: Spatial Development Strategy for Greater London, 2011

⁸ Greater London Authority, Revised Early Minor Alterations to the London Plan, October 2013

⁹ Greater London Authority, Draft Further Alteration to the London Plan, January 2014

- if the development includes the use of a biomass boiler, pollutant concentrations should be forecast and planning permission given only if there are no adverse air quality effects identified.

3.2.2 The Mayor's Air Quality Strategy (2010)

The Mayor's Air Quality Strategy¹⁰ (AQS) aims to improve air quality within London by targeting the reduction of emissions related to transport and construction. The main source of emissions is road traffic and the main focus of the Strategy is therefore on reducing traffic-related emissions, primarily through the promotion of cleaner vehicles and technologies.

Some of the initiatives proposed are the following:

- Targeted measures for areas with poor air quality;
- Ensure air quality benefits are realised through planning conditions and section 106 agreements; and
- Use of the planning system for reducing emissions from new developments.

3.2.3 Sustainable Design and Construction SPG (2014)

The Sustainable Design and Construction Supplementary Planning Guidance¹¹ (SPG) was published in April 2014 by Greater London Authority. Section 4.3 of the guidance focuses on air pollution and provides guidance on when assessments should be undertaken and how intelligent design can help minimise the effect of a development on local air quality.

The primary way in which the guidance aims to minimise air quality impacts is by setting an air quality neutral policy for buildings and transport¹², as well as emissions standards for combustion plant¹³. The air quality neutral policy sets benchmarks against which the annual emissions of NO_x and PM₁₀ from boilers and traffic associated with a proposed development should be assessed.

3.3 Local Planning Policy

3.3.1 Camden's Clean Air Action Plan (2013)

Camden's Clean Air Action Plan 2013-2015¹⁴ contains a variety of actions to help reduce NO₂ and PM₁₀ concentrations in the borough. The key objectives of the plan are listed as follows:

- Encourage reductions in fossil fuel use, the adoption of clean fuels and technology and promote energy efficiency.

¹⁰ Greater London Authority, *Cleaning London's Air: The Mayor's Air Quality Strategy*, 2010.

¹¹ Greater London Authority (2014) *Sustainable Design and Construction: Supplementary Planning Guidance*

¹² Air Quality Consultants (2013) *Air Quality Neutral Planning Support*

¹³ AMEC (2013) *Greater London Authority Air Quality Support: Biomass and CHP Emission Standards*

¹⁴ Camden Council, *Camden's Clean Air Action Plan 2013-2015*
<http://www.camden.gov.uk/ccm/content/environment/air-quality-and-pollution/air-quality/twocolumn/policies-reports-and-research.en?page=3> [April 2014]

- Raise awareness about air quality in Camden and promote lifestyle changes which can help reduce levels of air pollution and exposure to air pollution.
- Improve the health and well-being of the local population
- Work in partnership with national and regional bodies, and with local public and private organisations, to foster improvements in air quality.
- Lead by example and reduce NO₂ and PM₁₀ emissions associated with the Council's own buildings and transport services.
- Ensure actions which serve to reduce NO₂ and PM₁₀ emissions complement actions to mitigate CO₂ emissions, and vice-versa.

3.4 Other Relevant Policy and Guidance

3.4.1 Institute of Air Quality Management Guidance (2014)

The Institute of Air Quality Management (IAQM) guidance¹⁵ was produced in consultation with industry specialists and gives guidance to development consultants and environmental health officers on how to assess air quality impacts from construction. The IAQM guidance provides a method for classifying the significance of effect from construction activities based on 'dust classes' (high, medium or low) and proximity of the site to the closest receptors. It also suggests criteria for the classification of dust classes to be used along with professional judgement. The guidance recommends that once the significance of effect from construction is identified, the appropriate mitigation measures are implemented.

3.4.2 Environmental Protection UK Guidance (2010)

The 2010 Environmental Protection UK (EPUK) guidance note Development Control: Planning for Air Quality¹⁶ responds to the need for closer integration between air quality and development control. It provides a framework for air quality considerations within local development control processes, promoting a consistent approach to the treatment of air quality issues within development control decisions.

This document updates the guidance originally published by EPUK (formerly known as the National Society for Clean Air and Environmental Protection) in November 2004 (and subsequently revised in September 2006). The guidance has been widely used by local authorities, air quality consultants and developers.

The guidance includes a method for assessing the significance of the impacts of development proposals in terms of air quality and how to make recommendations relevant to the development control process in light of this assessment. The need for early and effective dialogue between the developer and local authority is identified to allow air quality concerns to be addressed as early in the development control process as possible. The guidance also provides some clarification as to when air quality constitutes a material consideration in the planning decision process.

¹⁵ IAQM (2014) Guidance on the Assessment of Dust from Demolition and Construction

¹⁶ Environmental Protection UK (2010) Development Control: Planning for Air Quality

4 Assessment Methodology

The overall approach to the air quality assessment comprises:

- A review of the existing air quality conditions at the Site;
- An assessment of the potential changes in air quality arising from the construction and operation of the Development; and
- Formulation of mitigation measures, where appropriate, to ensure any adverse effects on air quality are minimised.

4.1 Method of Baseline Assessment

Existing or baseline ambient air quality refers to the concentrations of relevant substances that are already present in the environment – these are present from various sources, such as industrial processes, commercial and domestic activities, agriculture, traffic and natural sources.

The following data sources have been used in this assessment to ascertain the baseline conditions:

- The London Borough of Camden air quality review and assessment and local air quality monitoring data¹⁷;
- The Department for Transport (DfT) website¹⁸;
- The Environment Agency (EA) website¹⁹; and
- The Department for Environment, Food and Rural Affairs (Defra) website²⁰.

Using these data sources, a description of the existing ambient air quality conditions at and around the site is presented later in section 5.

4.2 Method of Construction Assessment

The construction effects have been assessed using the qualitative approach described in the IAQM guidance²¹. This guidance applies to the assessment of dust from construction/demolition activities.

The IAQM guidance considers the potential for dust emissions from dust-generating activities, such as demolition of existing structures, earthworks, construction of new structures and trackout. Earthworks refer to the processes of soil stripping, ground levelling, excavation and land capping. Trackout is the transport of dust and dirt from the construction and/or demolition site onto the public road network, where it may be deposited and then re-suspended by vehicles using the network. This arises when vehicles leave the construction site with dusty

¹⁷ 2013 Air Quality Progress Report for the London Borough of Camden, 10 July 2013
<http://www.camden.gov.uk/ccm/content/environment/air-quality-and-pollution/air-quality/twocolumn/policies-reports-and-research.en?page=2> [April 2014]

¹⁸ Department for Transport, <http://www.dft.gov.uk/traffic-counts/area.php>, Accessed February 2013

¹⁹ Environment Agency, http://maps.environment-agency.gov.uk/wiyby/dataSearchController?topic=pollution&lang=_e Accessed February 2013

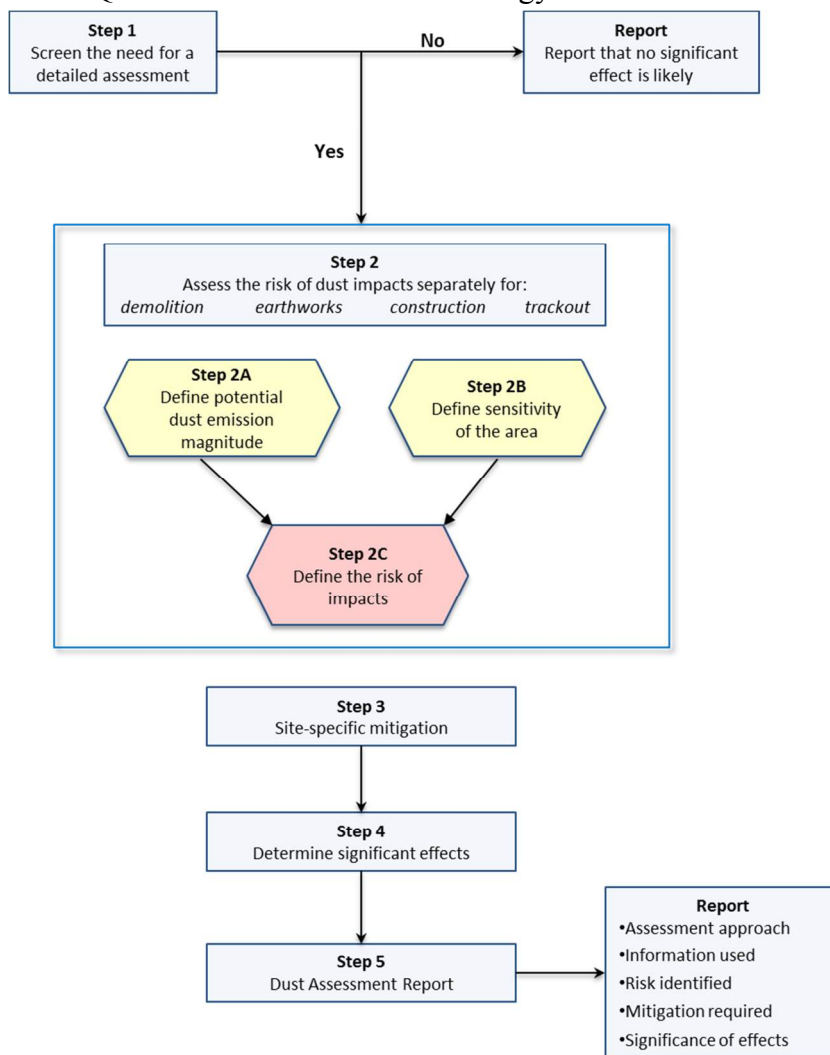
²⁰ Defra, <http://laqm.defra.gov.uk/tools.html>, Accessed February 2013

²¹ IAQM (2014) Guidance on the Assessment of Dust from Demolition and Construction

materials, which may then spill onto the road, or when they travel over muddy ground on site and then transfer dust and dirt onto the road network.

There are five steps in the assessment process described in the IAQM guidance. These are summarised in the diagram below and a further description is provided in the following sections.

Figure 1 IAQM Dust Assessment Methodology



4.2.1 Step 1: Screen Need for Assessment

The first step is the initial screening for the need of a detailed assessment. According to the IAQM guidance, an assessment is required where there are sensitive receptors within 350m of the site boundary (for ecological receptors that is 50m) and/or within 50m of the route(s) used by the construction vehicles on the public highway and up to 500m from site entrance(s).

4.2.2 Step 2: Assess the Risk of Dust Arising from the Works

This step is split into three sections as follows:

- 1) Define the potential dust emission magnitude;
- 2) Define the sensitivity of the area; and
- 3) Define the risk of impacts.

Each of the dust-generating activities is given a dust emission magnitude depending on the scale and nature of the works (step 2A) based on the criteria shown in Appendix B.

The sensitivity of the surrounding area is then determined (step 2B) for each dust effect from the above dust-generating activities, based on the proximity and number of receptors, their sensitivity to dust, the local PM₁₀ background concentrations and any other site-specific factors. Tables in Appendix B show the criteria for defining the sensitivity of the area to different dust effects.

The overall risk of the impacts for each activity is then determined (step 2C) prior to the application of any mitigation measures (Appendix B) and an overall risk for the site derived.

4.2.3 Step 3: Determine Site Specific Mitigation (if Required)

Once each of the activities is assigned a risk rating, appropriate mitigation measures are identified.

4.2.4 Step 4: Determine any significant Residual Effects

Once the risk of dust impacts has been determined and the appropriate dust mitigation measures identified, the final step is to determine whether there are any residual significant effects.

The guidance notes that, with the implementation of effective site-specific mitigation measures the impact of environmental effect will not be significant in most cases.

4.2.5 Step 5: Prepare a Dust Assessment Report

The last step of the assessment is the preparation of a Dust Assessment Report (which is presented in section 6 of this assessment).

4.3 Method of Operational Assessment

The development has the potential to impact on existing air quality as a result of road traffic exhaust emissions, such as NO₂ and PM₁₀, associated with vehicles travelling to and from the site during the operational phase as well as the installation of combustion plant, such as boilers, in the proposed development.

4.3.1 Road Traffic

A screening assessment of the changes to road traffic as a result of the proposed development was therefore undertaken using the criteria contained within the Design Manual for Roads and Bridges (DMRB) and EPUK guidance documents¹⁶

to determine the potential for trips generated by the development to affect local air quality.

The (Design Manual for Roads and Bridges) DMRB provides the following criteria for determination of road links potentially affected by changes in traffic flow:

- Daily Annual Average Daily Traffic (AADT) flows change by 1,000 or more;
- Daily Heavy Duty Vehicles (HDV) AADT flows change by 200 or more;
- Daily average speed changes by 10km/hr or more; or,
- Peak hour speed changes by 20km/hr or more.

The EPUK guidance document states the following criteria to help establish when an air quality assessment is likely to be considered necessary:

- Proposals that will generate or increase traffic congestion, where 'congestion' manifests itself as an increase in periods with stop start driving;
- Proposals that will give rise to a significant change in either traffic volumes, typically a change in AADT or peak traffic flows of greater than $\pm 5\%$ or $\pm 10\%$, depending on local circumstances (a change of $\pm 5\%$ will be appropriate for traffic flows within an AQMA), or in vehicle speed (typically of more than $\pm 10\text{km/hr}$), or both, usually on a road with more than 10,000 AADT (5,000 if 'narrow and congested');
- Proposals that would significantly alter the traffic composition on local roads, for instance, increase the number of HDVs by 200 movements or more per day; or,
- Proposals that include significant new car parking, which may be taken to be more than 100 spaces outside and AQMA or 50 spaces inside an AQMA.

Should these criteria not be met, then the DMRB and EPUK guidance documents consider air quality impacts associated with a scheme to be negligible and no further assessment is required.

Should screening of the traffic data indicate that any of the above criteria are met, then potential impacts at sensitive receptor locations can be assessed by calculating the predicted change in NO_2 and PM_{10} concentrations as a result of the proposed development. The significance of predicted impacts can then be determined in accordance with the methodology outlined in the EPUK guidance.

4.3.2 Combustion Plant

Operational air quality impacts from the on-site boilers have been assessed using the ADMS-5 atmospheric dispersion model. The inputs to the model are:

- Meteorological data;
- Boiler emissions;
- Buildings that may affect dispersion (Proposed renovated building and buildings in the vicinity); and
- Other model specific parameters.

4.3.3 Meteorological Data

Hourly sequential meteorological data for the nearest suitable meteorological station, at London City Airport, were obtained for 2010, 2011 and 2012. The London City meteorological station is located approximately 12km to the east of the proposed development. The meteorological data provided information on hourly wind speed and direction and the extent of cloud cover which was input to the dispersion model.

4.3.4 Boiler Assumptions

The following table outlines the input parameters relating to the on-site boiler that have been used in the model; many of which are based on preliminary design assumptions.

Table 2: Boiler Assumptions

Parameter	Input	Units
Gas Fired Condensing Boiler		
Total fuel input rating	700	kW
Number of units	2	
Boiler fuel type	Natural Gas	
Stack height	52	m
Stack diameter	425	mm
Outlet temperature	69	°C
Standard emission rate nitrogen oxides	40	mg/kWh
Exhaust velocity	10	m/s
Exhaust volume flow rate	0.236	m ³ /s
NO _x exhaust emission rate	0.0156	g/s

It should be noted that the boilers to be installed as part of the proposed development comply with emission standards for combustion plant set out in the Sustainable Design and Construction SPG¹¹. As the boiler units are gas fired, an assessment of PM₁₀ emissions has not been carried out as emissions would be negligible.

4.3.5 Building Assumptions

The following table outlines the assumptions in terms of input parameters relating to the proposed development building itself and buildings in the immediate vicinity which have been used in the model. These are based on preliminary design details provided by the architect.

Table 3: Building Assumptions

Building	Centre Coordinates	Length (m)	Width (m)	Height (m)	Orientation from North
21 -31 New Oxford Street	530240, 181435	75	61	51.6	340°
103 New Oxford Street	530255, 181510	91	47	43.2	80°
Commonwealth House	530310, 181461	58	35	44.3	45°
191 High Holborn	530347, 181437	37	37	31.6	45°
Post Office	530286, 181374	70	23	20.1	45°
Travelodge	530195, 181388	47	21	70.1	340°
Entertainment Building (West Central St)	530176, 181439	35	37	70.1	340°

* These buildings are triangular, quadrilateral or square, but only rectangular or circular can be selected in ADMS-5

4.3.6 NO_x to NO₂ Conversion

The model predicts NO_x concentrations which comprise principally nitric oxide (NO) and a small percentage of NO₂. The emitted NO reacts with oxidants in the air, mainly ozone (O₃), to form more NO₂. Air quality standards for the protection of human health are based on NO₂ and not total NO_x or NO. A suitable NO_x to NO₂ conversion needs to be applied to the modelled NO_x concentrations.

This assessment has followed the methodology set out by the Environment Agency²² which states that 70% of long-term (annual mean) and 35% of short-term (hourly mean) NO_x concentrations will convert to NO₂ as a worst case scenario.

4.3.7 Other Model Parameters

The extent of mechanical turbulence (and hence, mixing) in the atmosphere is affected by the roughness of the surface (i.e. ground) over which the air is passing. Typical surface roughness values range from 1.5 m (for cities, forests and industrial) to 0.001 m (for water or sandy deserts). In this assessment, the general land-use in the local study area can be best described as a large urban area with a corresponding surface roughness of 1.5 m.

4.4 Limitations and Assumptions

There are a number of limitations and uncertainties associated with modelling predictions. The dispersion model is required to simplify real world conditions based upon a series of algorithms and is dependant of input data.

²² Environment Agency, Air Quality Modelling and Assessment Unit, Conversion ratios for NO_x and NO₂

Regarding the aspects of the assessment which do not rely on the dispersion modelling, the conclusions are reliant upon information provided by the applicant, the validity of national guidance and screening tools, and on the professional judgement of the consultants.

4.5 Assessment of Significance

The Environmental Protection UK (EPUK) Guidance²³ provides an approach to describing the significance of the impacts predicted from air quality modelling, specifically for the pollutants NO₂ and PM₁₀. In this case, only an assessment of NO₂ has been undertaken. The approach takes into account the absolute change (in µg/m³) in the annual mean NO₂ concentrations between a without development and with development scenario to determine the magnitude of change. The magnitude is then used to determine the impact descriptor, also taking into account the predicted concentrations in relation to the relevant objective or limit value.

The impact descriptor is then used in the assessment of significance. The guidance provides a set of factors that determine the significance of a proposal in terms of air quality. The guidance notes that these factors should be considered, before a suitably qualified professional can determine, with sufficient justification, whether the overall significance of a potential development should be termed as *insignificant*, *minor*, *moderate* or *major*. This method allows for professional judgment to be made on a case by case basis, which is important as rigorous application of just a numerical or prescriptive approach can result in anomalous assessment conclusions. Appendix C outlines the process of determining the significance of the proposed development using the EPUK guidance.

The guidance also sets a second approach to the assessment of significance, using a flowchart (shown in Appendix C) to determine the priority of air quality in the planning process. This approach assumes that air quality impacts have been assessed quantitatively and follows the flowchart through a series of questions with closed yes/no answers.

4.5.1 Assessment Against the Air Quality Neutral Benchmarks

As discussed in section 3.2.3, the SPG on sustainable design and construction sets an ‘air quality neutral’ policy for buildings and transport, through the use of emissions benchmarks. As stated in the SPG, “*developments that do not exceed these benchmarks will be considered to avoid any increase in NO_x and PM emissions across London as a whole and therefore be air quality neutral*”.

In relation to emissions from buildings, Building Emission Benchmarks (BEBs) have been set for NO_x and PM₁₀ according to the land-use classes of the development. The air quality assessment has been developed in parallel with the Transport Assessment and as such finalised data is not yet available to allow the benchmarks to be tested. However, further assessment of the potential for air quality impacts as a result of operational traffic is given in section 7.1.

²³ Environmental Protection UK (2010). Development Control: Planning for Air Quality

In order to calculate the emissions from the proposed development and apply the BEBs, the following information was required:

- Gross floor area (m²) (for land-use classes); and
- On-site emissions of NO_x associated with building use (kg/annum).

As discussed above, as the boilers are gas fired, an assessment of PM₁₀ emissions is not required.

NO_x emissions (kg/annum) for each land-use class in the proposed development need to be calculated and summed to give the Total Building Emission (TBE). As the proposed development will include a centralised boiler system of two units, NO_x emissions have been applied to the whole development. The BEBs for the proposed development are then calculated using the GFA and subtracted from the TBE for the development. Should the outcome be negative, then the emissions from the proposed development are within the benchmark, thus no mitigation or offsetting would be required. If the outcome is positive, on or off-site mitigation or offsetting will be required and enforced in the form of a Section 106 agreement or Community Infrastructure Levy.

5 Existing Air Quality

5.1 Air Pollution Sources

5.1.1 Industrial Sources

Industrial air pollution sources are regulated through a system of operating permits or authorisations, requiring stringent emission limits to be met and ensuring that any releases are minimised or rendered harmless. Regulated (or prescribed) industrial processes are classified as Part A or Part B processes. Part A processes are regulated through the Pollution Prevention and Control (PPC) system (EC Directive 96/91/EC on Pollution Prevention and Control originally implemented into law via the Pollution Prevention and Control Act (1999)) which was superseded in 2007²⁴ and updated in 2010. Generally, the larger, more polluting processes are regulated by the Environment Agency (EA) and smaller, less polluting ones by the local authorities. Local authorities tend also to regulate only for emissions to air whereas the EA regulate emissions to air, water and land.

There are several processes regulated under Part A within the vicinity of the proposed development, which relate to water or waste disposal only. There are no processes regulated for emissions to air. There are also several Part B processes within the vicinity of the site²⁵. Due to the type and size of the Part B processes it is not anticipated that these would have a significant effect on ambient air quality at the proposed development. Furthermore, emissions associated with these processes are included in the Defra background air pollution maps which are discussed later in this section.

²⁴ Environmental Permitting (England and Wales) Regulations 2010 (SI 675).

²⁵ <http://maps.camden.gov.uk/airquality/> [assessed May 2014]

5.1.2 Road Traffic

In recent decades, transport atmospheric emissions, on a national basis, have grown to match or exceed other sources in respect of many pollutants, particularly in urban areas. In this area, vehicle emissions are likely to be the dominant source of air pollutants in the vicinity of the proposed development site. The main pollutants associated with road traffic are:

- Nitrogen dioxide (NO₂);
- Fine particulate matter (PM₁₀).

The proposed site is bound by New Oxford Street to the north, High Holborn to the south-east and Museum Street to the west. High Holborn is a major A road, as are Bloomsbury Way to the north and Shaftesbury Avenue to the west. The Department for Transport undertake traffic counts throughout the UK, which include locations along these roads. Annual average flows from 2012 are listed in the following table.

Emissions from traffic using these roads significantly influences pollutant concentrations in the vicinity of the proposed site.

Table 4: Annual Average Daily Traffic Flows for 2012

Traffic Count Location	OS Grid Ref	Distance of Traffic Count Location from Site	Annual Average Traffic Flows for all Motor Vehicles
A40 High Holborn	530289, 181427	0m to the south	15070
A40 Bloomsbury Way	530300, 181560	80m to the north	12535
A40 New Oxford Street	530100, 181450	95m to the west	12535
A401 Shaftesbury Avenue	530110, 181400	115m to the west	5584
A401 Bloomsbury Street	530080, 181400	140m to the west	12668
A40 High Holborn	530420, 181550	110m to the north-west	2526

5.1.3 Local Authority Review and Assessment

As required under the Environment Act 1995, local authorities are required to review and assess air quality with respect to the objectives for seven pollutants specified in the Government's National Air Quality Strategy (NAQS). Local authorities are required to carry out an Updating and Screening Assessment (USA) of their area every three years. If the USA identifies potential areas likely to exceed air quality objectives, then a detailed assessment of those areas is required. Where objectives are not predicted to be met, local authorities must declare the area as an AQMA. In addition, local authorities are required to produce an Air Quality Action Plan (AQAP) which includes measures to improve air quality within the AQMA.

The first round of review and assessment was undertaken by Camden Council in 1998. As a result the whole borough was declared an AQMA for NO₂ and PM₁₀ in 2000. Camden Council has subsequently completed five rounds of review and assessment. The outcome of these assessments did not identify any requirements to progress to detailed assessment. The latest progress report from 2012 indicates that the concentrations of NO₂ continue to exceed the short term and long term air quality objectives at all of the monitoring sites and therefore the AQMA declaration remains valid. Camden have recently updated their AQAP in 2013.

5.1.4 Local Air Quality Monitoring

Air Quality Monitoring is undertaken across Camden using both automatic and passive monitoring methods. As the proposed site is located in south Camden, close to the boundary with Westminster, Westminster City Council air quality data was also reviewed to determine if there were any monitoring points in the vicinity of the site. Telephone conversation with the EHO at Westminster City Council on 8th April confirmed that there was no monitoring data in north Westminster. Figure 2 presents the locations of automatic air quality monitoring in the area of the proposed development. Figure 3 presents the locations of passive diffusion tube monitoring in the area of the proposed development.

Automatic monitoring

Automatic monitoring is undertaken by Camden Council at a total of four monitoring sites, three of which are within 1.5km of the proposed development.

Figure 2: Local Authority Automatic Air Quality Monitoring

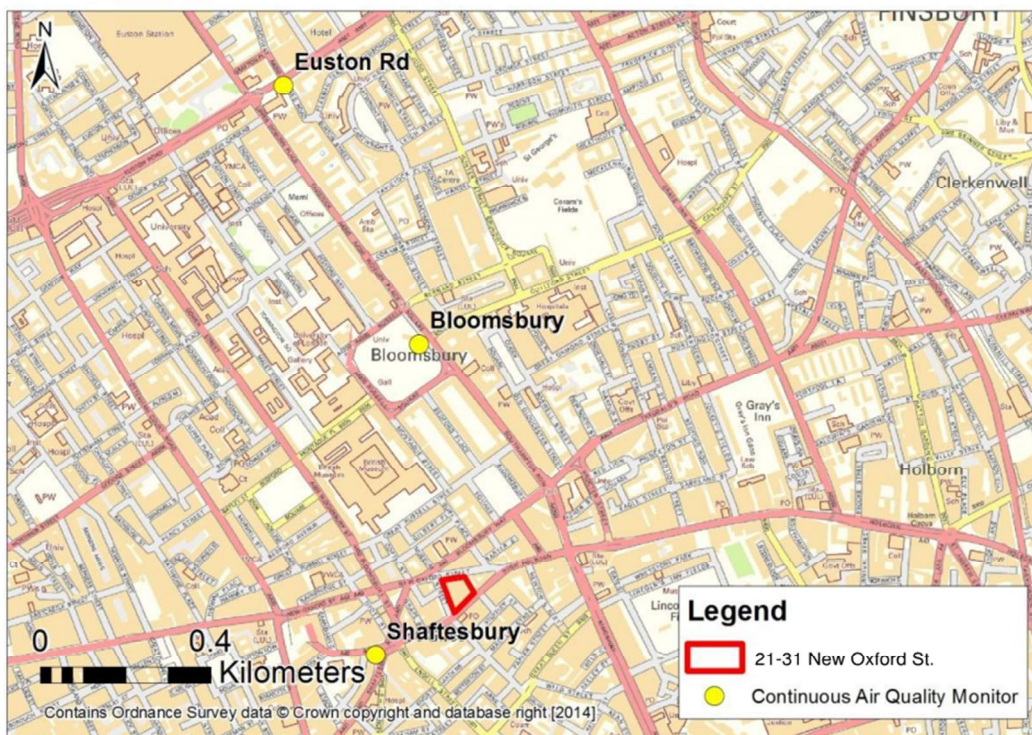


Table 5: Automatic Monitoring Stations

Site Ref	Site Name	OS Grid Ref	Site Type	Distance from Site	Pollutant Measured
1	London Bloomsbury	530120, 182034	Urban Underground	550m to the north	NO _x , PM ₁₀ , SO ₂ , O ₃
2	Shaftesbury Avenue	530060, 181290	Roadside	250m to the south-west	NO _x , PM ₁₀
3	Euston Road	529878, 182648	Roadside	1.2km to the north	NO _x , PM ₁₀

* owned by Defra and forms part of the UK Automatic Urban and Rural Network (AURN)

Results from 2010 to 2012 indicate that annual mean concentrations of NO₂ are above the annual mean NO₂ objective of 40µg/m³ at several monitoring stations within the vicinity of the site. Significant exceedences occur at roadside sites, however concentrations are also elevated at the urban background site (London Bloomsbury). Exceedences of the hourly mean NO₂ objective have been recorded at the roadside sites and are particularly elevated at Euston Road.

Results from 2010 to 2012 indicate that annual mean concentrations of PM₁₀ are well below the annual mean PM₁₀ objective of 40µg/m³. The daily mean objective of 50µg/m³ has not been exceeded more than 35 times a year between 2010 and 2012. No monitoring of PM_{2.5} is available within the vicinity of the proposed site.

Monitored data from Shaftesbury Avenue is likely to be most representative of the proposed site due to its close proximity to the site.

Table 6: Results of automatic monitoring for NO₂, exceedences of the annual mean NO₂ objective are highlighted as **bold**

Site Name	Site Type	2010	2011	2012
London Bloomsbury	Data Capture (%)	97	97	97
	Annual Mean NO ₂ Concentration (µg/m ³)	55	50	55
	Number of Hours >200µg/m ³	1	0	1
Shaftesbury Avenue	Data Capture (%)	89	89	89
	Annual Mean NO ₂ Concentration (µg/m ³)	89	76	71
	Number of Hours >200µg/m ³	21	15	12
Euston Road	Data Capture (%)	88	88	88
	Annual Mean NO ₂ Concentration (µg/m ³)	-	122	106
	Number of Hours >200µg/m ³	-	726	295

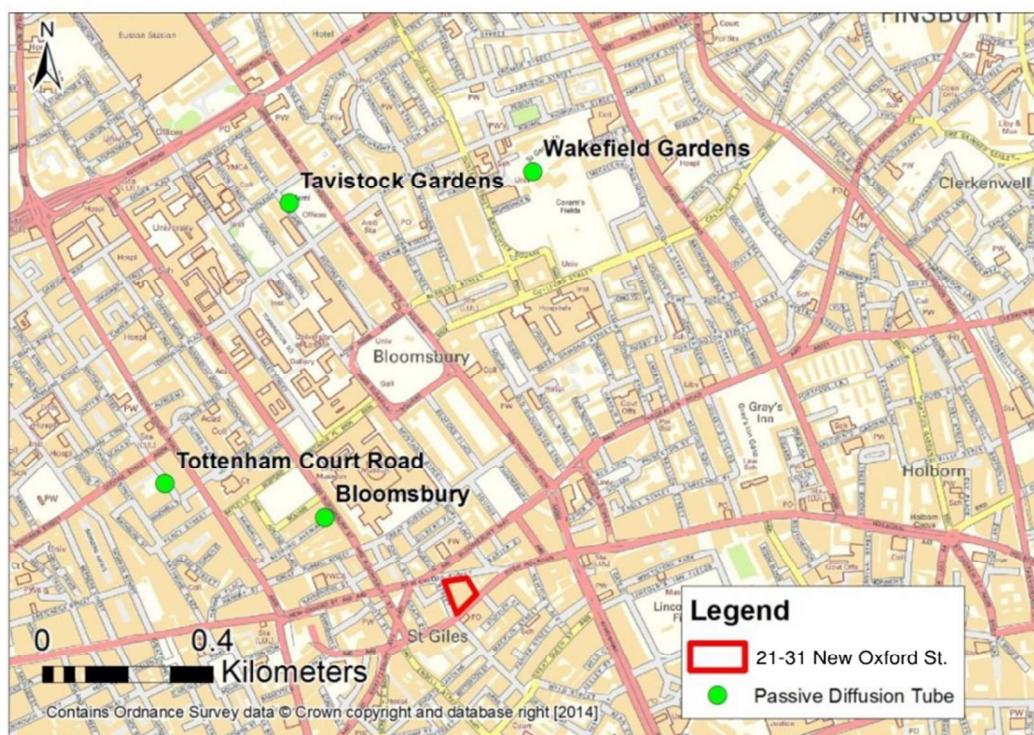
Table 7: Results of automatic monitoring for PM₁₀

Site Name	Site Type	2010	2011	2012
London Bloomsbury	Data Capture (%)		97	
	Annual Mean PM ₁₀ Concentration (µg/m ³)	18	22	19
	Number of Days >50µg/m ³	2	17	10
Shaftesbury Avenue	Data Capture (%)		92	
	Annual Mean PM ₁₀ concentration (µg/m ³)	29	32	29
	Number of Days >50µg/m ³	29	27	18

Passive Monitoring

Camden Council monitors NO₂ using a network of 14 diffusion tubes locations across the Borough. Those that are located within 1km of the development are listed in Table 8.

Figure 3: Local Authority Diffusion Tube Locations



Passive diffusion tube monitoring undertaken between 2010 and 2012 indicates consistent exceedences of the annual mean NO₂ objective at the roadside and kerbside monitoring locations along Bloomsbury Street and Tottenham Court Road. Exceedences of the annual mean NO₂ objective have also been recorded at the urban background monitoring locations. All locations presented are within vicinity of the major roads surrounding the proposed development. Monitored

data from the Bloomsbury Street diffusion tube location is likely to be most representative of the proposed site due to the proximity to the site.

Table 8: Details and Monitoring Data from NO₂ Diffusion Tube Monitoring Locations, exceedences of the annual mean NO₂ objective are highlighted as **bold**

Site Name	OS Grid Ref	Site Type	Distance from Site	Annual mean NO ₂ concentration (µg/m ³)		
				2010*	2011**	2012***
Bloomsbury Street	529962, 181620	Roadside	275m to the north-west	41^{a)}	76.7	71.7
Tottenham Court Road	529568, 181728	Kerbside	735m to the north-west	92	91.7	83.3
Tavistock Gardens	529880, 182334	Urban Background	920m to the north	52	47.6	40.2
Wakefield Gardens	530430, 182430	Urban Background	940m to the north-east	34	45.6	39.3

a) This is an anomalous result, no detail is given by Camden Council however recorded data for 2008 and 2009 is consistent with data recorded for 2011 and 2012.

*bias adjustment factor²⁶ of 0.88 for 2010

* bias adjustment factor of 0.91 for 2011

* bias adjustment factor of 0.87 for 2012

5.1.5 London Air Quality Network

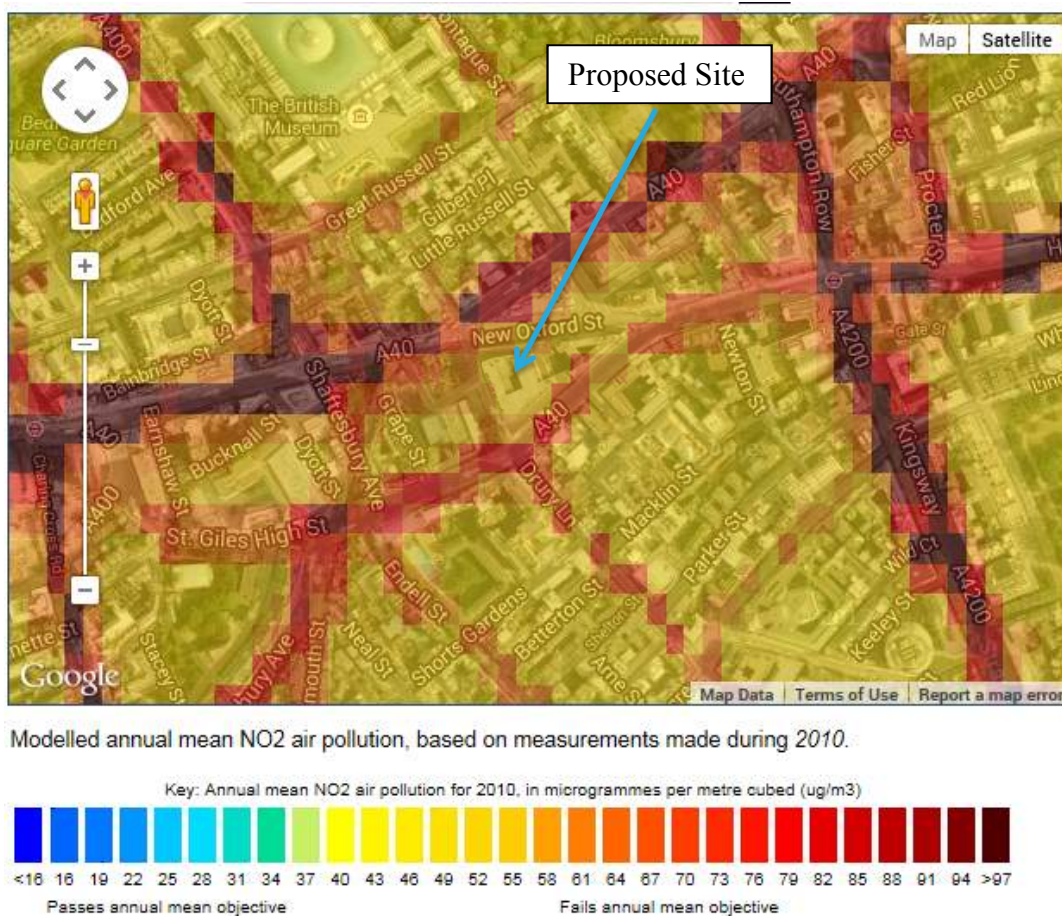
The London Air Quality Network has mapped modelled annual mean NO₂ concentrations²⁷ across the whole of London based on measured data during 2010. Figure 4 presents the area surrounding the proposed development for 2010 which is the most recent data available. This indicates that the entire area is above the annual mean NO₂ objective (40µg/m³) with significantly elevated levels at the roadside.

²⁶ The bias adjustment factor allows for the systematic over or under reading of NO₂ concentrations monitored with diffusion tubes compared with automatic monitoring. Factors can be determined following a local study that has co-located diffusion tubes with an automatic monitor or from the national database of co-location studies. The bias adjustment factor is applied to annual mean NO₂ concentrations recorded by diffusion tubes.

²⁷

<http://www.londonair.org.uk/london/asp/annualmaps.asp?species=NO2&LayerStrength=50&lat=51.5008010864&lon=-0.124632000923&zoom=14>, Accessed April 2014

Figure 4: London Air Quality Network Modelled Annual Mean NO₂ Concentrations (2010)



5.1.6 Background Pollutant Concentrations

The Defra website²⁰ includes estimated background air pollution data for NO_x, NO₂, PM₁₀ and PM_{2.5} for each 1km by 1km OS grid square. Estimated pollutant concentrations for 2013 at the OS grid squares in which the site lies are shown in Table 9 following table. The annual mean PM₁₀ background concentrations are predicted to be well below the annual mean objective (40µg/m³), however annual mean NO₂ background concentrations exceed the annual mean NO₂ objective.

Table 9: Annual Mean Background Pollutant Concentrations at the Proposed Development, 2013

Grid Square Centroid OS Coordinates				
Pollutant	529500, 181500	529500, 182500	530500, 181500	530500, 182500
Nitrogen Oxides (NO _x)	113.1	98.5	112.2	91.2
Nitrogen Dioxide (NO ₂)	54.1	49.4	54.7	47.1
Particulate Matter (PM ₁₀)	23.9	23.5	23.7	23.0
Fine Particulate Matter (PM _{2.5})	17.1	16.6	16.9	16.2

6 Construction Assessment

6.1 Need for Assessment

An assessment is required due to the presence of sensitive receptors within 350m of the proposed site and within 50m of the likely construction traffic routes. There are no designated sites of ecological importance within 50m of the proposed site therefore this element of the assessment is not considered further.

6.2 Risk of Dust Arising from the Works

The IAQM guidance takes into consideration four dust-generating activities; demolition, earthworks, construction and trackout. Due to the nature of the development, no earthworks will be undertaken as the substructure and foundations are to be retained in place. The top floors of the current building will be demolished and additional floors constructed.

Dust emission magnitudes have been assigned to each of the three activities anticipated for the proposed site in Table 10, following criteria set out in Table B1 of Appendix B.

Table 10: Dust Emission Magnitude for Construction Activities

Activity	Dust Emission Magnitude	Reasoning
Demolition	Large	The approximate volume of building to be demolished is >50,000m ³ and demolition will occur at height.
Construction	Large	Total building volume to be constructed will be >100,000m ³ ; Piling will be undertaken on site
Trackout	Medium	The Construction Management Plan indicates that even at peak times during the construction period, HDV trips to and from site are likely to be less than 25 per day; and HDV will not need to travel on any unpaved roads.

6.3 Risk of Effects and Significance

The sensitivity of the area has been assessed using the criteria in Table B2 of Appendix B. The results were then used to assess the overall sensitivity of the area to dust impacts. The overall sensitivity has been defined as shown in Table 11. There is an overall High sensitivity of the area for dust soiling effects on people and property and human health effects. These sensitivities have been determined based upon criteria set out in Table B3 of Appendix B.

Table 11: Sensitivity of the surrounding area

Potential Impact	Distance to Closest Sensitive Receptor	Sensitivity of the surrounding area		
		Demolition	Construction	Trackout
Dust soiling	<50m	Low	Low	Low
Human Health	<50m	Medium	Medium	Medium

Using the criteria set out in Table B6 in Appendix B, the impacts on the area without mitigation are defined.

Table 12: Summary of Dust Risk to Define Site Specific Mitigation

Source	Dust soiling	Human Health
Demolition	Medium	High
Construction	Low	Medium
Trackout	Low	Medium

The risk of a site giving rise to dust effects can be greatly reduced or eliminated by applying site specific mitigation measures for high risk sites outlined in the IAQM guidance¹⁵. These measures include but are not limited to general best practice measures such as erecting hoarding around dusty activities or the site boundary, carrying out regular site inspections with regard to dust and ensuring all vehicles travelling to and from site are switched off when stationary, no idling. These measures should be included in the Construction Environmental Management Plan (CEMP) for the site.

7 Operational Assessment

7.1 Operational Assessment of Traffic

Any additional vehicle movements associated with the operation of the proposed development will generate exhaust emissions, such as NO₂ and PM₁₀, on the local and regional road networks. The Air Quality Assessment has been developed in parallel with the Transport Assessment for the development and as such finalised data was not available at the time of assessment. However, it is understood that there will be an average of 50 delivery trips per day and only two disabled car parking spaces are proposed on site. In addition, the development has excellent public transport links with nearby London Underground stations, a number of bus routes and Barclays cycle hire docking stations in the vicinity.

Based on the above information, the proposed development is not anticipated to result in a change in AADT flows of more than 1,000, produce over 200 HDV movements per day or significantly affect average speeds on the local road network. Additionally, it is unlikely that the proposed development will generate or increase traffic congestion, significantly alter the traffic composition on local roads or include significant new car parking. As such, potential air quality impacts associated with operational phase road vehicle exhaust emissions are predicted to be negligible, in accordance with the DMRB and EPUK screening criteria shown in Section 4.3.1.

7.2 Operational Assessment of On-site Boiler

7.2.1 Maximum Ground Level Concentrations

The maximum predicted process contribution from the boilers at ground level is presented in Table 13 for all meteorological years. The results indicate that interannual variability between the meteorological years assessed is low between 2012 and 2011, but slightly higher when comparing to 2010. 2010 meteorological data produced the highest ground level concentrations. The maximum point of impact for annual mean ground level concentrations occurs to the south of the site (NGR 530258, 181386) along High Holborn.

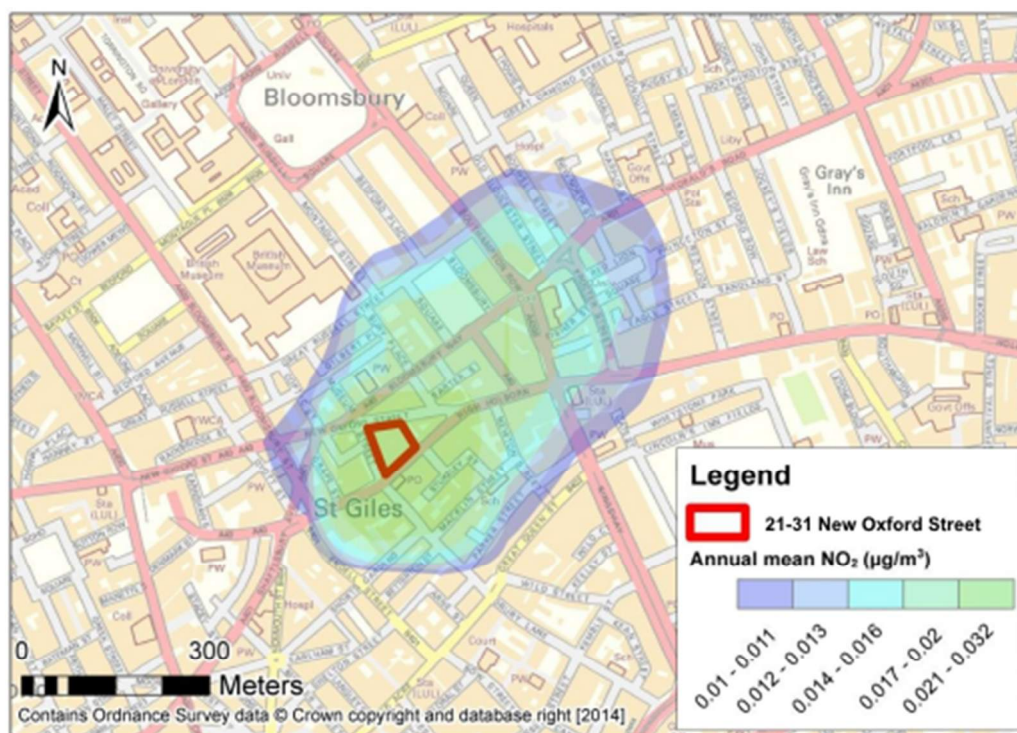
The maximum process contribution to annual mean NO₂ concentrations is predicted to be 0.2 µg/m³ (0.5 % of the annual mean NO₂ objective), therefore following the EPUK guidance, the magnitude of forecast change is imperceptible. The maximum process contribution to hourly mean NO₂ concentrations is predicted to be 0.6 µg/m³ (0.3% of the hourly mean NO₂ objective). The magnitude of forecast change is therefore also imperceptible.

Table 13: Modelled Process Contribution to NO₂ Concentrations for all Meteorological Years Assessed.

Meteorological Year	Process Contribution (µg/m ³)	
	Annual Mean NO ₂	Hourly Mean NO ₂ (99.8 th Percentile)
2010	0.2	0.6
2011	0.1	0.6
2012	0.1	0.6

At the area of maximum impact, background levels of annual mean NO₂ are 54.7µg/m³. Therefore, NO₂ concentrations already exceed the annual mean objective (40µg/m³). In comparison to the background concentrations, the process contribution from the on-site boiler is very small, and as the magnitude of forecast change of annual mean NO₂ is predicted to be imperceptible, the significance of effects at ground level will be negligible.

The spatial distribution of annual mean NO₂ concentrations for 2010 meteorological data are presented in Figure 5.

Figure 5: Annual Mean NO₂ Concentrations (2010)

8 Effects of Existing Air Quality on Future Residents

As discussed in the assessment of existing air quality, the area in which the proposed site lies exceeds the annual mean NO₂ objective and has the potential to exceed the hourly mean NO₂ objective. The inclusion of affordable housing within the proposed site introduces new exposure to an area which already

exceeds objectives. As such, mechanical ventilation has been included within the design as well as outdoor amenity areas being glazed to offer nominal protection from exposure to polluted ambient air. Mechanical ventilation will be provided to the apartments to provide outside air without the need for opening windows. This will operate at an enhanced rate when necessary to control summer overheating. Air intake will be taken from Dunns Passage or from roof level and the mechanical ventilation system will include a high efficiency heat recovery system to minimise energy demands. Mechanical ventilation and the use of glazed amenity space aims to reduce the exposure of residents to elevated pollutant concentrations.

9 Assessment of Significance

9.1.1 EPUK flowchart to determine the priority of air quality in the planning process

Using the EPUK flowchart method, the following is noted:

- The annual mean NO₂ objective is exceeded;
- The development does not lead to a significant worsening of this exceedence;
- The effect of the proposed development on local air quality is negligible;
- The proposed development is not judged to interfere with the implementation of any local plans and strategies.
- The proposed development introduces residential properties into an area which already exceeds the annual mean NO₂ objective.

Based on the above, air quality is considered to be a *high priority* in the planning process primarily due to the introduction of residential exposure into an area of existing poor air quality. Mechanical ventilation has been included in the design to mitigate the potential exposure of future residents.

9.1.2 EPUK factor to judge significance

Considering the significance of the air quality impacts according to the criteria set out in the guidance, the following points are noted:

- The development lies within an AQMA and local monitoring data indicates the annual mean NO₂ objective is exceeded;
- The overall magnitude of change in pollutant concentrations from the operation of boilers is imperceptible;
- The proposed development will not result in a significant increase in vehicle movements across the local road network as car parking on-site is limited to two disabled bays and public transport links within the vicinity of the development are excellent;
- New residential exposure is being introduced in the area by the proposed development; however dwellings will be mechanically ventilated;
- Amenity space such as winter gardens will be glazed to provide nominal protection; and

- The development does not interfere with the implementation of measures outlined in the AQAP.

Based on the above, the air quality is judged to be a *minor* consideration in the case of this development proposal for NO₂.

9.2 Assessment Against the Air Quality Neutral Benchmarks

The BEB and TBE have been calculated for the proposed development to determine if the development is considered air quality neutral.

Table 14: Building Emission Benchmarks

Land-use	GFA (m ²)	Building Emissions Benchmarks NO _x (gNO _x /m ² /annum)	Benchmarked Emissions (kg/NO _x /annum)
Retail	4,514	22.6	102.0
Office	35,568	30.8	1095.5
Residential	3,530	26.2	92.5
Building Emissions Benchmark			1290

The TBE have been derived following the assumption that the boilers are in operation continuously and the emission rate for NO_x is as set out in Table 2 (0.016 g/s). As a result, the TBE for the development is 504.6 kgNO_x/annum. This is a conservative assumption as it is unlikely that the boilers would be in operation continuously.

It can be observed that the TBE is well within the BEB for the proposed development, as such the development is considered to be 'air quality neutral' and no mitigation is required.

10 Conclusions

Ove Arup and Partners Limited (Arup) has been commissioned to undertake an air quality assessment as part of the planning application for the development of the building known as 21 -31 New Oxford Street, in central London. The scheme includes refurbishment of the existing commercial building and additional residential accommodation. The air quality assessment includes an assessment of existing air quality in the area and the impact of proposed development during the construction and operational phase.

The entire borough of Camden has been designated as an air quality management area for nitrogen dioxide and PM₁₀ through the local air quality management regime. The latest progress report from 2012 indicated that concentrations of NO₂ continue to exceed the objectives at all monitoring sites, however concentrations of PM₁₀ are well within the objectives. Camden have produced an action plan (2013 – 2015) setting out the steps the Council will take to work towards improving air quality.

Effects on local air quality in the construction phase have been assessed as negligible providing mitigation measures are included within the Construction Environmental Management Plan (CEMP) and implemented successfully.

The assessment considered the operational impact of emissions from boilers on local air quality which are to be installed within the proposed development. An assessment of emissions from the boilers has been undertaken using the atmospheric dispersion model ADMS V5. Nitrogen dioxide concentrations were assessed in the surrounding area of the proposed development.

At the area of maximum impact from the boiler, background levels of annual mean NO₂ are high and already exceed the annual mean objective. The process contribution from the on-site boilers is very small, as changes to annual NO₂ concentrations are predicted to be imperceptible. Emissions from the proposed development have also been assessed as 'air quality neutral' following supplementary planning guidance from the Greater London Authority.

Due to the excellent public transport links offered and the fact that on-site car parking is limited to two disabled bays, additional traffic movements associated with the operation of the development are not anticipated to be significant and the effect on local air quality will be negligible.

Based on the EPUK flowchart, air quality is considered to be a *high priority* in the planning process primarily due to the introduction of residential exposure into an area of existing poor air quality. However, mechanical ventilation has been included in the design to mitigate the potential exposure of future residents. Therefore, considering the significance of the air quality impacts according to the criteria set out in the EPUK guidance, the following points are noted:

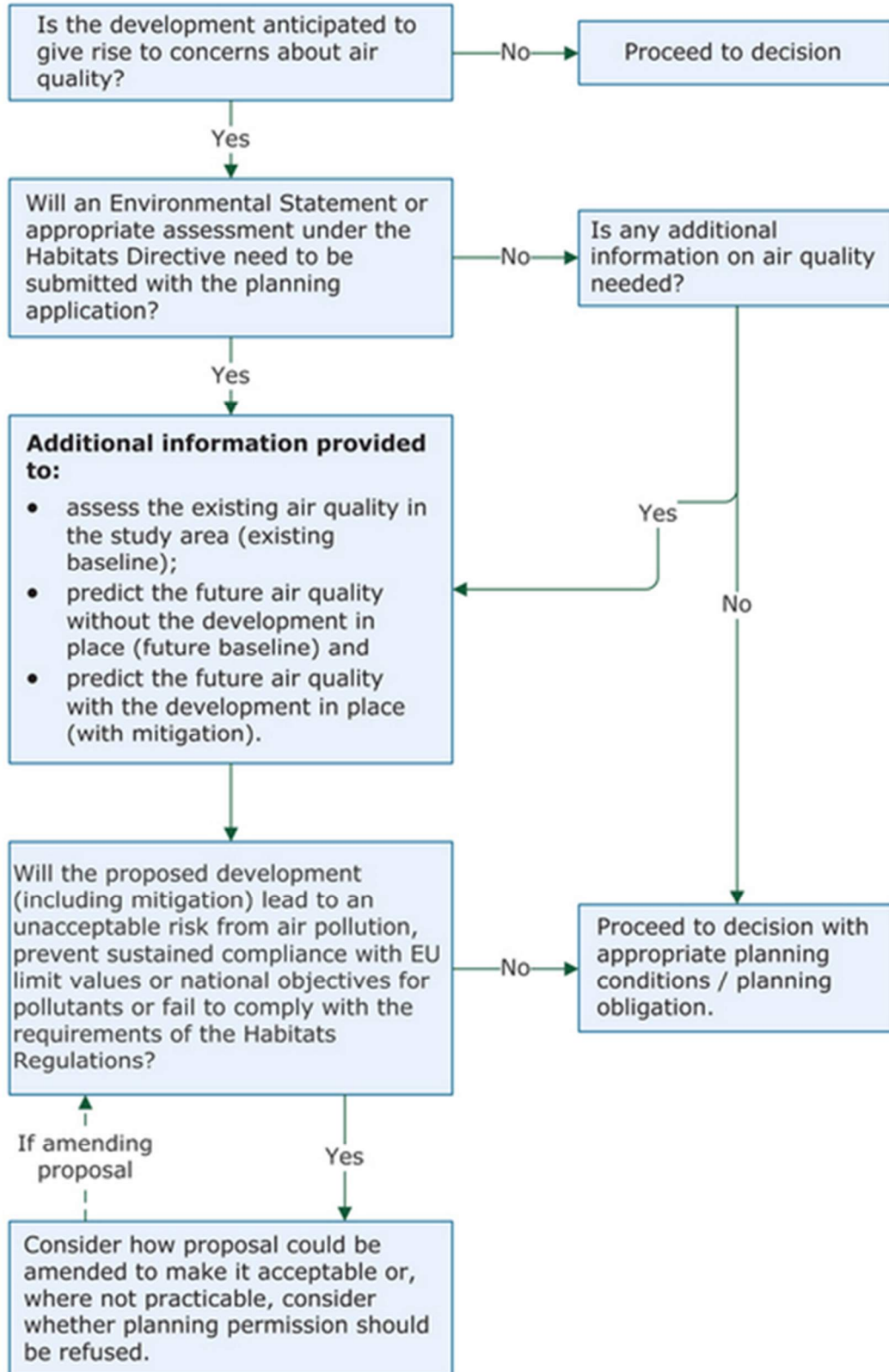
- The development lies within an AQMA and local monitoring data indicates the annual mean NO₂ objective is exceeded;
- The overall magnitude of change in pollutant concentrations from the operation of boilers is imperceptible;
- The proposed development will not result in a significant increase in vehicle movements across the local road network as car parking on-site is limited to two disabled bays and public transport links within the vicinity of the development are excellent;
- New residential exposure is being introduced in the area by the proposed development; however dwellings will be mechanically ventilated; and
- Amenity space such as winter gardens will be glazed to provide nominal protection; and
- The development does not interfere with the implementation of measures outlined in the AQAP.

Based on the above, the air quality is judged to be a *minor* consideration in the case of this development proposal for NO₂.

Appendix A

Planning Practice Guidance

A1 PPG Flowchart Method



Appendix B

Construction Dust Assessment Methodology

B1 Construction Dust Methodology

Table B1: Dust Emission Magnitude

Dust Emission Magnitude		
Small	Medium	Large
Demolition		
<ul style="list-style-type: none"> • total building volume <20,000m³ • construction material with low potential for dust release (e.g. metal cladding or timber) • demolition activities <10m above ground • demolition during wetter months 	<ul style="list-style-type: none"> • total building volume 20,000 - 50,000m³ • potentially dusty construction material • demolition activities 10 - 20m above ground level 	<ul style="list-style-type: none"> • total building volume >50,000m³ • potentially dusty construction material (e.g. concrete) • on-site crushing and screening • demolition activities >20m above ground level
Earthworks		
<ul style="list-style-type: none"> • total site area <2,500m² • soil type with large grain size (e.g. sand) • <5 heavy earth moving vehicles active at any one time • formation of bunds <4m in height • total material moved <20,000 tonnes • earthworks during wetter months 	<ul style="list-style-type: none"> • total site area 2,500m² - 10,000m² • moderately dusty soil type (e.g. silt) • 5 – 10 heavy earth moving vehicles active at any one time • formation of bunds 4 - 8m in height • total material moved 20,000 - 100,000 tonnes 	<ul style="list-style-type: none"> • total site area >10,000m² • potentially dusty soil type (e.g. clay, which will be prone to suspension when dry due to small particle size) • >10 heavy earth moving vehicles active at any one time • formation of bunds >8m 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 release (e.g. metal cladding or timber) 	<ul style="list-style-type: none"> • total building volume 25,000 - 100,000m³ • potentially dusty construction material (e.g. concrete) • on-site concrete batching 	<ul style="list-style-type: none"> • total building volume >100,000m³ • piling • on-site concrete batching • sandblasting
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 <50m 	<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 – 100m 	<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 >100m

Table B2: Area Sensitivity

Define sensitivity of the area			
Sensitivity of Surrounding Area	Examples		
	Sensitivity of People to Dust Soiling Effects	Sensitivities of People to the Health Effects of PM ₁₀	Ecological Receptors
Low	<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 values by soiling; • There is transient exposure, where the people or property would reasonably be expected to be present only for limited periods of time as part of the normal pattern of use of the land; • Indicative examples include playing fields, farmland (unless commercially sensitive horticulture), footpaths, short term car parks and roads. 	<ul style="list-style-type: none"> • Locations where human exposure is transient; • Indicative examples public footpaths, playing fields, parks and shopping streets. 	<ul style="list-style-type: none"> • Locations with a local designation where the features may be affected by dust deposition; • Indicative examples include local Nature Reserve with dust sensitive features.
Medium	<ul style="list-style-type: none"> • Users would expect to enjoy a reasonably level of amenity, but would not reasonably expect to enjoy the same levels of amenity as in their home; • The appearance, aesthetics or value of their property could be diminished by soiling; • Indicative examples include parks and places of work. 	<ul style="list-style-type: none"> • Locations where people exposed are workers, and exposure is over a time period relevant to the air quality objective for PM₁₀ (in the case of the 24-hour objectives a relevant locations would be one where individuals may be exposed for eight hours or more in a day); • Indicative examples may include offices and shops, but will generally not include workers occupationally exposed to PM₁₀ as potential is covered by Health and Safety at Work legislation. 	<ul style="list-style-type: none"> • Locations where there are particularly important plant species, where its dust sensitivity is uncertain or unknown; • Locations with a natural designation where the features may be affected by dust deposition indicative examples include a Site of Special Scientific Interest (SSSI) with dust sensitive features.

Define sensitivity of the area			
Sensitivity of Surrounding Area	Examples		
	Sensitivity of People to Dust Soiling Effects	Sensitivities of People to the Health Effects of PM ₁₀	Ecological Receptors
High	<ul style="list-style-type: none"> Users can reasonably expect a enjoyment of a high level of amenity the appearance, aesthetics or values of their property would be diminished by soiling; and the people or property would reasonably be expected to be present continuously, or at least regularly for extended periods as part of the normal pattern of use of the land; Indicative examples include dwellings, museum and other culturally important collections, medium and long term car parks and car showrooms. 	<ul style="list-style-type: none"> Locations where members of the public are exposed over a time period relevant to the air quality objective for PM₁₀ (in the case of the 24-hour objectives a relevant locations would be one where individuals may be exposed for eight hours or more in a day); Indicative examples include residential properties. Hospitals and schools and residential care homes should also be considered as having equal sensitivity to residential areas. 	<ul style="list-style-type: none"> Locations where an international or national designation and the designated features may be affected by dust soiling; Locations where there is a community of particularly dust sensitive species such as vascular species included in the Red Data List for Great Britain; An indicative example is a Special Area of Conservation (SAC) designated for acid heathlands adjacent to the demolition of a large site containing concrete (alkali) buildings or for the presence of lichen.

Table B3: Sensitivity of the area to dust soiling effects on people and property

Sensitivity of the area to dust soiling effects on people and property					
Receptor sensitivity	Number of receptors	Distance from the source (m)			
		< 20	< 50	< 100	< 350
High	>100	High	High	Medium	Low
	10 – 100	High	Medium	Low	Low
	< 10	Medium	Low	Low	Low
Medium	> 1	Medium	Low	Low	Low
Low	> 1	Low	Low	Low	Low

Table B4: Sensitivity of the area to human health impacts

Sensitivity of the area to human health impacts						
Background PM ₁₀ concentrations (annual mean)	Number of receptors	Distance from the source (m)				
		< 20	< 50	< 100	< 200	< 350
High receptor sensitivity						
> 32µg/m ³	> 100	High	High	High	Medium	Low
	10 – 100			Medium	Low	
	< 10		Medium	Low		
28 – 32µg/m ³	> 100	High	High	Medium	Low	Low
	10 – 100		Medium	Low		
	< 10					
24 – 28µg/m ³	> 100	High	Medium	Low	Low	Low
	10 – 100					
	< 10		Medium			
< 24µg/m ³	> 100	Medium	Low	Low	Low	Low
	10 – 100	Low				
	< 10					
Medium receptor sensitivity						
–	> 10	High	Medium	Low	Low	Low
	< 10	Medium	Low			
Low receptor sensitivity						
–	> 1	Low	Low	Low	Low	Low

Table B5: Sensitivity of the area to ecological Receptors

Sensitivity of the area to ecological Receptors		
Receptor sensitivity	Distance from the source (m)	
	< 20	< 50
High	High	Medium
Medium	Medium	Low
Low	Low	Low

Table B6: Risk of Dust Impacts

Risk of dust impacts			
Sensitivity of area	Dust emission magnitude		
	Large	Medium	Small
<i>Demolition</i>			
High	High risk site	Medium risk site	Medium risk site
Medium	High risk site	Medium risk site	Low risk site
Low	Medium risk site	Low risk site	Negligible
<i>Earthworks</i>			
High	High risk site	Medium risk site	Low risk site
Medium	Medium risk site	Medium risk site	Low risk site
Low	Low risk site	Low risk site	Negligible
<i>Construction</i>			
High	High risk site	Medium risk site	Low risk site
Medium	Medium risk site	Medium risk site	Low risk site
Low	Low risk site	Low risk site	Negligible
<i>Trackout</i>			
High	High risk site	Medium risk site	Low risk site
Medium	Medium risk site	Low risk site	Negligible
Low	Low risk site	Low risk site	Negligible

Appendix C

EPUK Significance Criteria

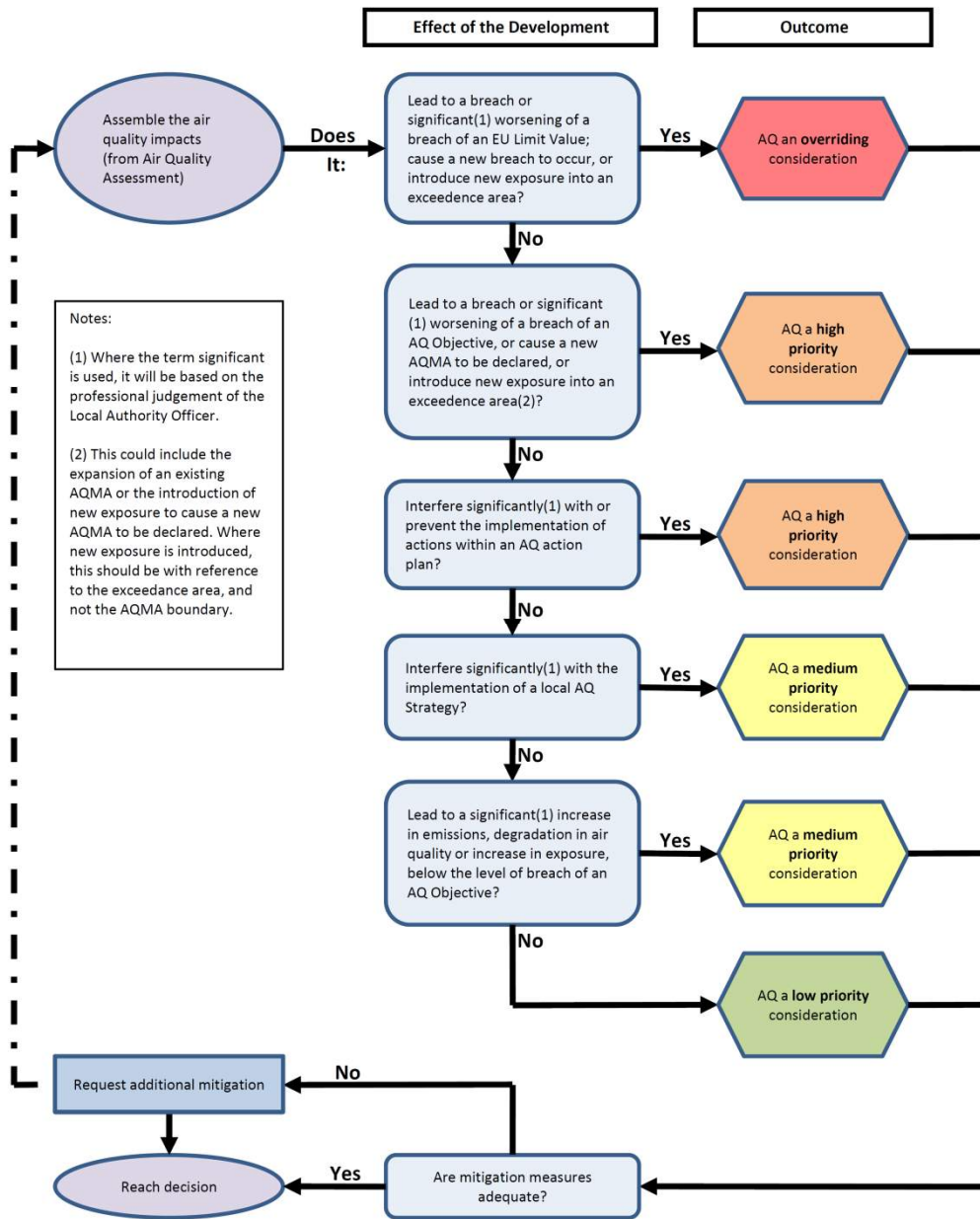
EPUK Classification of Magnitude of Change	
Magnitude of Change	Change in Annual Mean NO ₂ Concentrations (µg/m ³)
Large	> 4.0
Medium	2.0 – 4.0
Small	0.4 – 2.0
Imperceptible	< 0.4

EPUK Impact Descriptors for NO ₂ Annual Mean Concentrations			
Absolute Concentration in Relation to Objective/Limit Value	Change in Concentration		
	Small	Medium	Large
Increase with Scheme			
Above Objective/Limit Value with Scheme (40 µg/m ³)	Slight Adverse	Moderate Adverse	Substantial Adverse
Just Below Objective/Limit Value with Scheme (36 - 40 µg/m ³)	Slight Adverse	Moderate Adverse	Moderate Adverse
Below Objective/Limit Value with Scheme (30 - 36 µg/m ³)	Negligible	Slight Adverse	Slight Adverse
Well Below Objective/Limit Value with Scheme (<30 µg/m ³)	Negligible	Negligible	Slight Adverse
Decrease with Scheme			
Above Objective/Limit Value without Scheme (40 µg/m ³)	Slight Beneficial	Moderate Beneficial	Substantial Beneficial
Just Below Objective/Limit Value without Scheme (36 - 40 µg/m ³)	Slight Beneficial	Moderate Beneficial	Moderate Beneficial
Below Objective/Limit Value without Scheme (30 - 36 µg/m ³)	Negligible	Slight Beneficial	Slight Beneficial
Well Below Objective/Limit Value without Scheme (<30 µg/m ³)	Negligible	Negligible	Slight Beneficial

EPUK Factors to Judge Significance

- Number of people affected by slight, moderate or major air quality impacts and a judgment on the overall balance.
- Where new exposure is being introduced into an existing area of poor air quality, then the number of people exposed to levels above the objective or limit value will be relevant.
- The magnitudes of the changes and the descriptions of the impacts at the receptors.
- Whether or not an exceedence of an objective or limit value is predicted to arise in the study area, where none existed before, or an exceedence area is substantially increased.
- Whether or not the study area exceeds an objective or limit value and this exceedence is removed, or the exceedence area is reduced.
- Uncertainty, including the extent to which worst case assumptions have been made.
- The extent to which an objective or limit value is exceeded; eg. an annual mean NO₂ of 41 µg/m³ should attract less significance than an annual mean of 51 µg/m³.

EPUK Flowchart



21 – 31 New Oxford Street. Door-drop area

