London School of Hygiene and Tropical Medicine (LSHTM) 15-17 Tavistock Place London

Transport Statement

(including assessment of operational, servicing and construction traffic)

Wilde

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Transport Statement

Introduction

1 Introduction

1.1 This Transport Statement has been prepared by Wilde Carter Clack, Consulting Civil Engineers, on behalf of the London School of Hygiene & Tropical Medicine (the School) in support of a planning application for a proposed development to the rear of the existing School building at 15-17 Tavistock Place, Camden, London.

1.2 The existing building at Tavistock Place, owned by the School, is an early twentieth century brick-faced building comprising four storeys plus a basement. It faces directly onto Tavistock Place, to which it has a highways frontage and from which it is accessed by vehicles and pedestrians. To the rear of the main building is a small courtyard area and towards the rear of the site is a single storey structure being a former depot.

1.3 In January 2017, planning permission was secured for the demolition of the single storey structure to the rear of the site and the development, in its stead, of additional laboratory space. The School now seeks permission for a development of reduced scale, which would still involve the demolition of the single storey structure and the construction to the rear of the site of additional laboratory, research and higher education space.

1.4 The School building at 15 – 17 Tavistock Place lies within the King's Cross Ward of the London Borough of Camden, which is the local planning authority. Highway responsibilities within the area are split between Transport for London, which is responsible for the Transport for London Road Network, TLRN, and the London Borough of Camden, which is the local highway authority.

1.5 At a pre-application meeting with officers of the London Borough of Camden (LBC) on 3 February 2015 in respect of the now-approved scheme (hereafter referred to as the approved scheme) the highways development control engineer indicated that a Transport Statement would be required in support of the planning application for the proposed development. A Transport Statement, as opposed to a full Transport Assessment, is appropriate where it is recognised that the proposed development would have relatively small transport implications. A Transport Statement is therefore also considered appropriate in respect of the revised scheme.

1.6 This Transport Statement has been prepared in accordance with best practice and having regard to the guidance published by London Borough of Camden (LBC), in particular CPG7: Camden Planning Guidance 7 Transport. Reference has also been made to the Transport Assessment Guidance published online by Transport for London. With regards to the scope and content of a Transport Statement, reference was made to Chapter 3 of the guidance on the preparation of Transport Assessments published jointly by the Departments for Transport and Communities and Local Government in March 2007[1], which in these respects is considered to remain valid notwithstanding that it is acknowledged that the guidance was withdrawn by Government in October 2014.

1.7 The purpose of this Transport Statement is to consider the transport characteristics of the proposed development, in the context not only of the existing School use on the site but also in comparison with the approved scheme, and to examine the impact that the proposal would have on the local transport network in order to enable the local planning and highway authorities to judge the merits of the proposal in transport terms.

2 Structure of this Transport Statement

2.1 This Transport Statement is divided into two main sections, corresponding with the recommendations of the former national guidance. It follows the same structure and layout as the Transport Statement submitted in support of the application for the

[1] Guidance on Transport Assessment: DCLG/DfT – The Stationery Office, March 2007

approved scheme[2], updated and revised as appropriate to reflect subsequent changes in policy, baseline conditions and the specific characteristics of the current proposals relative to the approved scheme.

2.2 Following an examination, in section 3 below, of the Policy Context for this Transport Statement, **Section A** describes existing conditions, broken down into two areas covering **Existing Site Information** and **Baseline Transport Data.**

2.3 Existing Site Information provides a description of the site, its current and permitted use and its surroundings.

2.4 Baseline Transport Data presents an assessment of existing public transport services accessible from the site (including the results of a PTAL assessment) and examines the accessibility of the site by sustainable modes of transport. It provides details of the results of a multi-modal survey of existing trips to and from the site commissioned on behalf of the School and carried out by an independent survey company during April 2015. It also describes the results of a survey of existing service and delivery vehicle trips undertaken by the School, again during April 2015.

2.5 Section B of the report provides, specifically in comparison with the approved scheme, a detailed description of the proposed development, including the internal floor area and its proposed uses, details of the access, parking provision for disabled persons and cycles and servicing arrangements. Based on the trip data presented in Part A, an assessment is made of the likely effects of the proposed development on person trips to and from the site. A similar assessment is made of the likely changes to the numbers of service and delivery vehicle trips and the future arrangements for vehicular access for servicing/delivery vehicles are discussed. The impacts on the local transport system of the demolition/construction phase of the development are considered, together with the contents of a Construction Management Plan (CMP) that contains suitable measures to mitigate those impacts and which accompanies the planning application. The proposed arrangements to encourage sustainable travel to and from the development, through the medium of a site-specific Travel Plan are described.

[2] Bloomsbury Research Institute, 15-17 Tavistock Place, London: Transport Statement – Wilde Carter Clack, June 2015

2.6 Finally, the report provides a summary of and conclusions arising from the assessments carried out. It is concluded that, in common with the larger approved scheme, the proposed revised development of the existing School building would not have a significant impact on the local transport network and should, as a result, be acceptable to the local planning and highway authorities.

Policy Context

3 The Policy Framework

3.1 The Transport Statement has been prepared within a framework of national, regional and local policies that support the principle of sustainable development. New regional and local development plans have been published since the submission of the earlier Transport Statement[2] and the following section has therefore been revised accordingly. These national, regional and local policies can be briefly summarised as follows.

National Planning Policy Framework (NPPF) (2012)

3.2 The principle of sustainable development is at the heart of the National Planning Policy Framework. The framework sets out 12 core land-use planning principles, one of which is that:

Planning should actively manage patterns of growth to make the fullest possible use of public transport, walking and cycling and focus significant development in locations which are or can be made sustainable.

3.3 The framework establishes a presumption in favour of sustainable development. Section 4 of the framework (paragraphs 29-41) provides the planning policy framework for promoting sustainable transport. Paragraph 32 requires that planning decisions about developments that generate significant numbers of trips should take account of the extent to which opportunities for sustainable transport modes have been taken up, safe access is provided for all people, and whether cost-effective improvements to the transport network can be undertaken to limit the impacts of the development. The National Planning Policy Framework states that development should only be prevented or refused where the residual cumulative impacts of development are severe. A specific reference is made to the role of Transport

Statements in helping planning authorities to fulfil this requirement. Paragraph 34 requires that plans and decisions should ensure that developments that generate significant movement are located where the need to travel will be minimised and the use of sustainable transport modes can be maximised. This Transport Statement describes the opportunities that exist within proximity of the School site that will help to maximise trips by sustainable transport modes. Paragraph 35 requires development plans to exploit opportunities for the use of sustainable transport modes for the movement of goods or people and requires developments to be designed where practicable to accommodate the efficient delivery of goods and supplies. The Transport Statement describes the features of the proposed development that will promote the use of sustainable transport modes and facilitate the efficient delivery of goods and supplies. The preparation of this Transport Statement is therefore consistent with national planning policy.

The London Plan (2016)

3.4 Spatial planning at a strategic level in London is set out in the **London Plan[3],** which was published in July 2011**.** The plan considers the future development of the Capital to 2031 and beyond. In March 2016 the Mayor formally adopted the Further Alterations to the London Plan and a consolidated, updated London Plan[4] which extends the formal end date of the plan to 2036.

3.5 As with the previous London Plan[5], the idea of **sustainable development** is central to the current London Plan and all policies in the plan are designed to promote sustainable development. The plan identifies the Mayor's aim as being to '…seek to manage growth to ensure it takes place in the most sustainable way possible.' From the Mayor's vision of the Capital as a place that 'excel[s] among global cities' to individual policies, managing and planning for growth that is sustainable is a recurring feature of the plan.

3.6 To deliver this vision, the Mayor has set six objectives that are the embodiment of sustainable development. They envisage a city that is prosperous, competitive,

[3] 'The London Plan – Spatial Development Strategy for Greater London' Greater London Authority, July 2011
[4] 'The London Plan – Spatial Development Strategy for Greater London Consolidated with Alterations since 2011' Greater London Authority, March 2016
[5] 'The London Plan – Spatial Development Strategy for Greater London Consolidated with Alterations since 2004' Greater London Authority, February 2008

diverse, accessible and environmentally responsible, where growth is accommodated within its existing boundaries.

3.7 **Objective 6** of these six objectives is to **improve London's accessibility**, creating:

'A city where it is easy, safe and convenient for everyone to access jobs, opportunities and facilities with an efficient and effective transport system which actively encourages more walking and cycling, makes better use of the Thames and supports delivery of all the objectives of this Plan.'

3.8 This Transport Statement demonstrates that the existing School building, the site of the proposed development, is in a sustainable location that will encourage all those travelling to and from the site to travel by sustainable modes of transport.

3.9 Chapter 6 of the Plan deals with London's Transport, setting out a series of strategic policies that will encourage patterns of development that reduce the need to travel, especially by car; that seek to improve the capacity and accessibility of public transport, walking and cycling; that will promote a shift to more sustainable modes of travel with significant increases in walking and cycling and a reduction in congestion; and that facilitate the efficient distribution of freight whilst minimising its impacts on the transport network. Policy 6.3 refers specifically to the need to ensure that the impacts of development proposals on transport capacity and the transport network are fully assessed. This Transport Statement fulfils that requirement and demonstrates that the proposed development would encourage sustainable transport modes, in particular walking, cycling and public transport, and would therefore contribute towards the objectives of the Plan.

Local authority policy – the Camden Local Plan (2017)

3.10 Planning decisions in the London Borough of Camden are made with regard to the London Plan and planning documents adopted by the Council. Currently, the development plan for the London Borough of Camden comprises the **Local Plan**[6] formally adopted by the Council on 3rd July 2017. The Local Plan provides the planning framework for the Borough until 2031. The Local Plan contains several strategic objectives and detailed policies that support and promote sustainable development.

[6] 'The Camden Local Plan 2016-2031: London Borough of Camden. Adopted July 2017

3.11 By applying the policies of the Local Plan, the Council will continue to promote sustainable modes of transport as a means of reducing congestion, air pollution and carbon emissions, whilst promoting improvements in health and well-being. The Plan recognises that 'standards of amenity (the features of a place that contribute to its attractiveness and comfort) are major factors in the health and quality of life of the borough's residents, workers and visitors and fundamental to Camden's attractiveness and success.' Given the borough's Central London location, amenity is a particularly important issue. Policy A1 of the Local Plan, 'Managing the impact of development', therefore seeks to ensure that standards of amenity are protected when new development is proposed.

3.12 Under Policy A1, the Council will consider the information supplied in documents such as this Transport Statement when assessing the impacts of proposed developments. The Council will grant permission for development unless it would cause unacceptable harm to amenity.

3.13 Policy T1 'Prioritising walking, cycling and public transport' states that the Council will promote sustainable transport by prioritising walking, cycling and public transport in the borough. Development proposals will be required to prioritise the needs of pedestrians and cyclists and ensure that sustainable transport will be the primary means of travel to and from the site. This Transport Statement demonstrates that trips to and from the existing School building at Tavistock Place are undertaken predominantly by sustainable transport modes and would continue to be so should the proposed development be approved, not least by the implementation of a Travel Plan (a copy of which also accompanies the planning application) that provides a mechanism to ensure that sustainable transport would continue to be the primary means of travel associated with the proposed development.

3.14 Policy T2 relates to 'Parking and car-free development', stating that the Council will limit the availability of parking and require all new developments in the borough to be car-free. It is proposed to provide on-site parking only for the use of disabled persons, which is consistent with the requirements of Policy T2.

3.15 The results of the School's survey of existing service and delivery vehicle trips to/from the Tavistock Place site, referred to in paragraph 2.4 above, demonstrated that, currently, activities at the School generate few service and delivery vehicle

movements. Whilst, it is the applicant's view that the number of service vehicle/delivery vehicle trips will increase as a result of the project, up to a maximum of around 5 per day, this remains a low number of trips. Through Policy T4 the Council seeks to minimise the movement of goods and materials by road. Whilst the development is expected to generate relatively few service and delivery vehicle movements, the School is committed, through measures and actions contained in the Travel Plan, to reviewing delivery and service vehicle activity, reducing it over time, and looking at alternative delivery methods, including the use of bicycles. The proposed development therefore supports the objectives of Policy T4. Similarly, the submission of a Construction Management Plan, which describes the management arrangements and measures that would be put in place to control and mitigate the environmental and highways/traffic impacts that it is anticipated would arise during the demolition and construction phases of the proposed development (see Section 14 below), accords with the requirements of Policy T4. Submission of this Transport Statement also satisfies the requirements of Policy T4.

3.16 LBC's forward strategy for the direction of transport provision in the borough is contained within the document '**Camden's Transport Strategy – Camden's Local Implementation Plan**'[7] published in August 2011 and covering the period to 2031. The strategy sets out nine principle objectives for the transport network which include a reduction in motor traffic and vehicle emissions, encouraging healthy and sustainable travel choices, improving road safety and personal security, and the effective management of the road network to reduce congestion, improve journey reliability and ensure the efficient movement of goods and people. Clearly, these objectives are consistent with the development planning policies described above. The proposed development is consistent with the policies and objectives of the Transport Strategy as demonstrated in this report and the accompanying supporting documents.

[7] 'Camden's Transport Strategy Camden's Local Implementation Plan' London Borough of Camden August 2011

Section A – Existing Conditions

Site Information

4 Site Location and Description

4.1 The site of the proposed development, known as 15 – 17 Tavistock Place, is located in the King's Cross Ward of the London Borough of Camden.

4.2 The subject site is located in the Bloomsbury area of Central London, within postcode area WC1.

4.3 The location of the site is shown in Figure 4.1 below.

4.4 The site is located on the northern side of Tavistock Place, approximately 150m to the north east of Tavistock Square (the easterly side of which, Woburn Place, is designated as part of the A4200) and approximately 300m south of the Euston Road, A501.

4.5 With an area of some 0.303 hectares, the site is broadly rectangular in shape, with a single highway frontage, to Tavistock Place, which runs along its southern boundary. The main building on the site, having four-storeys plus basement, is located on this southerly boundary, for all practical purposes contiguous with the highway. The proposals envisage a development towards the rear of the site.

4.6 The existing main vehicular and pedestrian access to the site is from Tavistock Place. This is located towards the westerly end of the site frontage. Given the developed form of the site, the vehicular access passes through the principal building via a gated passageway that provides access to the internal courtyard. The main pedestrian entrance to the building is accessed from the covered passageway.

4.7 A short distance to the east of the site and separated from it by a largely retail frontage, is Marchmont Street, which runs in a generally north-south direction leading to the Euston Road to the north and to the B502 Bernard Street to the south.

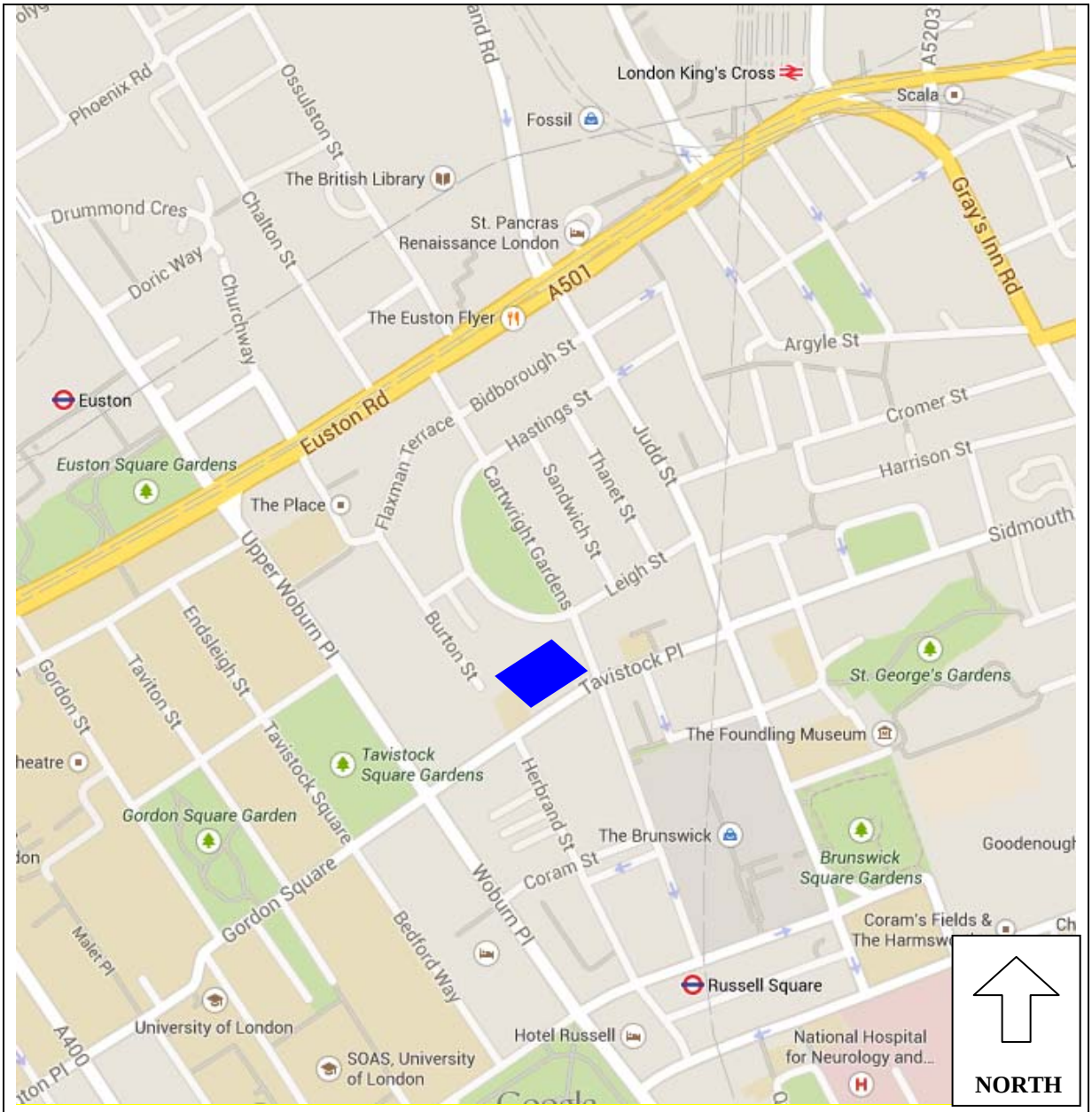


Figure 4.1 Location Plan

Location of Site

4.8 Leading from the westerly side of Marchmont Street, South Crescent Mews passes through the developed frontage, to the side of the Lord John Russell public house. The cul-de-sac end of the mews provides a gated access to the School's Tavistock Place site, from which the School have a right of way for emergency evacuation only over South Crescent Mews.

4.9 The main building dates from the early twentieth century and is laid out in a 'U' shape, with the main elevation to Tavistock Place and with two rear wings, one on each side boundary. Towards the rear boundary of the site is a former depot structure, now D1 use.

4.10 The site is within the Bloomsbury Conservation Area. The building itself is not listed.

4.11 Figure 4.1 shows the location of the site relative to the local highway network and to London Underground and mainline rail stations. Euston Mainline Railway Station and Euston Underground Station are located approximately 590m to the north west of the application site, King's Cross Mainline Railway Station and King's Cross St Pancras Underground Station are located approximately 600m to the north east and Russell Square Underground Station around 280m to the south.

4.12 The application site is located within the heart of Bloomsbury, home of numerous cultural, educational and healthcare institutions, including the British Museum and Great Ormond Street Hospital. The area immediately surrounding the application site is characterised by residential accommodation, hotels, and commercial properties, the latter extending along Marchmont Street from Cartwright Gardens to the Brunswick Shopping Centre and Bernard Street. To the east of the School's building are the properties that front Marchmont Street which are generally four storeys in height, with retail and commercial activity at ground floor level and residential accommodation above. To the west of the site is a part three, part six storey residential mansion block which is divided from the application site by an access way. On the opposite side of Tavistock Place is a row of terrace properties of four storeys with basement accommodation. These buildings are predominantly in use as hotels. To the rear of the site there are residential properties, especially on Burton Street, and hotel accommodation on Cartwright Gardens.

5 The Existing and Permitted Use of the Site

5.1 In May 2009, planning permission was granted for a change of use and works of conversion of 15 – 17 Tavistock Place from offices (Use Class B1) to flexible

business/non-residential institution floorspace (Use Class B1/D1). Planning permission 2009/0067/P refers.

5.2 The planning approval, since implemented, included the construction of a four-storey rear extension to the principal building to provide circulation space between the floors of the existing building, including new internal and external stairs and lift access.

5.3 The purpose of the implemented planning approval was to adapt the building to enable its use by the London School of Hygiene and Tropical Medicine. The building now accommodates a combination of educational facilities, research programmes and administrative functions.

5.4 In January 2017, planning permission was secured for a further development of the site. This allows for the demolition of the former depot and the construction, towards the rear of the site, of a part single, part two-storey and part three-storey extension, with two levels of basement accommodation, to create additional medical research laboratory and higher education facilities. Planning permission 2015/3406/P refers. The School does not intend to implement that permission and now seeks approval for a development of reduced scale, which would still involve the demolition of the single storey structure and the construction to the rear of the site of additional laboratory, research and higher education space.

Baseline Transport Data

6 PTAL Assessment

6.1 PTAL (Public Transport Accessibility Level) is a measure of the accessibility of a site to public transport services. It is based on an assessment of walking distance from the site to nearby public transport access points (bus stops and railway stations) within 640m for bus services and 960m for rail, and the average waiting time in the morning peak hour (derived from the frequency of service). It results in a score of between 1 and 6, with 1 representing poor accessibility to public transport and 6 indicating excellent accessibility.

6.2 A PTAL calculation has been undertaken for 15 – 17 Tavistock Place using Transport for London's on-line PTAL calculator[8]. **This resulted in a PTAL score of 6b**, the highest and best score achievable, indicating an excellent level of accessibility to public transport services. The report generated by the calculator is presented at Appendix A to this report.

6.3 The PTAL score is calculated at a base year of 2011. The PTAL on-line calculator now also includes a facility to generate a report for a future year, 2021. **The 2021 PTAL calculation resulted in a PTAL score of 6b**, indicating that an excellent level of accessibility to public transport services in the area is expected to be maintained. The PTAL report for 2021 is also included at Appendix A.

6.4 The following paragraphs show that the site benefits from convenient access to local bus and underground services, and to regional and national rail services, offering good opportunities for those studying and working at and visiting the site to travel by public transport rather than by private car.

7 Site Accessibility – Bus Services

7.1 Figure 7.1 below shows the location of the nearest bus stops that are within a convenient walking distance of the application premises. All of the stops shown are within the 640m walking distance (8 minute walking time) used by Transport for London as the basis of their PTAL calculation. The two nearest stops, on Tavistock Square, are within approximately 210m and 310m from the application site, accessible within a walking time of approximately 2 to 3 minutes respectively. The bus stops indicated on Euston Road, near to the British Library, are within approximately 300m to 500m of the site, accessible on foot in around 4.5 – 6 minutes respectively. Euston Station Bus Station and bus stops at Russell Square and on Woburn Place and Gray's Inn Road are all within the 8-minute maximum walking time used in the PTAL assessment.

[8] www.webptals.org.uk Transport for London Planning Information Database

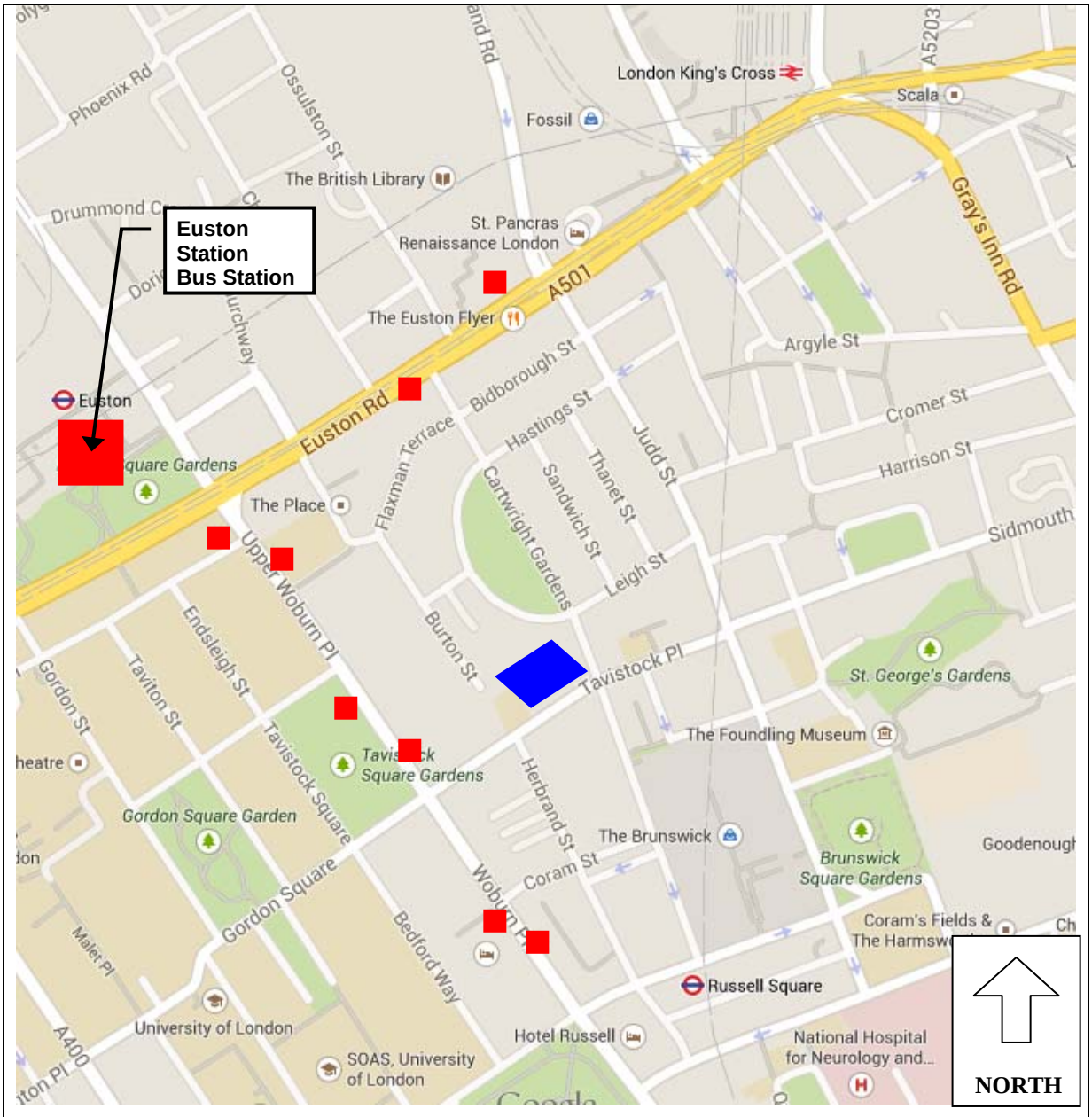


Figure 7.1 Location Plan

Location of Nearby Bus Stops

Location of Site

7.2 The nearest, Tavistock Square, stops afford access to the bus services detailed in the table below.

Service No.	Service Route	Frequency/Operating Hours					
		Monday- Friday		Saturday		Sunday	
		Day	Eve	Day	Eve	Day	Eve
10	**Hammersmith-King's Cross**	6-8 bph	6-8 bph	5-8 bph	5-6 bph	4-5 bph	4-5 bph
		24 hours		24 hours		24 hours	
59	**King's Cross – Streatham Hill (Telford Avenue)**	8-15 bph	5-6 bph	6-10 bph	5-6 bph	5-6 bph	5-6 bph
		0435 – 0044		0435 - 0045		0505 - 0043	
68	**Euston Bus Station – West Norwood Station**	6-10 bph	5-6 bph	6-10 bph	5bph	5-6 bph	5-6 bph
		0521 - 0007		0521 - 0007		0525 - 0007	
91	**Trafalgar Sq – Crouch End (Rosebery Gardens)**	6-10 bph	6-10 bph	5-7 bph	5-7 bph	5-7 bph	5-7 bph
		0542- 0023		0542- 0023		0702- 0023	
168	**Dunton Road – Hampstead Heath (South End Green)**	7-12 bph	5-8 bph	5-8 bph	5-8 bph	4-5 bph	5-7 bph
		0603 - 0046		0603 - 0046		0603 - 0046	

Table 7.1 Summary of Daytime and Evening Timetable Details for Local Bus Services Accessible From Bus Stops Nearest to 15-17 Tavistock Place

bph = buses per hour in each direction Times of first and last bus are approximate

7.3 The Euston Road bus stops afford access to the bus services detailed in Table 7.2 below.

7.4 Additionally, the stops on Gray's Inn Road to the east of the site provide access to services 17, 45 and 46, which operate respectively between London Bridge and Archway Station, St Pancras and New Park Road and Lancaster Gate Station and St Bartholomew's Hospital (via Hampstead).

7.5 All of these services operate throughout the daytime and evening on all days of the week. Service 17 operates with a frequency of every 6-10 minutes on Mondays to Fridays, 9-11 minutes on Saturdays and 15 minutes on Sundays. Service 45 operates with a frequency of every 8-12 minutes in the daytime and every 15 minutes in the evening on Mondays to Fridays, every 9-13 minutes in the daytime and every 15 minutes in the evening on Saturdays and every 15 minutes throughout the day on

Sundays. Service 46 operates with a frequency of every 9-13 minutes in the daytime and every 15 minutes in the evening on Mondays to Fridays, every 10-12 minutes in the daytime and every 15 minutes in the evening on Saturdays and every 15 minutes throughout the day on Sundays.

Service No.	Service Route	Frequency/Operating Hours					
		Monday- Friday		Saturday		Sunday	
		Day	Eve	Day	Eve	Day	Eve
10	**Hammersmith-King's Cross**	6-8 bph	6-8 bph	5-8 bph	5-6 bph	4-5 bph	4-5 bph
		24 hours		24 hours		24 hours	
30	**Marble Arch – Hackney Wick**	5-8 bph	5 bph	5-7 bph	5-7 bph	4-5 bph	4-5 bph
		0514 - 0034		0514 - 0036		0514 - 0036	
59	**King's Cross – Streatham Hill (Telford Avenue**	8-15 bph	5-6 bph	6-10 bph	5-6 bph	5-6 bph	5-6 bph
		0435 – 0105		0455 - 0105		0525 - 0105	
73	**Holles Street – Stoke Newington**	10-20 bph	7-15 bph	7-15 bph	7-15 bph	7-12 bph	7-12 bph
		0522 - 0036		0532 - 0037		0538 - 0036	
91	**Trafalgar Sq – Crouch End (Rosebery Gardens)**	6-10 bph	6-10 bph	6-9 bph	6-9 bph	5-8 bph	5-8 bph
		0524- 0034		0524- 0034		0524- 0034	
205	**Bow Church – Paddington (Cleveland Terrace)**	6-8 bph	5 bph	5-9 bph	4-6 bph	4-6 bph	4-6 bph
		0532 – 0115		0533 - 0123		0535 - 0104	
390	**Archway Station – Victoria Bus Station**	8-15 bph	6-8 bph	10-20 bph	6 bph	5-8 bph	5-8 bph
		24 hours		24 hours		24 hours	
476	**Euston Bus Station – Northumber-land Park**	7-12 bph	5-7 bph	5-8 bph	5-6 bph	5-6 bph	5-6 bph
		0607 - 0022		0606 - 0027		0603 - 0019	

Table 7.2 Summary of Daytime and Evening Timetable Details for Local Bus Services Accessible From Bus Stops on Euston Road Nearest to 15-17 Tavistock Place

bph = buses per hour in each direction Times of first and last bus are approximate

7.6 Euston Station Bus Station is within a 7 – 8 minute walk of the site. The bus station provides access to further services as shown in the Bus Station map included at Appendix B to this report.

7.7 From the map it will be seen that a wide range of destinations can be reached from the Euston Station Bus Station throughout the day. Destinations served include Wembley, Harlesden, Camden Town, Hampstead Heath, Archway, Tottenham, Hackney, Islington, Bow, Elephant and Castle, Brixton, West Norwood, Streatham Hill, Hammersmith, Kensington, Victoria and Paddington as well as the City and the West End.

7.8 The above text and tables show that from stops within close proximity of 15 – 17 Tavistock Place a large number of bus services operate at high frequencies throughout the daytime and evening to a broad range of destinations across London, including to the south of the river. All of the routes serving these destinations operate on all days of the week, throughout the likely opening hours of the School buildings.

7.9 The above demonstrates that the application site is exceptionally well served by local bus services, as the excellent PTAL score would suggest. Local bus services therefore offer an excellent alternative to the private car for students, employees or visitors wishing to travel to and from the application site.

7.10 Continuing improvements to local bus stops, including the provision of passenger shelters, site-specific timetable information, route maps and real time passenger information including Countdown information, will enhance the passenger waiting experience, whilst on-bus facilities such as CCTV (now fitted to all London buses) will make passengers feel safer. Strict bus lane enforcement is one factor in ensuring greater service reliability, which is likely to promote greater confidence in bus services. Introduction of the Oyster Card, a ‘’pay-as-you-go” re-usable smart card, has made bus travel faster, easier and cheaper than paying by cash in the conventional way. All of these factors help to make bus travel more attractive and an increasingly realistic alternative to the use of the private car.

7.11 The Countdown Live bus arrivals system is just one measure that has been introduced by Transport for London to promote greater bus patronage in the area. Each bus stop offers a mobile telephone text message service allowing intending

passengers to receive details of the next bus to arrive at that stop on their mobile telephone by sending the bus stop code as a text message to TfL. The information can also be accessed on line.

8 Site Accessibility – Rail Services

8.1 The acceptable walking time for access to rail services used by TfL in its PTAL calculation is 12 minutes, a distance of 960m.

8.2 Five Underground stations and three mainline railway stations meet these criteria.

8.3 The nearest Underground station is Russell Square, accessible within a walking time of around 4 minutes from the application site. Russell Square provides access to London Underground services on the Piccadilly Line, operating between Heathrow and Cockfosters via Hounslow, Acton, Hammersmith, Central London, King's Cross and Finsbury Park. There are numerous connections to other London Underground lines, including the Victoria Line linking to Brixton in the south and Walthamstow in the north east. Trains operate to and from Russell Square to an average 10-minute frequency between approximately 5.30am and 1am on Mondays to Thursdays, and continuously between approximately 5.30 am on Fridays and 11.30pm on Sundays. The journey time between Russell Square and Heathrow is 54 minutes and between Russell Square and Cockfosters is 34 minutes. All of the stations on the Piccadilly Line are therefore within acceptable commuting time of the application site, offering a convenient alternative to the private car.

8.4 King's Cross St Pancras is a ten-minute walk from the application site and offers access to London Underground services on the Piccadilly Line, Victoria Line, Northern Line, Hammersmith and City Line, Circle Line and Metropolitan Line. Northern Line trains operate between High Barnet or Edgware to the north and Morden to the south. The Metropolitan Line provides links to the north west of London, including Watford, Amersham and Uxbridge whilst the Hammersmith and City Line provides an east-west connection between Barking in the east and Hammersmith in the west. Via the Metropolitan Line, Watford is accessible in approximately 50 minutes from King's Cross, Amersham in 59 minutes and Uxbridge in 52 minutes. Northern Line services provide access from King's Cross to High Barnet in 33 minutes, Edgware in 26 minutes and Morden in 35 minutes. The

Hammersmith and City Line offers a travel time of 25 minutes from King's Cross to Hammersmith and 33 minutes to Barking. All of these destinations, and intermediate stations, are within acceptable commuting times of the application site.

8.5 Euston Underground Station is accessible within a 9-minute walking time of the site and provides access to Northern Line and Victoria Line services, Goodge Street (an approximate 11½-minute walk) to the Northern Line and Euston Square Underground Station (a similar 11½-minute walk) to Metropolitan, Circle and Hammersmith and City Lines.

8.6 All of the above London Underground lines provide high frequency services on all days of the week throughout the day and evening. Additionally, as indicated in respect of the Piccadilly Line in paragraph 8.3 above, London Underground services are now operating during the night on Fridays and Saturdays on the Victoria, Jubilee, and most of the Central, Northern and Piccadilly lines; these services, operating continuously between early Friday morning and late Sunday night, provide enhanced accessibility to the application site by Underground services.

8.7 The three mainline railway stations readily accessible on foot from the application site are King's Cross, St Pancras and Euston. King's Cross provides the London terminal of the East Coast mainline and services to destinations such as Cambridge and Peterborough. Euston provides the London terminal of the West Coast mainline, London Midland services to destinations such as Watford and Milton Keynes and London Overground services to Wembley and Watford Junction. St Pancras provides a terminal for domestic services linking to Luton Airport, Bedford and the Midlands. National rail services therefore provide regional connections to the site serving a range of destinations to the north of London that are within acceptable commuting time. The School is also, therefore, readily accessible by rail for visitors travelling from the Midlands, the north of the country and Scotland.

8.8 The London Overground service between London Euston and Watford Junction, provides access to destinations in north west London, including South Hampstead, Willesden, Harlesden, Wembley, Kenton, Harrow and Wealdstone, Hatch End, Carpenders Park and Bushey. The service operates on all days of the week, providing journey times of 6 minutes to South Hampstead, 14 minutes to Willesden, 16 minutes to Harlesden, 21 minutes to Wembley Central, 27 minutes to Kenton, 29

minutes to Harrow and Wealdstone, 34 minutes to Hatch End, 37 minutes to Carpenders Park, 40 minutes to Bushey and 47 minutes to Watford Junction, all within an acceptable commuting time of 15 – 17 Tavistock Place. Trains operate between 0537 and 0044 northbound and 0511 and 0013 southbound on Mondays to Saturdays and 0647 and 0038 northbound and 0651 and 0010 southbound on Sundays with generally 2 or 3 trains per hour in the daytime and evenings.

8.9 Rail services therefore provide frequent connections within acceptable commuting times between the application site at 15 – 17 Tavistock Place and a broad range of destinations throughout the opening hours of the development, providing an efficient and practical alternative to the use of the private car.

9 Site Accessibility – Walking and Cycling

9.1 The Government's former guidance to local planning authorities on the transport aspects of planning policy, PPG13[9], sought to achieve an integration between planning and transport at all levels so that the need to travel, (especially by car), is reduced, more sustainable transport choices are encouraged and accessibility to jobs, leisure facilities, services and shopping by public transport, by cycle and on foot is promoted.

9.2 PPG13 stated that walking is the most important mode of travel at the local level, offering the greatest potential to replace short car trips of up to 2km. The Chartered Institution of Highways and Transportation (CIHT) suggests walking to be a 'desirable' mode for journeys up to 400m and 'acceptable' for journeys up to 800m with a preferred maximum of 1200m.

9.3 Not only is walking important as a mode of travel in itself, it also generally forms the start and end of every journey type. Walking is obviously an important part of public transport journeys and the quality and convenience of the walking environment could be a crucial element in mode choice decisions. For those travelling further distances it is important that local public transport facilities, such as bus stops, are readily accessible on foot if trips by private car to and from these more remote locations are to be discouraged. As already described, public transport facilities, including bus

[9] Planning Policy Guidance Note 13 – Transport: Department for Communities and Local Government, January 2011. Replaced by National Planning Policy Framework March 2012

stops, five London Underground stations and three mainline railways stations are within 960m of the site and are therefore within acceptable walking distance, offering connections to many parts of London and beyond.

9.4 The walking environment in the vicinity of the site is good, with all roads having footways of an appropriate standard and reasonable quality, and with street lighting to aid personal security and promote road safety. To assist pedestrians to safely cross the roads in the vicinity of the site, there are signalised pedestrian crossing facilities at the traffic signal controlled junctions of Tavistock Place with Woburn Place/Upper Woburn Place and with Marchmont Street, with similar facilities at traffic signal-controlled junctions further afield. At these junctions and at other, uncontrolled junction crossing points, there is good provision of dropped crossings and tactile paving to assist pedestrians, especially those with mobility impairment.

9.5 The application site lies within the heart of Bloomsbury, within convenient walking distance of a range of educational, cultural, leisure, residential and shopping facilities. University College London's main buildings are located an approximate 800m walking distance to the west of the application site, the British Library on Euston Road, a walking distance of around 500m to the north, and the British Museum is within a one-kilometre walking distance to the south.

9.6 There are extensive shopping and leisure facilities within the immediate vicinity of the School building, allowing a number of trips for a variety of purposes (shopping, banking, fitness and leisure trips for example) to be undertaken on foot during break periods.

9.7 On Marchmont Street, north of Tavistock Place, a short walk of under 1 minute, there is a public house, café, laundrette, betting shop, book shop, dentist and supermarket, together providing a range of goods and services. To the south of Tavistock Place, Marchmont Street offers a further range of commercial outlets, including further cafes and food outlets, a computer shop, dry cleaner, newsagent and post office. A short distance to the south is The Brunswick, a purpose built pedestrianised district shopping centre that provides a broad range of retail outlets and service providers, including a Waitrose supermarket, Sainsbury's Local supermarket and Boots the Chemist, in addition to restaurants, food outlets, card shop, clothes shops, opticians, mobile phone shops, betting shop and an NHS medical centre. A health club is

located on Woburn Place within a walking distance of approximately 160m of the School building.

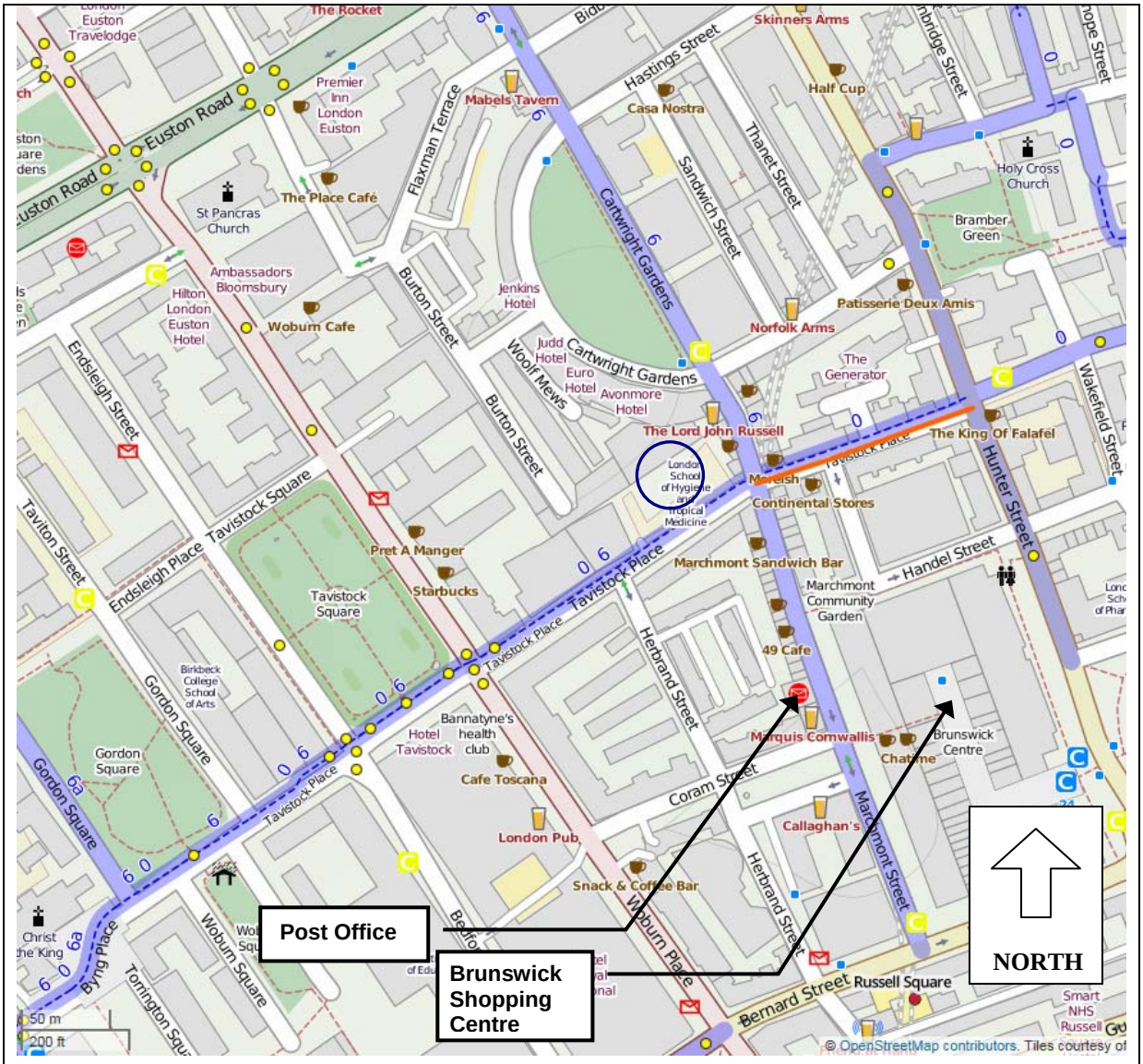


Figure 9.1 Facilities and Cycle Routes in the Vicinity of the Site

Location of Site

© OpenStreetMap

9.8 Figure 9.1 above shows the area in the immediate vicinity of the School site and the various facilities that are readily accessible on foot. The approximate distances and walking times to a number of these shops and services are presented in Table 9.1 below.

9.9 It is clear, therefore, that should planning permission be granted, students, staff and visitors to the School development would be able to choose to walk to and from the application premises for a variety of trip purposes.

Facility	Approximate Distance from site (m)	Approximate Walking Time (mins', secs")
Marchmont Street shops (north of Tavistock Place)	70	1
Marchmont Street shops (south of Tavistock Place)	80	1
Health Club Woburn Place	160	2
Marchmont Street Post Office	160	2
Tavistock Square Bus Stop (southbound)	211	2' 40"
Tavistock Square Bus Stop (northbound)	320	4'
Brunswick Shopping Centre	320	4'
Russell Square Underground Station	329	4' 10"
Euston Road Bus Stop (westbound)	350	4' 30"
Euston Station Bus Station	640	8'
Euston Railway Station	692	8' 40"
UCL Chadwick Building	965	12'

Table 9.1 Approximate Walking Distances and Associated Walking Times to Public Transport Facilities, Shops and Services within the Immediate Vicinity of 15-17 Tavistock Place

9.10 PPG13 also stated that cycling has the potential to replace car trips of, in particular, 5km or less in length. Clearly, all the local shopping, service and leisure amenities that are within a short and convenient walking distance of the site are also readily accessible by cycle, but far more extensive residential areas lie within 5km of the site, making the School readily accessible by bicycle to those commuting to the application site.

9.11 Facilitating access to the site by bicycle, the School building lies at the intersection of two designated local cycle routes, 0 and 6. The alignments of these cycle routes are shown in pale blue on Figure 9.1 above.

9.12 These two designated cycle routes share facilities along Tavistock Place, passing the frontage of the School building. London Borough of Camden has recently introduced a traffic scheme, the effect of which has been to make Tavistock Place one-way eastbound for motor vehicles, from Gower Street to Judd Street. The formerly two-way dedicated cycle facility running along the northerly side of Tavistock Place, segregated from general traffic by a series of raised, kerbed and paved islands, has been retained, but is now reserved for one-way eastbound cyclists. The raised islands provide a largely continuous division of the cycle lane from the main carriageway, interrupted only to provide level crossing points for pedestrians and to afford vehicular access to off-street parking and loading areas. There is a break in the island at the existing vehicular access points to the subject site from Tavistock Place. The darker, dashed line, on Figure 9.1 shows the extent of the segregated facility, extending from Goodge Street in the west to Judd Street in the east. Restricting motorised traffic to a single, one-way eastbound lane has allowed road space to be re-allocated, providing a one-way westbound cycle lane on the southerly side of Tavistock Place, segregated from general traffic by the use of ‘armadillo’ units.

9.13 Route 0 extends from Marble Arch to the west to Finsbury (1 mile) and the City (2½ miles) in the east and on to Elephant and Castle, with a spur to Kings Cross St Pancras Station and another to Old Street. Route 6 provides a north-south route, starting near to Waterloo, south of the river and running via Covent Garden and the British Museum to Tavistock Place, then turning northwards via Marchmont Street and Cartwright Gardens and extending to Camden Town (1½ miles) and to the

vicinity of Caledonian Park. The two routes connect with a network of other cycle routes serving the area, facilitating and promoting access to LSHTM by bicycle.

9.14 The Tavistock Place cycle route is one of the busiest in Camden. Cycling is already a popular means of getting around this part of London and would provide an attractive means of travel to and from the application site.

10 The Local Highway Network

10.1 In the vicinity of the application site, Tavistock Place is a single carriageway, one-way urban street, allowing for eastbound general traffic, with carriageway-level eastbound and westbound segregated cycle tracks and with footways to both sides of the carriageway. At this location the development within the street is predominantly residential in character, some premises providing hotel accommodation.

10.2 The junction of Tavistock Place with Marchmont Street is controlled by traffic signals. The left turn for general traffic from Tavistock Place into the northerly arm of Marchmont Street and the right turn for cyclists into the southerly arm of Marchmont Street are prohibited at this junction. Marchmont Street to the south of the Tavistock Place junction is one-way in a southwards direction, leading away from the junction.

10.3 Effectively, therefore, within the immediate vicinity of its junction with Tavistock Place, Marchmont Street to the north of the junction is one-way southbound for motor vehicles, with only pedal cyclists allowed to turn into Marchmont Street to proceed in a northerly direction. Nevertheless, this single carriageway road is marked with a single traffic lane southbound, approaching the signals, with a full-width northbound lane preserved.

10.4 The Marchmont Street frontages within the vicinity of the subject site are largely retail and commercial in character and are likely, therefore, to generate a requirement for on-street loading and servicing activity. Footways are present on each side of the street.

10.5 The application site lies within a Controlled Parking Zone (CPZ). The King's Cross CPZ, designated CA-D, extends from Euston Road in the north to Holborn/High

Holborn in the south and from Woburn Place/Southampton Row in the west to the easterly side of Gray's Inn Road. Within the CPZ the standard waiting restrictions are No Waiting Monday – Friday, 0830 – 1830 and Saturday, 0830 – 1330. These restrictions, identified by single yellow lines, are in force on both sides of Marchmont Street to the easterly side of the application site. More restrictive waiting restrictions are in force on Tavistock Place to the frontage of the application site, with double yellow waiting restriction lines in evidence on both sides of the road, indicating No Waiting At Any Time.

10.6 Residents' permit parking is in operation within the CPZ, allowing residents' vehicles to be parked in marked bays during the operative hours. This applies to both sides of Burton Street, for example, to the north west of the application site. Residents can apply for visitor permits. Business permits are available within CPZ CA-D for commercial vehicles for which on-street parking is required for the operational needs of the business concerned (i.e. not to accommodate commuter parking). Business permits would not be granted in circumstances where public transport offers a reasonable alternative. On-street parking for non-residents' vehicles is therefore closely controlled and largely restricted. This serves to provide a disincentive to travel to and from the application site by private motorcar and encourages sustainable travel. A designated bay for Car Club Permit Holders is located on Marchmont Street, a short distance to the south of the School.

10.7 A borough-wide 20mph speed limit order applies to all roads that are managed by London Borough of Camden Council, including Tavistock Place and other roads in the immediate vicinity of the application site. The restriction excludes the majority of the Transport for London Road Network (TLRN).

Collision Record

10.8 The Transport Statement submitted in support of the now-approved scheme reported on the record of road crashes resulting in personal injury on the local highway network within the latest three-year period available at the time, by reference to the Crashmap website[10], a national map-based database of official Government data relating to road traffic collisions.

[10] www.crashmap.co.uk

10.9 Crashmap allows collisions to be displayed by calendar year; data for the latest three full years then available being for 2011, 2012 and 2013.

10.10 The enquiry concentrated on Tavistock Place in the immediate vicinity of the frontage of the application site, between Herbrand Street and Marchmont Street. A screenshot of the resulting enquiry is reproduced here as Figure 10.1 below.

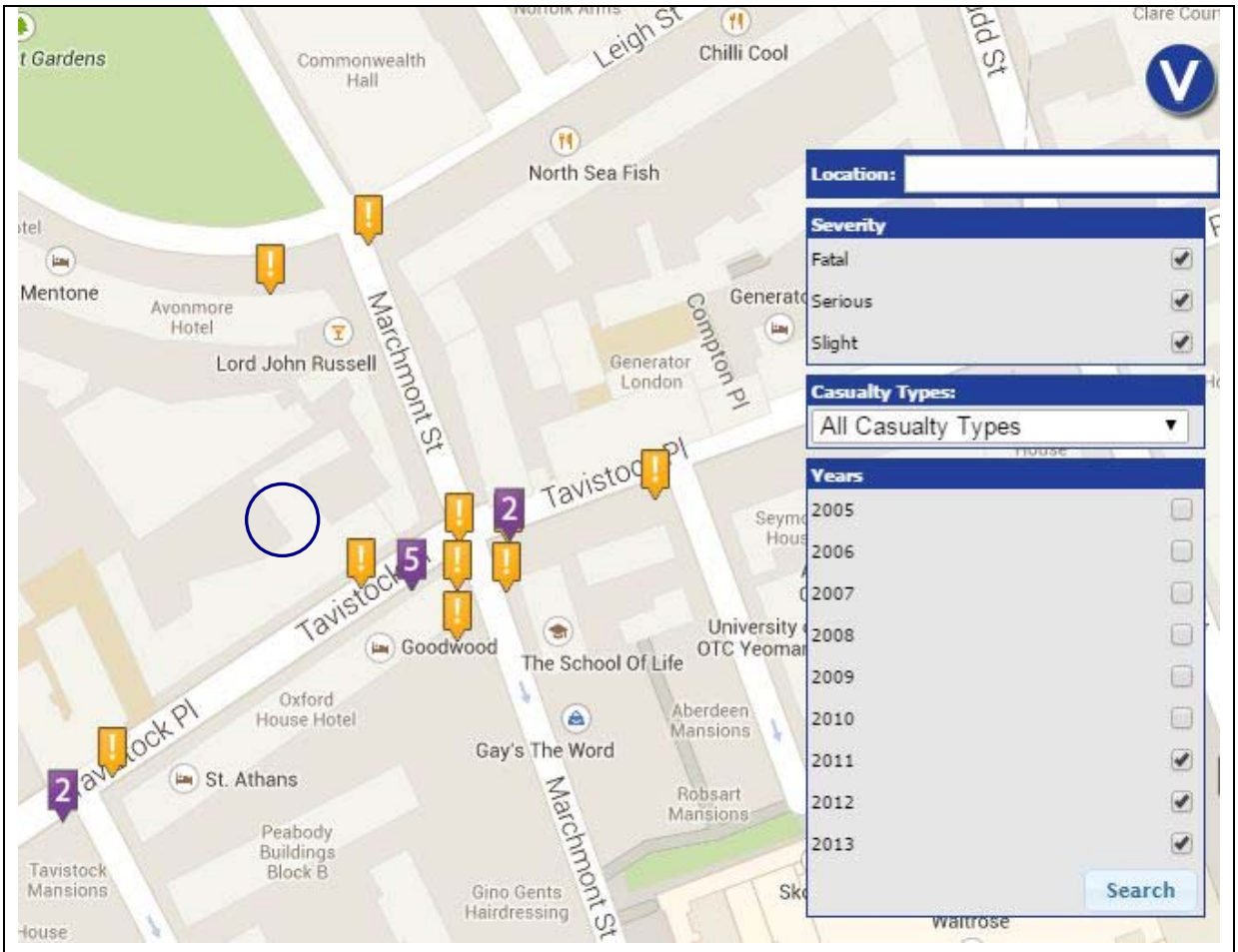


Figure 10.1 Locations of Recorded Personal Injury Road Collisions within the Vicinity of the Application Site 2011-13

Location of Site

Incident Severity
Slight Serious Fatal

Source: Crashmap
www.crashmap.co.uk

NORTH

10.11 From Figure 10.1 above it will be seen that in the three years then under consideration, three collisions resulting in personal injury were recorded in the vicinity of the Tavistock Place junction with Herbrand Street, whilst a total of thirteen collisions resulting in personal injury were recorded in the vicinity of the Tavistock Place junction with Marchmont Street.

10.12 None of the recorded collisions resulted in fatal injuries. All three of the collisions recorded at or near to the junction with Herbrand Street resulted in Slight casualties. Of the thirteen recorded collisions at or near to the Tavistock Place/Marchmont Street junction, eleven resulted in Slight casualties and two resulted in Serious casualties. Of these thirteen latter collisions, six occurred in 2011, three occurred in 2012 and four occurred in 2013.

10.13 Crashmap reports for the incidents were, therefore, purchased, allowing a broad, high-level analysis of the recorded collisions to be undertaken.

10.14 The data provides a level of detail appropriate to a Transport Statement, enabling location, the number, type and severity of casualty, numbers and types of vehicles involved, time, day, date and prevailing weather and road conditions to be examined. Given the potentially sensitive nature of the data it was not reproduced as part of the earlier Transport Statement and is similarly not included with this report.

10.15 All of the incidents at or near to the Tavistock Place/Marchmont Street junction occurred in fine weather when the road surface was described as dry. Only two of the thirteen collisions (15.4%) occurred in the dark, which is a relatively low proportion.

10.16 There is no consistency with regards to day of the week (although 4 of the 13 incidents, 30.8%, occurred on Mondays) or month of the year, although it is perhaps notable that 9 of the 13 incidents (69.2%) occurred in the Spring months of March (4), April (4) and May (1).

10.17 With regards to time of day, there is something of a pattern, with only one collision occurring in the traditional morning peak hour (0851) and two in the traditional evening peak hour (1722 and 1745), whilst the majority, 7, occurred between 1335 and 1630, with three of those occurring between 1620 and 1630.

10.18 The thirteen collisions resulted in 14 casualties, 12 slight and 2 serious. Eleven of the incidents involved a single vehicle, whilst the two remaining incidents each involved two vehicles; in one collision both vehicles were cycles and in the other, one was a cycle and the other a taxi/private hire vehicle. Taxi/private hire vehicles were involved in five of the collisions, pedal cycles in three, 3.5T goods vehicles in two and a motorcycle in one.

10.19 By far the most significant feature in the earlier collision record is the number of collisions involving pedestrians. Pedestrians were involved in 11 of the thirteen collisions, 84.6%, including both of the collisions resulting in serious casualties. Eight of the eleven collisions were described as not occurring at the controlled pedestrian crossing, with three described as occurring at the pedestrian crossing.

10.20 Given the popularity of the cycle route along Tavistock Place, the incidence of collisions involving cyclists does not appear to be particularly high, but a high incidence of collisions involving pedestrians at or near to the Marchmont Street junction was clearly evident in the earlier data.

10.21 With the School proposing to submit a new application for development at the Tavistock Place site, it is appropriate to consider more recent collision data for the immediate area. Reference was again made to the Crashmap website, on which data are now available for the three full years 2014, 2015 and 2016.

10.22 The results of this latest search are shown in Figure 10.2 below. It will be seen that, compared with the previous three-year period under consideration (2011-13), there has been a significant reduction in collisions resulting in personal injury in the immediate vicinity of the site during the later three-year period covering 2014-16.

10.23 Only two personal injury collisions were recorded in the immediate vicinity of the Tavistock Place/Marchmont Street junction, both occurring in 2014, both involving a single vehicle and both resulting in slight injuries. The first occurred in October and the second in November of that year. The former occurred at 2050 on a Friday when the road surface was described as wet or damp and involved a car striking a pedestrian crossing on the crossing facility at the junction. The latter occurred at 1619 on a Wednesday in fine and dry conditions and also involved a pedestrian, crossing away from the junction, being in collision with a pedal cyclist.

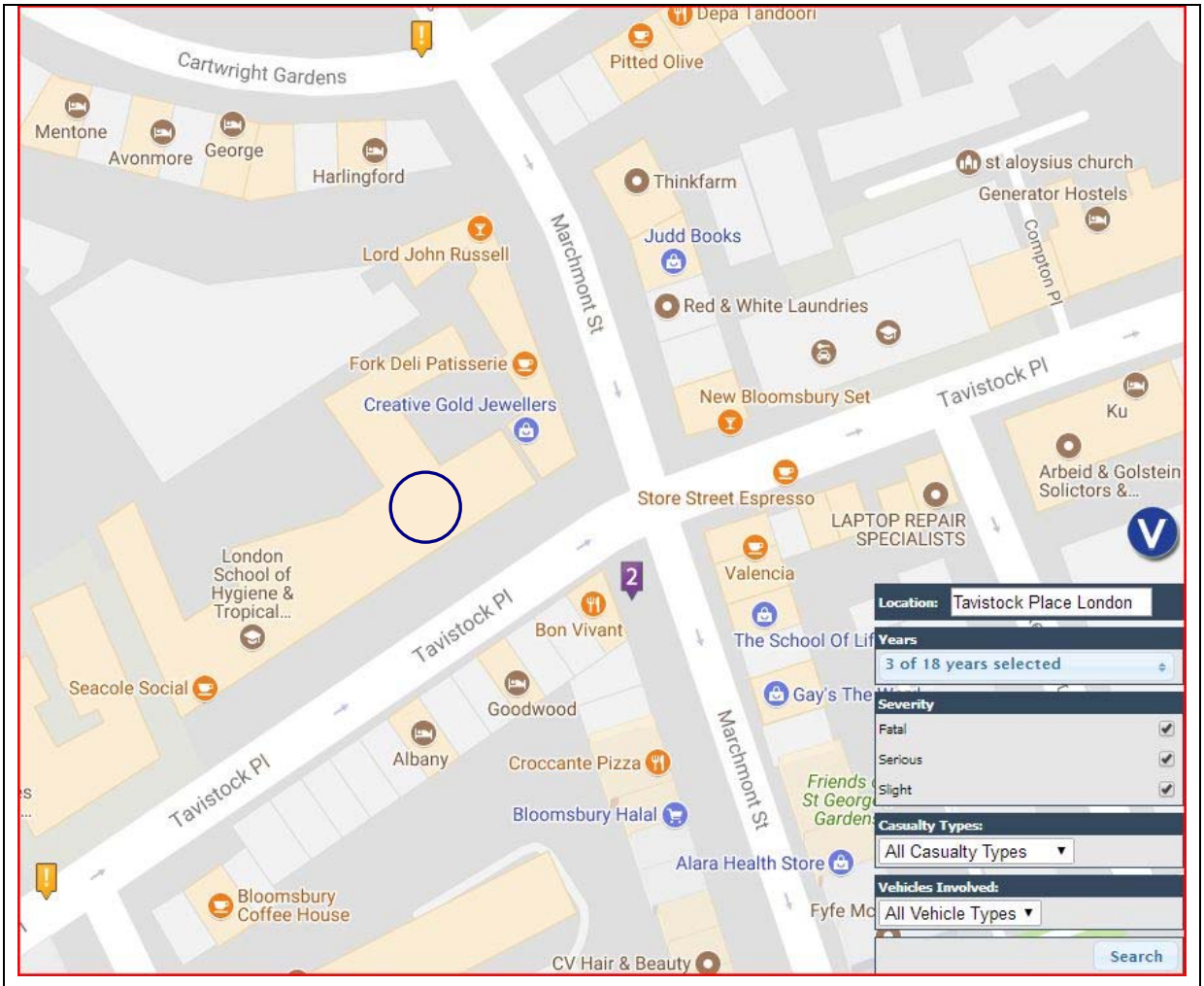


Figure 10.2 Locations of Recorded Personal Injury Road Collisions within the Vicinity of the Application Site 2014-16

Location of Site

Incident Severity
Slight Serious Fatal

Source: Crashmap
www.crashmap.co.uk

NORTH

10.24 No collisions were recorded at or near to the junction of Tavistock Place and Marchmont Street in 2015 or 2016. Traffic arrangements at this location, as described in paragraph 9.12, were amended during 2015, with Tavistock Place being made one-way eastbound for general traffic, the existing two-way cycle track on the northerly side made one-way eastbound, and a new westbound cycle track introduced on the southerly side. It is not possible, on the above evidence, to ascribe the significant reduction in collisions at the junction over the period 2014-16 relative

to 2011-13 to the introduction of the traffic scheme, but the associated reductions in conflict may have been important contributory factors in this substantial improvement in the collision record.

10.25 Also from Figure 10.2 it will be seen that in the three years under consideration, a single collision resulting in personal injury was recorded in the vicinity of the Tavistock Place junction with Herbrand Street, This occurred in January 2016, involved two vehicles and resulted in a single casualty sustaining slight injuries.

10.26 The collision record in the vicinity of the application site has, therefore, considerably improved over the period 2014-6, relative to 2011-13.

11 Travel Characteristics of the Existing Site

11.1 As indicated in paragraphs 1.1 and 1.3 above, the School propose to develop the existing School building at 15 – 17 Tavistock Place to provide additional laboratory, research and higher education space. The current proposal is intended to be in substitution for the approved scheme (2015/3406/P refers) and is of lesser scale. The existing School building is currently in similar use to that now proposed (and that previously approved) and the travel characteristics of the existing site will therefore provide a reliable indication of the travel characteristics of the proposed development once complete and in operation.

11.2 In order to determine the existing pattern of trips to and from the present site, a multi-modal survey was commissioned and was undertaken on Tuesday, 21 April 2015 by an independent survey company. This date was selected because it was during term time and was regarded as a ‘typical’ day as advised by the School. The results of that survey were used to inform the earlier Transport Statement submitted in support of the approved scheme and are considered to remain valid for use in the present study.

11.3 The survey consisted of two elements. Firstly, a count of all arrivals and departures at the site entrance was undertaken, recorded in fifteen-minute intervals between the hours of 0800 and 1800. The School advised that the opening hours of the building for the majority of staff, students and visitors are 0900 – 1700. The School confirmed that only the single entrance to the School building at Tavistock Place, located under

the arch furthest from Cartwright Gardens, is in use for normal arrivals/departures of people. The numbers of people entering and leaving the building during the survey period are presented in Table 11.1 below.

11.4 From Table 11.1 below it will be seen that over the ten-hour survey period between 0800 and 1800, a total of 464 people arrived at 15 – 17 Tavistock Place and a total of 396 departed from the site. A total of 860 people trips equates to 1.43 arrivals or departures per minute on average. As arrivals exceed departures over the survey period there are clearly some trips that took place outside the survey times of 0800 to 1800, however these trips are considered unlikely to have a significant impact on the transport system due to the lower level of activity generally on the network at these other times.

11.5 It will also be noted that the peak periods for arrivals and departures at the site do not coincide with the traditional peak hours of 0800-0900 and 1700-1800. Between 0800 and 0900 only 43 person trips were generated, 35 arriving and 8 departing, fewer than one per minute on average. Between 1700 and 1800 a higher number of trips was recorded, with 88 people arriving or departing, 19 arriving at and 69 leaving the site.

11.6 The peak period for trips associated with the existing School building occurred between 1200 and 1400. This is perhaps not surprising, as this period would coincide with lunch breaks when people might reasonably be expected to make short trips into the surrounding neighbourhood for a variety of trip purposes and with the end of morning and commencement of afternoon study/work periods. The highest number of trips, 126, was recorded between 1200 and 1300 (65 arriving and 61 departing) with a slightly lower number, 121, between 1300 and 1400 (66 arriving and 55 departing), in each case representing in broad terms one arrival and one departure per minute on average, which is not considered to be a high flow.

11.7 Outside of these peak hours, the highest number of hourly trips recorded was 103 (81 arriving and 22 departing) between 1000 and 1100. 81 was the highest number of arrivals recorded in any of the ten surveyed hours. 69 was the highest number of departures per hour, between 1700 and 1800.

TIME (start)	IN			OUT			TOTAL		
	Arrive (1/4 hr)	Time (Hour)	Arrive (Hour)	Depart (1/4 hr)	Time (Hour)	Depart (Hour)	Total (1/4 hr)	Time (Hour)	Depart (Hour)
0800	6	**0800 - 0900**	**35**	2	**0800 - 0900**	**8**	8	**0800 - 0900**	**43**
0815	6			1			7		
0830	10			5			15		
0845	13			0			13		
0900	10	**0900 - 1000**	**71**	1	**0900 - 1000**	**11**	11	**0900 - 1000**	**82**
0915	21			1			22		
0930	16			3			19		
0945	24			6			30		
1000	29	**1000 - 1100**	**81**	5	**1000 - 1100**	**22**	34	**1000 - 1100**	**103**
1015	21			6			27		
1030	19			4			23		
1045	12			7			19		
1100	10	**1100 - 1200**	**42**	2	**1100 - 1200**	**27**	12	**1100 - 1200**	**69**
1115	6			3			9		
1130	8			8			16		
1145	18			14			32		
1200	8	**1200 - 1300**	**65**	13	**1200 - 1300**	**61**	21	**1200 - 1300**	**126**
1215	16			12			28		
1230	20			14			34		
1245	21			22			43		
1300	16	**1300 - 1400**	**66**	16	**1300 - 1400**	**55**	32	**1300 - 1400**	**121**
1315	12			10			22		
1330	19			9			28		
1345	19			20			39		
1400	13	**1400 - 1500**	**38**	20	**1400 - 1500**	**48**	33	**1400 - 1500**	**86**
1415	9			7			16		
1430	6			8			14		
1445	10			13			23		
1500	13	**1500 - 1600**	**27**	10	**1500 - 1600**	**44**	23	**1500 - 1600**	**71**
1515	4			8			12		
1530	9			17			26		
1545	1			9			10		
1600	4	**1600 - 1700**	**20**	10	**1600 - 1700**	**51**	14	**1600 - 1700**	**71**
1615	7			13			20		
1630	5			18			23		
1645	4			10			14		
1700	7	**1700 - 1800**	**19**	18	**1700 - 1800**	**69**	25	**1700 - 1800**	**88**
1715	5			15			20		
1730	4			22			26		
1745	3			14			17		
TOTAL	**464**			**396**			**860**		

Table 11.1 Results of Multi-Modal Survey of Arrivals and Departures at 15 – 17 Tavistock Place on Tuesday 21 April 2015 (Part 1 – Numbers of Trips)

11.8 The second element of the survey was to record mode of travel. This was achieved by direct interview with people arriving at the building. As many interviews as possible were recorded. As this type of survey relies on the co-operation of those being interviewed, the survey was confined to simple questions about mode of travel and where people were making their second or subsequent entry to the building, and identified themselves to the interviewers as such, they were not asked further questions. It is considered reasonable to assume that most peoples' first interview would relate to their 'commuting trip', rather than, say, to a lunchtime trip within the local neighbourhood or short trip between buildings, and is therefore more likely to lead to an over-estimate of trips by car or public transport and an under-estimate of trips on foot for example. Of the 464 people entering the site during the survey period only 13, 2.8%, were recorded as 'missed or refused to answer'. A good sample size of interviews was therefore achieved and the results are considered to be representative of travel patterns to the site.

11.9 With regards to the method of travel of those people interviewed, enumerators were asked to establish from interview and record the following trip types:

- Cycle
- Walk
- Walk and Private Car
- Walk and taxi
- Walk and bus
- Walk and train
- Walk and tube
- Walk and motorcycle
- Cycle and rail

11.10 Only the main secondary mode, by distance, was to be recorded.

11.11 The resulting modal split of trips to the site over the course of the ten-hour study period is presented in Table 11.2 below.

Mode of Travel (including main secondary mode by distance travelled)	Mode Share (%) All Hours
Walk all the way	32.5%
Walk and Tube	28.4%
Walk and Train	15.5%
Cycle all the way	12.2%
Walk and Bus	7.7%
Walk and Taxi	1.8%
Cycle and Rail	1.5%
Walk and Motorcycle	0.4%
Walk and Motor Car	0.0%
TOTAL	**100%**

Table 11.2 Results of Multi-Modal Survey of Arrivals and Departures at 15 – 17 Tavistock Place on Tuesday 21 April 2015 (Part 2 – Modal Share of Trips)

11.12 From Table 11.2 above it will be seen that no-one arriving at LSHTM during the survey hours travelled by private car, and only 0.4% by motorcycle, with 1.8% arriving by taxi. Almost a third of those travelling to the site did so on foot for the whole of the journey (32.5%) and 12.2% travelled all the way by bicycle.

11.13 Over half of journeys (53.1%) involved a trip by public transport, with 51.6% completing their journey on foot having travelled by tube (28.4%), train (15.5%) and bus (7.7%), and with 1.5% completing their rail journey by bicycle.

11.14 Overall during the survey period, 44.7% travelled wholly by non-motorised means (32.5% walking and 12.2% cycling), whilst 53.1% of trips involved public transport. In total 97.8% of trips were made by sustainable modes of transport.

11.15 If the morning peak period, from 0800-1000, is considered, the effects of non-interviewed second entrances are minimised, with only two people falling into this category and with only 4 people (3.77%) recorded as ‘missed or refused to answer’. The modal split of those arriving during this period is presented in Table 11.3 below.

11.16 From Table 11.3 it will be seen that in the period between 0800 and 1000, over half of arrivals (56%) travelled by rail, completing their journeys on foot, (38% by tube and 18% by train) with a further 3% travelling by rail and completing the journey by cycle. 18% of arrivals cycled all the way, higher than for the day as a whole, whilst walking all the way was lower in the 0800-1000 period (12%) compared with the day as a whole (32.5%). Bus journeys accounted for a higher proportion of trips between 0800 and 1000 compared with the day as a whole (10% and 7.7% respectively). Nevertheless, 30% travelled wholly by non-motorised means (12% walking and 18% cycling), whilst 69% of trips involved public transport. In total 99% of trips were made by sustainable modes of transport. No journeys were made by private car and only 1% of trips were made by motorcycle.

Mode of Travel (including main secondary mode by distance travelled)	Mode Share (%) 0800 - 1000
Walk and Tube	38%
Cycle all the way	18%
Walk and Train	18%
Walk all the way	12%
Walk and Bus	10%
Cycle and Rail	3%
Walk and Motorcycle	1%
Walk and Taxi	0%
Walk and Motor Car	0%
TOTAL	**100%**

Table 11.3 Results of Multi-Modal Survey of Arrivals and Departures at 15 – 17 Tavistock Place on Tuesday 21 April 2015 (Part 2 – Modal Share of Trips) (0800 – 1000)

11.17 Applying the above modal split to the overall number of arrivals surveyed provides an indication of the number of people arriving at LSHTM by mode of travel. This information is presented in Table 11.4 below.

11.18 Table 11.4 indicates that in the morning peak period between 0800 and 1000, of the 106 people arriving at LSHTM, 32 would either have cycled or walked for the whole of their journey, 62 would have travelled by rail, completing their journey on foot or by bicycle, and 11 would have travelled by bus. Only one person travelled by a motor vehicle, in this case a motorcycle. For the whole of the survey period, 0800 – 1800, of the 464 people arriving at LSHTM, 208 would either have cycled or walked for the whole of their journey, 211 would have travelled by rail, completing their journey on foot or by bicycle, and 36 would have travelled by bus. Ten journeys were made by motor vehicle, including 8 by taxi. It is considered that these numbers of trips would not have a significant impact on the transport network.

Mode of Travel (including main secondary mode by distance travelled)	Mode Share (%) 0800 - 1000	Arrivals by Mode 0800 - 1000		Mode Share (%) 0800 - 1800	Arrivals by Mode 0800 - 1800	
Walk all the way	12%	13	**32**	32.5%	151	**208**
Cycle all the way	18%	19		12.2%	57	
Walk and Tube	38%	40	**62**	28.4%	132	**211**
Walk and Train	18%	19		15.5%	72	
Cycle and Rail	3%	3		1.5%	7	
Walk and Bus	10%	11	**11**	7.7%	36	**36**
Walk and Motorcycle	1%	1	**1**	0.4%	2	**10**
Walk and Taxi	0%	0		1.8%	8	
Walk and Motor Car	0%	0		0.0%	0	
TOTAL	**100%**	**106**		**100%**	**464**	

Table 11.4 Number of Arrivals by Mode of Travel for Morning Peak Period (0800 – 1000) and for Overall Survey Period (0800 – 1800) based on Surveyed Modal Split

11.19 The survey enumerators were asked to record the number of motor vehicles entering the site. These would be expected to be either delivery vehicles or disabled persons. The enumerators recorded that, during the ten-hour survey period, only two motor vehicles entered the site, viz:

At 1012 a delivery vehicle arrived and left again at 1035

At 1058 a delivery vehicle arrived and left again at 1117

No other motor vehicles were recorded as entering the courtyard.

11.20 To complement this information the School were asked to record details of delivery and service vehicle activity at the site, each day for the working week 20th – 24th April 2015. This includes the period of the above survey. The results of this survey are presented in Table 11.5 below.

TIME OF ARRIVAL	TYPE OF VEHICLE (eg Transit, large box van, refuse vehicle, articulated lorry, rigid lorry)	PURPOSE (eg refuse collection, delivery to refectory, personal, postal etc)	TIME OF DEPARTURE	CURRENT FREQUENCY OF DELIVERY/ COLLECTION
	NO VEHICLE DELIVERIES ON MONDAY OR THURSDAY			
1010 Tue	**TRANSIT VAN**	**WATER DELIVERY**	**1035**	**WEEKLY**
1059 Tue	**SCHOOL VAN**	**PORTERING**	**1116**	**AS AND WHEN REQUIRED**
1120 Wed	**TRANSIT VAN**	**CONTRACTOR**	**1350**	**ONE OFF**
1200 Wed	**TRUCK**	**RUBBISH REMOVAL**	**1220**	**WEEKLY**
1350 Fri	**SCHOOL VAN**	**ESTATES**	**1400**	**AS AND WHEN REQUIRED**
1455 Fri	**SCHOOL VAN**	**IT EQUIPMENT**	**1520**	**AS AND WHEN REQUIRED**

Table 11.5 Recorded Service/Delivery Vehicle Activity 20 – 24 April 2015 by Day and Time and Type of Vehicle and Activity (LSHTM)

11.21 From Table 11.5 it will be seen that activities at the School generate few service and delivery vehicle movements. In the week under consideration, 20 – 24 April 2015,

there were no service/delivery vehicles recorded on Monday or Thursday and only two vehicle movements on each of the other three days.

11.22 The School confirm that the number of service and delivery vehicles accessing the site as recorded above is typical. It should also be noted that three of the six deliveries are identified as ‘School van’; this is in the ownership of the School and therefore under the School’s direct control.

Section B – Proposed Development

12 Description of the proposed development

12.1 As indicated in paragraph 1.3, planning permission was secured in January 2017, for the demolition of the single storey structure to the rear of the site and the development, in its stead, of additional laboratory space, referred to in this report as the approved scheme. The School now seeks permission for a development of reduced scale, which would still involve the demolition of the single storey structure and the construction to the rear of the site of additional laboratory, research and higher education space.

12.2 The approved scheme comprised two basement levels, ground floor and two upper storeys plus accommodation for roof-level plant. The approved scheme would provide two basement levels each of 1,040m^2 (Gross Internal Floor Area), a ground floor level of 1,120m^2 (including a covered atrium), a first floor level of 1,071m^2, and a second floor level of 782m^2 with roof level provision for plant and equipment. The School would retain floor space of 3,488m^2 within the existing building, whilst a total of 1,430m^2 (Gross External Floor Area) of floor space would be demolished, including the rear courtyard shed (957m^2).

12.3 By contrast, the scheme for which planning permission is now sought is of reduced scale, comprising a single basement level of 492m^2 (Gross Internal Floor Area), a ground floor level of 1,107m^2 (with atrium void above), a first floor level of 970m^2, a second floor level of 738m^2, a third floor level of 300m^2, and roof level provision for plant and equipment (140m^2). The basement would accommodate a plant room, generator room, showers and lockers, whilst the ground and upper storeys would each accommodate dry laboratory, research and write-up spaces. Together, the extension would have a total area of 3,747m^2, whilst the floors that would accommodate dry laboratory, research and write-up spaces would have a combined area of 3,115m^2.

12.4 Table 12.1 below provides a comparison of floor areas between the approved scheme and the current development proposal.

Development Level	Approved Scheme Areas (Gross Internal Floor Areas m^2)	Currently Proposed Scheme Areas (Gross Internal Floor Areas m^2)
Basement Level -2	1,040	Not applicable
Basement Level -1	1,040	492
Ground Floor Level 0	1,120	1,107
Level 1	1,071	970
Level 2	782	738
Level 3	281	300
Level 4	140	140
Extension Total	5,474	3,747
LSHTM retained	3,488	3,690
Total	8,962	7,437

Table 12.1 Comparison of Floor Areas Between Approved Scheme and the Currently Proposed Development

12.5 From Table 12.1 above, it will be seen that the currently proposed extension, at 3,747m^2 is almost a third smaller (31.5%) than the approved extension of 5,474 m^2. Overall, including the retained School building, there would be a reduction of 17% in floor area relative to the approved scheme.

12.6 Pedestrian access to the proposed extension would be from Tavistock Place, via the existing easterly entrance, closest to Marchmont Street, as previously proposed. This would provide access to an entrance atrium from where there would be access to the ground floor and other levels via stairs and lift. There will also be access to the rear of the building where cycle parking would be provided. Pedestrian access to the LSHTM main accommodation building would be provided via a new entrance from Tavistock Place within the frontage adjacent to the existing vehicular access, removing the current conflicts that arise as a result of the School's pedestrian entrance being from within the covered archway. A secondary pedestrian access to the School's main accommodation building would also be provided from Tavistock Place, towards the easterly end of the existing frontage.

12.7 Vehicular access to the School would be via the existing vehicular access from Tavistock Place, located to the westerly end of the frontage. This would provide access to two disabled persons' parking spaces and for service and delivery vehicles. The access arrangements are described in greater detail below.

12.8 As described in Section 13 below, it is proposed to provide a total of 64 cycle parking spaces, the same number to be provided as part of the approved scheme.

13 Transport Characteristics of the Proposed Development

13.1 In accordance with current development plan policies, the School's completed development at Tavistock Place would be car-free. The only car parking that would be permitted on site would be for the use of disabled drivers; two parking spaces, designed to appropriate mobility standards, would be provided within the courtyard.

13.2 Section 11 above provides a detailed assessment, based on survey data collected for the study of the approved scheme, of existing trips to and from the site by all modes. A modal split of trips in both the morning peak period, 0800-1000, and over the course of the survey period, 0800 – 1800, are presented.

13.3 It is considered that the modal split of trips to and from the proposed scheme would be the same as that recorded as part of the multi-modal survey undertaken in April 2015, as presented in Table 11.2 for the full period of the survey (0800-1800) and in Table 11.3 for the morning peak period (0800-1000). It is similarly considered reasonable to assume that the pattern of arrivals and departures associated with the extended School would be broadly comparable with those recorded in the survey.

13.4 In assessing the person trip generation characteristics of the proposed development it is therefore relevant to consider the quantum of arrivals and departures, based on the mode share and trip patterns derived from the multi-modal survey of the existing School building.

13.5 In this context, whilst the nature of the proposed laboratory, research and higher education space to be housed in the proposed extension (being designed to accommodate a much higher population than the additional space proposed as part of the approved scheme) is such that an assessment based on a consideration of relative floor areas between the existing and proposed building may be appropriate, for consistency with the assessment of the approved scheme, and for robustness, the relative populations for which the two buildings are designed is considered.

13.6 The existing School building accommodates a permanent occupancy of up to 319 people and 152 visitors[11]; a maximum occupancy of 471. The proportion of these that were present on site on the day of the survey is not known, but it is considered that if the number of potential visitors is discounted in its entirety and the number of permanent occupants is discounted by 10% to account for absentees (bearing in mind that the survey was carried out in term time, thereby minimising the number of persons absent due to holidays) this would provide a robust basis for the assessment of trips per person on the day of the survey. This is the approach taken in the assessment of the approved scheme, which was acceptable to the planning and highway authorities. Taking this approach, and applying it to the number of arrivals recorded during the survey period (which was higher than the recorded departures), generates a trip rate for arrivals (or departures) of 1.617 trips per person, based on 287 people. [This is consistent with information provided by the School when preparations were in hand for the multi-modal survey, when it was indicated that the number of staff working in the building is 290.]

13.7 In common with the approved scheme, as part of the proposed development for which planning approval is now sought, it is proposed to demolish part of the existing School building, thereby reducing floor space and, hence, accommodation. The architects have indicated that the reduction in floor area would remove accommodation for 52 people. As this would tend to reduce the number of trips generated by the School relative to the existing building, a robust assessment of the likely trip generation of the overall proposed development is achieved by applying a lower trip rate to this reduction of 0.985 trips per person, based on maximum occupancy, including permitted visitors and no absentees (464 arrivals divided by 471 maximum occupancy). Again, this is the approach taken in the assessment of the approved scheme.

13.8 The currently proposed extension to the School building at Tavistock Place is designed for maximum occupancy of 390 people. As indicated above, this is higher than the 220 people for which the approved building was designed, due to the somewhat differing nature of the laboratory space now being proposed and how it would be utilised.

[11] Maximum numbers of occupants for which a fire certificate has been issued

HOURS	LSHTM (RETAINED)		PROPOSED EXTENSION		OVERALL	
	REVISED ARRIVALS	REVISED DEPART-URES	NEW ARRIVALS	NEW DEPART-URES	ARRIVALS	DEPART-URES
0800-0900	31	7	48	11	**79**	**18**
0900-1000	63	10	96	15	**160**	**25**
1000-1100	72	19	110	30	**182**	**49**
1100-1200	37	24	57	37	**94**	**60**
1200-1300	58	53	88	83	**146**	**136**
1300-1400	59	48	90	75	**148**	**123**
1400-1500	34	42	52	65	**85**	**107**
1500-1600	24	38	37	60	**61**	**98**
1600-1700	18	44	27	69	**45**	**114**
1700-1800	17	60	26	94	**43**	**154**
TOTAL	**413**	**345**	**631**	**538**	**1043**	**883**

Table 13.1 Projected Revised Person Trips (Arrivals and Departures) for Retained School, Projected Person Trips (Arrivals and Departures) for Proposed Extension and Projected Total Person Trips (Arrivals and Departures)
Note – small discrepancies in totals due to rounding errors

13.9 A realistic, robust assessment of the trip generation characteristics of the proposed development is therefore considered to be obtained by applying a reduction on the existing, recorded trips (calculated at a trip rate of 0.985 trips per person for 52 people) and adding the trips associated with 390 new people at a trip rate of 1.617 trips per person. The resulting trip numbers are presented in the table above, assuming the same pattern of arrivals and departures as was recorded in the survey.

13.10 From Table 13.1 above, it will be seen that the projected total number of arrivals for the proposed development (including the retained School) over the ten-hour period under consideration is 1,043, an increase of 579, broadly equivalent to one additional

arrival every minute on average. It will also be seen that the projected total number of departures over the same period is 883, an increase of 487, equivalent to one additional departure every 1.23 minutes on average. Whilst these figures are higher than those predicted for the approved scheme, nonetheless these increases are considered unlikely to have a significant impact on the transport system.

13.11 In the morning peak period, 0800-1000, the projected total number of arrivals for the proposed development (including the retained School) is 239, an increase of 133, equivalent to one additional arrival every 0.9 minutes on average. The projected total number of departures over the same period is 43, an increase of 24, equivalent to one additional departure every 5 minutes on average. These increases are, similarly, unlikely to have a significant impact on the transport system.

13.12 It is appropriate to consider the modal split of these additional trips in order to establish the impact of the development on the transport network. As indicated in paragraph 13.3 it is considered that the modal split of surveyed trips would apply equally to trips generated by the proposed extension. Therefore, applying the modal split of trips across the survey period overall (Table 11.2) to the number of additional person trips predicted to be generated between 0800 and 1800, gives an indication of the impact of the proposed development on the transport network over the working day as a whole, whilst applying the surveyed modal split presented in Table 11.3 above to the predicted increase in person trips between 0800 and 1000 gives an indication of the impact of the proposed development on the transport network during the morning peak period. The results of this assessment are presented in Table 13.2 below.

13.13 From Table 13.2 below it will be seen that in the morning peak period (0800 – 1000) the number of additional trips arising from the proposed development that are predicted to be undertaken entirely sustainably (on foot or by cycle) would be 47. It is predicted that 15 trips would be by bus and 92 trips would be by rail (the journey completed on foot or by cycle) with 59 by tube and 33 by other rail services, which spread across the public transport network and a two-hour period is considered to represent an insignificant impact. Only one arrival is predicted to be by personal motorised transport (motorcycle), which again would not be a significant impact on the local highway network.

Mode of Travel (including main secondary mode by distance travelled)	Mode Share (%) 0800 - 1000	Additional Trips by Mode 0800 - 1000			Mode Share (%) 0800 - 1800	Additional Trips by Mode 0800 - 1800		
		A	D	Total		A	D	Total
Walk all the way	12%	16	3	**47**	32.5%	188	158	**476**
Cycle all the way	18%	24	4		12.2%	71	59	
Walk and Tube	38%	50	9	**92**	28.4%	165	138	**484**
Walk and Train	18%	24	4		15.5%	90	75	
Cycle and Rail	3%	4	1		1.5%	9	7.	
Walk and Bus	10%	13	2	**15**	7.7%	45	37	**82**
Walk and Motorcycle	1%	1	0	**1**	0.4%	2	2	**23**
Walk and Taxi	0%	0	0		1.8%	10	9	
Walk and Motor Car	0%	0	0		0.0%	0	0	
TOTAL	**100%**	**133**	**24**	**157**	**100%**	**579**	**487**	**1066**

Table 13.2 Number of Predicted Additional Arrivals and Departures by Mode of Travel for Morning Peak Period (0800 – 1000) and for Overall Survey Period (0800 – 1800) based on Surveyed Modal Split

Notes – A = Arrivals; D = Departures; small discrepancies in totals due to rounding errors

13.14 Taking the working day as a whole, over the ten-hour period between 0800 and 1800 the number of additional trips arising from the proposed development that are predicted to be undertaken entirely sustainably (on foot or by cycle) would be 476. It is predicted that 82 trips would be by bus and 484 trips would be by rail (the journey completed on foot or by cycle) with 303 by tube and 181 by other rail services, which is similarly considered to be a modest increase across the public transport network as a whole. Only 4 trips are predicted to be by personal motorised transport (motorcycle), whilst nineteen trips are predicted to be by taxi, which again would not represent a significant impact on the local highway network.

13.15 It is proposed to provide the same number of cycle parking spaces for both the proposed extension and for the retained existing School building, as were proposed as part of the approved scheme.

13.16 As previously, for the proposed extension, a total of 36 Sheffield type hooped cycle stands would be provided, located as shown on the drawings. Four of these would provide standard, double sided access and the remaining 32 would provide single sided access, resulting in a total of 40 cycle parking spaces. Showers and lockers would be provided within the basement of the proposed extension.

13.17 Again, as previously approved, for the retained School building it is proposed to relocate the 24 spaces currently located within the single storey structure to the rear of the site (which is to be demolished as part of the project) to a room at the eastern end of the ground floor of the existing frontage building, as per the consented scheme. This provision would be in the form of 12 double sided Sheffield type stands.

13.18 Overall provision would therefore be 64 cycle parking spaces, as per the approved scheme. The architect's drawings accompanying the planning application show the location of the proposed cycle parking provision for the proposed extension. All cycle parking would be readily accessible at ground floor level.

13.19 Consideration of the number of trips to and from the site that it is predicted would be undertaken by bicycle (based on the robust assessment of the trip generation characteristics of the proposed development presented above and the surveyed modal split of existing trips to and from the site) and of the distribution of those trips throughout the working day, based on survey data, allows an assessment to be made of the demand for on-site cycle parking throughout the day.

13.20 Table 13.1 above presents the distribution by hour throughout the period 0800 – 1800 of the predicted number of arrivals and departures by all modes associated with the proposed extension and the retained School building. Table 11.2 above, replicated in Table 13.2 above, presents the modal split of trips over the same ten-hour period, derived from the multi-modal survey undertaken at the site. From these two latter tables it will be seen that trips to and from the site that are undertaken by bicycle represent 13.7% of all trips; 12.2% of trips are undertaken wholly by bicycle and 1.5% of trips are undertaken principally by rail and are completed by bicycle. These two trip types therefore generate a demand for cycle parking at the application site.

13.21 By applying this modal share to the hourly totals of arrivals and departures presented in Table 13.1 above allows an assessment to be made of the occupancy of cycle parking spaces over the course of the day. As a proportion of cycle trips, especially those forming part of a trip by rail, are likely to be undertaken using folding bicycles that would not therefore occupy a standard cycle stand, the assessment of occupancy of cycle parking spaces, based entirely on the use of conventional bicycles, is considered to be robust. The results of this assessment are presented in Table 13.3 below.

HOURS	ARRIVALS	DEPARTURES	OCCUPANCY
0800-0900	11	2	9
0900-1000	22	3	28
1000-1100	25	7	46
1100-1200	13	8	51
1200-1300	20	19	52
1300-1400	20	17	**55**
1400-1500	12	15	52
1500-1600	8	13	47
1600-1700	6	16	37
1700-1800	6	21	22

Table 13.3 Cycle Parking Accumulation Based on Total Arrivals and Departures and Mode split for 'Cycle all the Way' and 'Cycle + Train' for the Whole Day.

13.22 From Table 13.3 above, it will be seen that the maximum end-of-hour occupancy of cycle parking spaces would be 55, compared with an overall proposed cycle parking provision of 64 spaces. Predicted maximum occupancy represents 86% of proposed on-site cycle parking provision, which is considered appropriate to allow for natural variations in arrival and departure patterns and spare capacity to accommodate future growth in cycle usage.

13.23 Table 11.5 above presents the results of a survey of service and delivery vehicle trips to and from the existing School building at 15-17 Tavistock Place conducted over the course of a week. This demonstrates that a very low number of service vehicle/delivery trips are generated by the existing use on the site during a typical working week. No trips were recorded on Monday or Thursday and only two vehicle movements on each of the other three days, with three of the six recorded visits undertaken by the School's own vehicle.

13.24 It is the applicant's view that the number of service vehicle/delivery vehicle trips will increase as a result of the current project. The assessment is that vehicle trips could increase to a maximum of around 5 per day and would be largely laboratory related. This remains a low number of trips.

13.25 As described in Section 15 below, access to the site for service and delivery vehicles would continue to be accommodated via the existing vehicular access from Tavistock Place and would thus continue to impose a constraint on the size of vehicles.

13.26 It is clear that the number of vehicles accessing the site following completion of the project would be significantly lower than the number generated during the demolition and construction phases of development. There is a natural emphasis, therefore, on ensuring that there are robust protocols and measures in place to adequately manage and control the potential adverse impacts of construction traffic generated by the project, and consequently a need for an effective Construction Management Plan.

14 Construction Management Plan

Access Options Appraisal

14.1 As required by the London Borough of Camden, the planning application is accompanied by a **Construction Management Plan** that describes the management arrangements and measures that would be put in place to control and mitigate the environmental and highways/traffic impacts that it is anticipated would arise during the demolition and construction phases of the proposed development. The document would be finalised in conjunction with the Principal Contractor, once appointed, should planning permission for the proposed development be granted. The document

is essentially the same as that submitted with the application for the approved scheme.

14.2 A construction period of 104 weeks (two years) was envisaged for the approved scheme. This has been revised to approximately 77 weeks (385 days) for the main contract, preceded by an advance works contract, primarily demolition, of 30 days, with the scheme completed by the end of 2019.

14.3 The following provides a summary of the highways and traffic management aspects of the draft Construction Management Plan (CMP) as previously submitted and approved, setting out the anticipated movements and type of construction traffic associated with the demolition and construction phases of the project and the measures that it is proposed would be put in place to mitigate the adverse impacts of that traffic. As the currently proposed scheme is of reduced scale and complexity (given that only a single basement level is now proposed) relative to the approved scheme, and that traffic management and access arrangements remain the same, the previous draft CMP is considered to provide a robust framework within which the construction logistics of the current scheme may be considered and judged.

14.4 The proposed working hours at the site would be 8am to 6pm on Monday to Friday and 8am to 1pm on Saturday, with no working on Sunday or Bank Holidays, in accordance with the Considerate Constructor Code of Practice. These hours would be varied as necessary to accord with any specific planning conditions imposed on any approval for the proposed development.

14.5 As part of the earlier process of preparing a comprehensive planning application for the now-approved scheme, discussions were held with officers of the London Borough of Camden, as part of which the highways officer raised concerns about the access to the site for vehicles during the demolition and construction phases.

14.6 In response, available access options were examined, in conjunction with the Council's highways officer, and a detailed appraisal of the options available was undertaken and a report detailing the findings was prepared and submitted to the Council for consideration. A copy of the appraisal report is included as Appendix C to this report. The conclusions of the appraisal, as described below, were subsequently agreed by the Council.

14.7 In the context of the appraisal, it was agreed that there were three possible access options to be considered:

- Burton Street, to the north west of the site;
- Marchmont Street, to the east of the site; and
- Tavistock Place, to the southerly frontage of the site.

14.8 A site visit, with representatives of the applicants, the project design team and the London Borough of Camden's highways engineer in attendance, took place on Tuesday, 31 March 2015.

14.9 As indicated above, the School site has a single direct highway frontage, to Tavistock Place. In the other two cases, third party agreements would be required to secure access rights to the site for vehicles. Negotiations had already taken place, prior to the site meeting, with the owners of the land that would need to be used if an access from Burton Street were feasible. Extensive negotiations had failed to secure any agreement with the owners beyond the lease, for the duration of the works only, of two car parking spaces to provide working space on the boundary of the works. In the case of the Marchmont Street access, the land in question is used as an external extension of the activities of the adjoining public house. Whilst the School have a right of way over this land for emergency evacuation purposes, its use by construction vehicles would be detrimental to the operation of the business and the safety of patrons and would be unlikely to be secured.

14.10 There are also physical constraints in respect of all three access options. Due to the nature of the buildings, access in all cases would be through developed frontages, via covered passageway with limited headroom. Additionally, the Burton Street and Marchmont Street accesses have limited manoeuvring space, being arranged at ninety degrees to the highway and with restricted width.

14.11 A consideration of the maximum size of vehicle that would be anticipated during the demolition and construction phase of the project, relative to the maximum available width and headroom of the three passageways, quantified the extent to which vehicular access to the site during construction would be constrained.

14.12 The maximum height of vehicle to be accommodated during construction is a concrete lorry, at 3.75m. Table 14.1 below provides the height and width dimensions of the three passageways in question.

Access Passageway	Width (m)	Height (m)
Tavistock Place (LSHTM)	3.87	3.35
Marchmont Stree	3.3	3.64
Burton Street	3.59	3.65

Table 14.1 Width and Headroom of the Three Passageways Providing Potential Access to the Application Site During Demolition and Construction

14.13 From the above table it will be seen that none of the three potential passageway access points has sufficient headroom to accommodate the maximum size of construction vehicle anticipated. Additionally, Marchmont Street is the narrowest of the three. The Council highways engineer agreed that the Marchmont Street passageway could be discounted as a viable access during the site visit. There is no practical means of increasing the headroom of the Burton Street passageway or its width, not least because it is in third party ownership, and this means of access, which would also require construction vehicles to pass between sensitive residential frontages, was therefore also discounted.

14.14 It is also true that the existing School access from Tavistock Place has restricted headroom, insufficient to accommodate concrete lorries. However, as the building and its forecourt area are within the ownership of the School there is greater scope than elsewhere to make alterations in order to accommodate the anticipated construction vehicles. Preliminary examinations concluded that the opportunity exists to amend the levels of the forecourt area and passageway in order to achieve an increase in headroom, sufficient to enable access to the inner courtyard for all anticipated construction vehicles requiring access to the workface. Suitable protection measures for any underground services could be provided.

14.15 It is therefore proposed, as previously, to reduce the level of the entrance to gain the additional headroom needed to allow access through to the rear courtyard for all

construction vehicles. A ramp would be provided between the new reduced level and the existing footway/carriageway level. Steel road plates would be provided as protection to underground services. A hoarding would be erected to enclose the works, including those to reduce the levels in front of the entrance. A section through the proposed ramp, showing its relation to the existing footway, is included at Appendix C to the CMP.

14.16 With these accommodation works carried out, it is considered that the Tavistock Place access can be safely used for access to and egress from the site for all construction vehicles likely to require access throughout the duration of the demolition/construction phases of the project. These arrangements are as previously approved and should, therefore, continue to be acceptable to Camden Council.

14.17 As a result, there would be no need to accommodate the standing, loading or unloading of these construction vehicles on the public highway.

Proposed Access Logistics and Routes

14.18 It is nonetheless recognised that the Tavistock Place access places constraints on the size of construction vehicle that would be able to enter the site and a logistics operation would therefore be implemented that ensures that only vehicles of that size will travel to the site and that no loading or unloading would take place from the highway of Tavistock Place. There would be a small number of exceptions to this; temporary, one day closures of Tavistock Place would be required for the placing and decommissioning of the on-site tower crane required (it is anticipated that these would take place at weekends) and there would be a small number of abnormal loads for plant deliveries and for rebar/pile cages etc, in respect of which the timing and any special traffic management measures would be agreed in advance with the local authority.

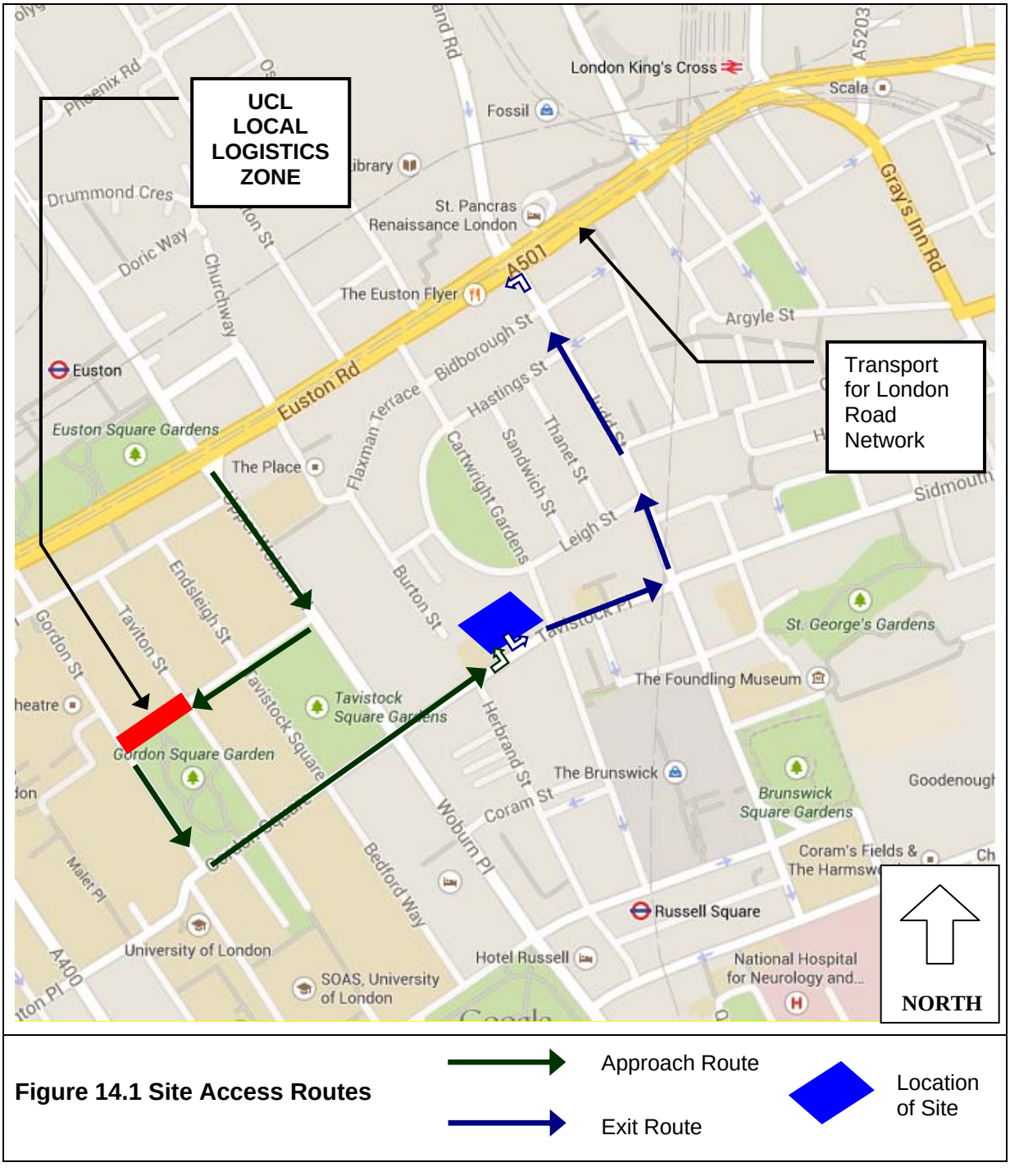


Figure 14.1 Site Access Routes

14.19 University College London (UCL) is currently carrying out a major building programme at a number of sites within its estate and, for sites in the Bloomsbury area, a **Local Logistics Zone (LLZ)** has been established at Gordon Square by the temporary closure of part of Endsleigh Place, adjacent to the UCL Department of Anthropology. This provides an area where vehicles can be marshalled before being despatched, by radio, to the relevant construction site. This was an element of the draft CMP for the approved scheme and LSHTM are negotiating with UCL for the

continued use of the LLZ in relation to the current scheme, but should this not prove possible similar arrangements would be provided by the appointed Contractor and these would be reflected in the final version of the CMP. This holding area would ensure not only that vehicles of the requisite size are despatched to the Tavistock Place site, but also that only one vehicle at a time is so despatched. This would prevent a build up of vehicles at the site that might otherwise lead to construction vehicles standing on the highway.

14.20 As required by the London Borough of Camden's planning guidance, the CMP considers the proposed routes for vehicles between the site and the Transport for London Road Network (TLRN), the objective being to minimise the length of access routes that do not form part of the TLRN.

14.21 In this context, the draft CMP submitted with the planning application for the approved scheme took account of the effects of the revised traffic management arrangements on Tavistock Place that were then anticipated and which, as described in paragraph 10.1 above, have since been implemented. The arrangements for access to the currently proposed development site are therefore unchanged and as previously approved.

14.22 The suggested designated access routes are shown in Figure 14.1 above. They show vehicles routed to and from Euston Road, A501, part of the TLRN. It is proposed that construction vehicles would access the Local Logistics Zone (LLZ) via Upper Woburn Place A4200 and Endsleigh Place. On leaving the LLZ, construction vehicles would proceed via Gordon Square and Tavistock Square into Tavistock Place to access the site.

14.23 Leaving the site, vehicles would have to turn left, in accordance with the one-way system, proceeding via Tavistock Place to Judd Street, where they would turn left to follow Judd Street northwards to Euston Road.

14.24 One constraint on a direct route to Euston Road for all vehicles, including construction vehicles, leaving the site, is a prescribed left turn on Judd Street at its junction with Euston Road that requires all vehicles to turn westwards onto Euston Road. A width restriction on Regent Square precludes exit for larger vehicles to A5200 Gray's Inn Road. This will require vehicles wishing to turn right onto Euston

Road to proceed via Bidborough Street and Mabledon Place, but this involves a modest increase in mileage.

Size and Frequency of Vehicle Movements

14.25 It is anticipated that construction vehicles that would access the site during construction would include concrete lorries, 8.7m long and 3.75m high and small tipper lorries, 8m in length and 3.5m high.

14.26 In support of the planning application for the approved scheme an assessment was made of the anticipated movements of vehicles to and from the site during the progress of the works. The following table provides an indication of the frequency of vehicle movements per week for each week of the 104-week demolition/construction phase of the approved scheme. Note that 'movement' equates to either a vehicle arrival at or a dispatch from the site. As the currently proposed scheme is of reduced scale – the new-build element being a third smaller than that approved - the following is considered to provide a robust assessment of construction vehicle movements associated with the current scheme.

14.27 From the table below it will be seen that the anticipated peak lorry movements associated with the approved scheme were 180 per week, between weeks 17-26, equal to an average of 33 per day based on a 5.5 day week and 4.1 per hour based on an 8-hour working day. It is considered not unreasonable to assume that, at worst, peak lorry movements associated with the currently proposed scheme would not exceed those associated with the approved scheme, as indicated below.

14.28 The number of lorry movements per week on average across the full construction phase of the approved scheme was assessed as 103, equivalent to 19 per day based on a 5.5 day week and 2.3 per hour based on an 8-hour working day.

Project Week(s)	Lorry Movements per week	Project Week(s)	Lorry Movements per week
1	30	**17-26**	**180**
2	44	27-29	170
3	52	30-33	160
4	62	34-37	140
5	82	38-39	120
6	92	40-73	90
7	120	74-84	70
8	140	85-101	60
9-13	160	102-104	50
14-16	170		

Table 14.2 Approved Scheme: Anticipated Numbers of Lorry Movements Per Week During the Demolition and Construction Phases of the Project

Servicing Arrangements During Demolition and Construction

14.29 The developer acknowledges that the restrictions and requirements imposed by the local authority as set down in the final version of the CMP and relevant planning conditions will need to be complied with.

14.30 Key matters to be considered include:

- Agreed traffic routes to and from the site (See above)
- Co-ordinated deliveries to minimise disruption
- Use of modular components to mitigate traffic movements and reduce man hours on site
- Segregation of vehicular movements and redirection of pedestrians

14.31 Delivery companies will be made aware of the site access/egress routes, operational hours, the offloading area and the general site protocol by means of careful written

instructions and directions supplied to them at the time of confirming the delivery schedule.

14.32 Site access/egress for all material deliveries and waste removal would be carefully controlled. A scheduling system would be developed to provide an efficient means of controlling all deliveries and ensuring that deliveries arrive at the right time and are speedily despatched. Scheduling would, wherever possible, be used to minimise or avoid lorry movements to and from the site during peak hours.

14.33 At no time would project-related vehicles be permitted to stack up and park on any adjoining or nearby roads. Any unscheduled or early deliveries would be moved on and told to return at the correct time.

14.34 As explained in the CMP and based on the advice of a leading contractor with experience of working within constrained, inner-London sites, it is proposed that a gantry is constructed within the site at ground level, above the basement construction, to provide somewhere to stand vehicles during delivery and removal of material from the site. Given the size of vehicles that would be able to gain entry to this area, it is envisaged that there would be sufficient space to allow vehicles to turn within the site so as to be able to enter and leave the site in forward gear.

14.35 Swept path analyses have been carried out and swept path drawings are included at Appendix D to this report that show how vehicles would enter and leave the site, utilising this gantry within the inner courtyard. Some modification of the existing island defining the cycleway on Tavistock Place, near to the access to the site, would be required to accommodate these manoeuvres. Details would be agreed with the highway authority prior to commencement of works.

14.36 At the site entrance on to Tavistock Place it would then be proposed to control vehicle access and egress across the existing footway and cycle facility with the use of temporary barriers deployed and removed by trained marshals (2 each side). This arrangement would operate in conjunction with the radio-controlled arrival and despatch protocol described above and which ensures that only a single vehicle is present at the site at any one time, and would allow the deployment of barriers on a ‘just in time’ basis thereby minimising disruption and delay to the travelling public,

particularly pedestrians and cyclists. These arrangements were incorporated into the CMP for the approved scheme.

14.37 The barrier-plus-marshal methodology described above has already been in use at a nearby development site on Torrington Place, where the access for construction vehicles crossed a footway and the same cycle facility that passes the Tavistock Place site. At the time of the site visit referred to in paragraph 14.8 above, it was understood that that arrangement had been in place for around six months and had operated without incident.

14.38 The careful scheduling of deliveries will be key to the efficient handling and storage of materials in order to avoid over-congestion on site. Wherever possible, materials would be brought to site for delivery straight to the work-face.

14.39 Selection and procurement procedures would require all sub-Contractors and suppliers who are required to deliver to the site to be members of Transport for London's Fleet Operator Recognition Scheme (FORS) or equivalent. This would help to promote lower vehicle emissions and high standards of efficiency and safety, in particular with respects to cyclists. In this last context, the School would also require all sub-Contractors and suppliers delivering to the site to adhere to the CLOCS Standard for Construction Logistics (Construction Logistics and Community Safety) to help manage work-related road risk, especially to protect the safety of cyclists.

Protection of the Public Highway from Dirt and Dust

14.40 As far as is reasonably practicable, adjacent carriageways and footways would be kept clear of mud, dust, or other deposits at all times. To achieve this, the wheels of any vehicles would be hosed clean prior to despatch from the site. Any mud, or other material, deposited on the highway would be cleaned without delay by appropriate manual or mechanical means.

Community Liaison

14.41 This is a constrained site, with neighbouring residential and commercial premises, an existing site occupier (the School) whose operations need to be maintained throughout the construction project and which adjoins a busy public highway. There is a critical need to ensure that there is the minimum possible disruption and

disturbance to these stakeholders, in addition to the public, throughout the course of the project.

14.42 From the outset the intention will be to work closely with all stakeholders. In common with the arrangements for all construction-related stakeholder involvement, the developer/Principal Contractor would maintain an 'open door' policy with regards to highways/traffic matters, so that stakeholders have a means of bringing any concerns directly and quickly to senior personnel, so that any issues can be discussed, explained and, if appropriate, addressed.

14.43 Senior site personnel would be on hand throughout the operative hours of the project to deal with any complaints or comments from members of the public regarding such issues as highway safety, traffic management or street cleanliness. All such comments or complaints would be recorded and reviewed as part of regular progress/site meetings, with records made of any corrective action required or taken.

14.44 The Principal Contractor would be required to liase with other Contractors working in the vicinity of the site and to endeavour to co-ordinate activities with them in order to minimise any potential cumulative impacts arising from the combined activities.

Tower Crane

14.45 It is anticipated that one Luffing Jib tower crane, strategically sited to give 100% coverage of the project footprint, would be used. The crane would have a maximum radius of 45 metres, with a maximum height under hook of approximately 25 metres above ground level and a SWL of 3.0T at this point.

14.46 Erection and dismantling of the tower crane would be from Tavistock Place, which would require a temporary road closure of one day on each occasion. This would be pre-planned and agreed in advance with the Council. All necessary permits and temporary notices would be applied for, noting that there is a ten-week lead-in time.

Non-operational Travel To and From Site

14.47 There would be no car parking available on site for staff, operatives or visitors throughout the period of demolition/construction. Adequate on site cycle parking would be provided.

14.48 Induction procedures would ensure that sub-Contractors are aware of this restriction prior to first commencing work on site. They would be briefed on the parking and waiting restrictions that are in force within the vicinity of the site. As described earlier in this report, the site is highly accessible by public transport, including Underground, main line rail and bus services. Sub-Contractors would be made aware of the services available and would be required to encourage their staff and operatives to travel to and from the site by public transport, on foot or by cycle.

15 Delivery and Servicing Plan

15.1 This section of the Transport Statement represents the **Delivery and Servicing Plan (DSP)** for the project.

What is a Delivery and Servicing Plan?

15.2 A Delivery and Servicing Plan (DSP) documents an organisation's strategy for managing and reducing the transport impacts associated with their servicing and delivery activities. The DSP for 15-17 Tavistock Place sets out a package of measures that are designed to encourage the efficient, safe and sustainable movement of goods and vehicles associated with deliveries to and servicing of the School site.

15.3 The effective implementation of a DSP will help to minimise the impact that transport associated with deliveries to and servicing of the site has on the environment, helping the School to reduce its carbon footprint.

15.4 The DSP focuses on a range of activities including:

- Goods deliveries
- Dispatched goods
- Waste and recycling
- Servicing activities e.g. maintenance and repair of plant and equipment

15.5 The DSP is tailored to the specific needs of the School and the Tavistock Place site.

15.6 The DSP sits alongside the **LSHTM Tavistock Place Travel Plan**, which accompanies the planning application and to which reference should also be made.

15.7 It also sits alongside the Construction Management Plan (CMP), which performs a similar function to the DSP but which relates specifically to the demolition/construction phase of the project. The CMP also accompanies the planning application and the transport aspects of the CMP are described in Section 14 above.

15.8 The DSP supports and is consistent with the various policy frameworks outlined in Section 3 of this report.

Benefits of a DSP

15.9 There are many benefits that can arise as a result of the successful implementation of a DSP. Benefits of a DSP include:

- reduction in Carbon Dioxide (CO_2) emissions generated by delivery and servicing activities;
- reduction in air pollution such as Nitrogen Dioxide (NO_2);
- helping to reduce traffic congestion;
- helping to reduce road traffic collisions;
- improved efficiency and associated cost savings;
- reduced risk of on-highway servicing which can cause an obstruction and a hazard and
- helping to ensure safety on the site and that health and safety requirements are complied with.

Aims and Objectives

15.10 The successful implementation of the DSP supports the principle of sustainable development.

15.11 The principal aim of the DSP is to:

Minimise the adverse effects on the environment, on traffic congestion, on highway safety and on our neighbours of delivery and servicing activities generated by the School's Tavistock Place development.

15.12 This DSP therefore seeks to achieve the following objectives:

- To implement procurement procedures that seek, proactively, to reduce the number of delivery and servicing trips to the site, especially during busy times, such as the morning and evening peak hours;
- To ensure that delivery and servicing activity, including where possible waste removal, takes place within the site, safely and efficiently;
- To ensure, partly through positive selection of delivery and servicing companies that follow best practice, that delivery and servicing activity is carried out in as environmentally-friendly a way as possible;
- To minimise the impact of freight activity on local residents, neighbours and the environment;
- To contribute to a reduction in traffic congestion;
- To seek to reduce operating costs including those of companies that deliver to and service the premises; and
- To ensure the robustness of the supply chain and its resilience to planned or foreseeable events and disruption.

Roles and Responsibilities

15.13 Responsibility for developing and implementing the DSP and for its subsequent monitoring and review will be assigned to a senior member of staff (e.g. Facilities Manager), to be identified following receipt of planning approval, supported by the School's Management Team.

15.14 All staff shall be responsible for ensuring that delivery and service vehicle activity is carried out in accordance with the plan in a safe and efficient manner.

Delivery and Servicing Vehicle Activity Associated with the Site

15.15 As set out in paragraph 13.24 above, the applicants' assessment is that the number of delivery and servicing vehicles accessing the site following completion of the proposed development will remain at a low level, with a maximum of around 5 vehicles per day on average.

Delivery and Servicing Arrangements

15.16 Following completion of the construction phase of the project it is proposed that the temporary ramp installed at the existing vehicular access to the site from Tavistock Place (to gain additional headroom beneath the archway for construction vehicles – paragraph 14.15 above) would be removed, with the present floor levels below the archway reinstated, the headroom returning to the present 3.35m.

15.17 The size of vehicles gaining access to the site will continue, therefore, to be constrained by the physical headroom available at the access from Tavistock Place. As previously indicated, typically vehicles will be of Transit van size or equivalent.

15.18 As indicated on the site layout plan accompanying the application, it is proposed, as with the approved scheme, to provide a turntable within the internal courtyard area. This will allow all vehicles that access the site to enter and leave in forward gear. A swept path analysis has been carried out to demonstrate how vehicles would enter and leave the site. The swept paths are presented at Appendix E to this report. Again, as during construction, there may be a need for some modification of the existing island defining the cycleway on Tavistock Place to accommodate these manoeuvres without encroaching into the westbound cycle track on the southerly side.

15.19 All delivery and service vehicle activity generated exclusively by the School will involve smaller vehicles, accessing the site and entering and leaving in forward gear, with no such vehicles loading/unloading from the highway.

Action Plan – Delivery and Servicing Measures

15.20 The DSP aims to ensure that servicing of and deliveries to the School's Tavistock Place site will be carried out effectively and efficiently so that any negative impacts on the local highway network, surrounding premises and the environment are minimised.

15.21 The following sets out an Action Plan of measures designed to meet the objectives of the DSP.

15.22 The DSP Action Plan measures are grouped into the following headings:

- Design Features
- Management Measures
- Procurement Strategy
- Waste Management and
- Reducing the Number of Trips

Action Plan:		**By When:**
Design features		
1.	**Off-street servicing facilities:** Provide an on-site service yard with turntable to allow all vehicles to enter and leave the site in forward gear and provide a safe standing/loading area. As a result, no exclusively-generated loading or unloading activities will take place from the highway, thereby ensuring that traffic flows are not disrupted.	**0**
2.	**Service Yard Risk Assessment:** Suitably trained site management staff will undertake a risk assessment of the servicing arrangements for the site prior to first occupation of the proposed development. This will examine the following areas and will be repeated periodically to ensure its continuing effectiveness • Adequacy of manoeuvring space for vehicles/maintenance and operation of the turntable • Interaction with pedestrians and cyclists • Adequacy of loading/unloading areas • Interaction between vehicles • Visibility of management staff	**0** **P**
3.	**Servicing Restrictions:** The servicing arrangements within the site have been designed to accommodate the largest vehicles that are likely to require access to the site, recognising the headroom constraints at the access – all third party delivery/service providers would be made aware of the access constraints in place at the site and such visits would be pre-arranged to ensure that only one such vehicle is present on site at any one time. Any pre-booked vehicles requiring access to the site that arrive at unscheduled times would not be permitted to enter the site without authorisation.	**0** **C**
4.	**Traffic Management Regulation Audit:** The parking, waiting and loading restrictions in place on the local highway network do not represent a constraint on access to and from the site.	**0**
5.	**London Low Emission Zone (LEZ):** The site is located within the LEZ. This requires suppliers operating delivery vehicles that do not meet emission standards to pay a daily charge for journeys within the zone, thereby providing an automatic incentive for suppliers to operate greener vehicles when servicing or delivering to the site.	**0**

6.	**Facilities for 'out-of-hours' (overnight) deliveries:** The applicant has indicated that many deliveries take place outside the normal working day, early morning around 5.30am. This avoids peak traffic periods and minimises conflicts with other users of the building.	**0**
Management Measures:		
7.	**Responsibility for the DSP:** The Facilities Manager, or equivalent senior member of staff, will be responsible for implementing, overseeing, reviewing and developing the DSP. The role will entail: • increasing supplier and employee awareness of the DSP, of the environmental impacts that are associated with delivery and servicing activities and the cost benefits of keeping deliveries to a minimum; • arranging any necessary staff training; • ensuring that the service area is maintained for its intended purpose at all times that it is required and that it is operated in a safe manner; • ensuring that the turntable is functioning properly and safely at all times; • reviewing procurement procedures to promote initiatives that reduce service and delivery vehicle trips; • monitoring and reviewing the DSP; and • taking any enforcement action that might be required.	**0** **C**
8.	**Delivery/Service Vehicle Survey:** Carry out a survey of delivery and service vehicle activity taking account of TfL guidance and analyse the results. This will provide a benchmark against which the effectiveness of the DSP can be evaluated.	**3**
9.	**Repeated Delivery/Service Vehicle Survey:** As part of Monitoring procedures (see below), the survey of delivery and service vehicle activity would be repeated in the third and fifth year following the initial survey, to enable progress to be quantified.	**Y3** **Y5**
10.	**Keep the DSP up-to-date:** Administration of the DSP involves the maintenance of necessary systems, data and paperwork, consultation and information. These duties are permanent and updating the DSP to reflect current good practice will be the responsibility of the Facilities Manager (or identified equivalent). Essentially, the DSP will merely reflect good cost-effective business practices and sound application of normal health and safety principles to the operation of the site.	**C**
11.	**Raise Awareness and Provide Training:** All staff associated with servicing of and deliveries to the School's Tavistock Place site will be made aware of the requirements of the DSP and will be required to undergo appropriate training to ensure safe practices in accordance with the DSP. Failures to implement the requirements of the DSP would be treated as a disciplinary matter.	**3** **C**
12.	**Security Measures:** Site management staff will marshal deliveries and ensure that the site is being used safely and securely and at appropriate times	**0** **C**

13.	**Make Arrangements for Accommodating Any Special Deliveries:** Irregular/unusual servicing/delivery vehicle activity (such as plant maintenance) will need to be pre-arranged. The delivery time and duration will be agreed with management to minimise the impact on the routine daily servicing activities. Off-peak visits will be encouraged and scheduled wherever possible.	**0** **C**
14.	**Schedule Delivery and Servicing Trips Outside Peak Hours:** Wherever possible, deliveries would be scheduled to take place outside the peak hours, especially those under the direct control of LSHTM. The School will work with suppliers to achieve this objective wherever possible. It is considered likely that suppliers would want to schedule deliveries outside peak times to avoid congestion on the highway network in the vicinity of the site and that this is likely, therefore, to be largely self-regulating. Times of in-house deliveries will be notified to site staff in advance, ensuring that staff are suitably prepared to receive each delivery, including those responsible for the management of the service area including turntable and designated standing area.	**0** **C**
15.	**Deliveries by Bicycle:** It is an action identified in the Travel Plan that the School will investigate the use of bicycles for 'internal' and local deliveries. Additionally, the School will work with suppliers to improve cycle safety training through the FORS scheme (or equivalent) and embed this in contracts.	**0** **C**
16.	**Promote the Freight Information Portal:** The School will raise awareness of Transport for London's Freight information webpage (https://tfl.gov.uk/corporate/publications-and-reports/freight) as a resource for those planning and making deliveries to the site and encourage the adoption of good practice servicing and delivery strategies. The benefits associated with using suppliers adopting sustainable freight and servicing practices will be promoted throughout the workplace.	**3** **C**
Procurement Strategy		
17.	**Review internal procedures:** The School will review internal procurement procedures to ensure that they show an awareness of the vehicle activity generated by suppliers and its impacts and that they include appropriate measures that are designed to reduce those impacts.	**6**
18.	**Promote the Fleet Operator Recognition Scheme:** School procedures will give preference, wherever practicable, to suppliers who are registered with a best practice scheme such as the Fleet Operator Recognition Scheme (FORS), which recognises suppliers whose lorry and van fleets are operated safely, lawfully, efficiently and so as to reduce the impact of their activities on the environment.	**3** **C**
19.	**Reduce or Consolidate the number of suppliers:** The School will review their suppliers and their requirements and ordering procedures to see if economies of scale can be achieved and/or consumption of supplied items reduced, thereby achieving efficiencies and reducing the number of supplier trips.	**6** **C**
Waste Management		
20.	The School will ensure that as much as possible of the waste that	**0**

	is generated is recycled or re-used, rather than being sent to landfill, and School procedures will underpin this commitment.	**C**
21.	In accordance with the London Freight Plan, the School will provide sufficient on-site facilities for the storage and collection of segregated waste.	**0** **C**
22.	The School will operate a policy of simple waste segregation at source to maximise recycling efficiency. Waste management therefore starts at the point that waste is created.	**0** **C**
23.	Dry recyclables will be stored and collected as a single stream. The School will have a selection of clearly marked waste receivable bins for different waste streams, which will be collected by the site cleaners on a daily basis and emptied into the corresponding external waste bin.	**0** **C**
24.	Hazardous waste will also be segregated at source. Separate containers will be provided for all waste streams.	**0** **C**
25.	A collection schedule would be agreed with any private waste collection contractors, which would be designed to minimise the number of collections and, hence, the number of goods vehicle trips generated and ensure, wherever practicable, that such collections take place outside peak hours.	**0** **C**
26.	Wherever practicable, waste collections will take place at pre-arranged times to ensure that the site is managed effectively and efficiently.	**0** **C**
Reducing the Number of Trips		
27.	**Reduce the Number of Service and Delivery Trips in the Peak Hours:** Wherever possible, service and delivery trips will be pre-booked and scheduled to take place outside the peak hours.	**3** **C**
28.	**Reduce the Number of Service and Delivery Trips Overall:** As part of a review of procurement procedures the School will examine the potential for reducing the number of service and delivery trips overall, by such measures as rationalising the number of different suppliers, reviewing what is ordered and how frequently and working with neighbours. It is an action of the Travel Plan to improve logistics and procurement arrangements, with an associated target to achieve a 10% reduction in delivery vehicle trips within three years	**Y3**

Key:
0 – By time of opening of the proposed development
3 – Within 3 months of occupation
P – Periodic Review
Y3 – Year 3
Y5 – Year 5
C - Continuing requirement

Monitoring and Review

15.23 The DSP sets out the School's proposals for the efficient and effective management of servicing and delivery trips that would be generated by the development and

demonstrates their commitment to the employment of best practice and to the reduction of the impacts of delivery and servicing activity on the environment. The requirements of the DSP will be complied with and it is acknowledged that any non-compliance may be enforced through the planning system. The philosophy and requirements of the DSP will be imbedded into the School's internal procedures and will be enforced accordingly.

15.24 The School will implement a programme of monitoring and review that would generate information that would be used to evaluate the success of the DSP relative to the objectives set out above.

15.25 Monitoring and review will be carried out by or under the auspices of the Facilities Manager or equivalent.

15.26 A delivery survey will be undertaken within three months of first occupation. The delivery survey would be repeated in the third and fifth year following the initial survey.

15.27 The data obtained from the Delivery Survey will be used to inform the process of reviewing and, if necessary, making changes to prevailing delivery and servicing operations and procedures in order to meet the objectives set out above. The analysis would focus on, for instance, the proportion of delivery and service vehicle trips taking place in the peak hours, the overall number of delivery and service vehicle trips generated and the proportion of suppliers that are FORS registered. Subsequent Delivery Surveys will allow a comparison with the benchmark figures to quantify and demonstrate the progress that has been made.

15.28 In the context of the above, it should be recognised that the volume of delivery and servicing vehicle trips generated by the School would be small, and the size of vehicles undertaking such trips would be limited, typically, to Transit-sized vehicles. It is anticipated, therefore, that the emphasis of the DSP would be on safe working practices in relation to access and egress and materials handling rather than on measures to reduce the number of trips, although opportunities in respect of the latter would continue to be exploited as and when they arise.

16 Travel Plan

16.1 A Travel Plan document was submitted in support of the planning application for the approved scheme. That document has been thoroughly revised, updated and expanded and accompanies the present planning application as the **LSHTM Tavistock Place Travel Plan**.

16.2 The School recognises that its activities and operations can have an impact on society and the environment and is working to reduce the negative effects of these activities and operations whilst promoting and striving for positive outcomes where possible. Although travel is necessary to enable its work, study and research activities to function, the School is seeking to reduce the amount and impact of the travel that is undertaken. It is intended that the Travel Plan will help the School to achieve these objectives.

16.3 The overall aim of the Travel Plan is "…to enable efficient and optimal travel choices to be made, which support the School's business, educational and research activities, minimise social and environmental impacts and respect and contribute to the local transport agenda and London's wider transport challenges."

16.4 To achieve this, the School is seeking to reduce the amount of travel which is undertaken, and encouraging, wherever possible, a modal shift by promoting and increasing cycling, walking, and the use of 'sustainable' public transport.

16.5 Within the overall aim set out above, the specific Travel Plan aims are to:

- Enable efficient and optimal travel and transport choices to be made;
- Improve sustainability and reduce the School's social and environmental impact from travel and transport;
- Improve staff and student health, well-being and work-life balance;
- Enhance business resilience and contingency during periods of travel disruption; and
- Contribute to and influence the delivery of regional and local transport policies.

16.6 To achieve these aims the Travel Plan establishes the following key objectives:

- **OBJ 1 – To reduce the need to travel for work and study, where appropriate, through IT and flexible working arrangements;**
- **OBJ 2 – To enhance travel mode choices for journeys, through the provision of appropriate information, infrastructure and support;**
- **OBJ 3 – To work in partnership with our neighbours, Camden Council, Transport for London, transport groups and other stakeholders to improve sustainable travel outcomes; and**
- **OBJ 4 – To improve the logistics of managing day-to-day operations, deliveries and servicing, thereby contributing to a reduction in traffic, congestion and improved air quality.**

16.7 As with all Travel Plans, it is appropriate for the LSHTM Tavistock Place Travel Plan to set specific, measurable, attainable, realistic and time-bound (SMART) targets. However, given the current modal split of trips to and from the site, which are almost entirely undertaken by sustainable transport modes, it is considered inappropriate to set targets related to shifts in particular modes. Targets that the plan is designed to achieve are therefore related to the delivery of the necessary infrastructure to support sustainable travel, the continued promotion of sustainable travel modes and initiatives designed to reduce the need to travel, including for service and delivery trips. The Travel Plan sets the following nine targets, the attainment of which would help the School achieve the aims and objectives of the plan:

- To implement secure cycle parking facilities that would encourage staff, students and visitors to cycle to the School by the time the development is completed (T1);
- To implement the shower and locker facilities that would encourage staff, students and visitors to cycle and walk to the School by the time the development is completed (T2);
- To appoint a Travel Plan Co-ordinator (TPC) prior to the development opening (T3);
- To develop a full package of Travel Plan measures within six months of completion of the development; to maintain the current levels of sustainable transport usage (T4);
- To establish links with neighbours operating Travel Plans and to explore the possibilities for working together on Travel Plan initiatives (T5);

- To develop, within six months of completion of the development, a strategy to increase video and voice conferencing facilities and promote their use (T6);
- To review business travel and promote sustainable travel options within six months of completion of the development (T7);
- To promote travel mode choices by ensuring appropriate information is available immediately and offering future personal travel planning on request (T8); and
- To review, within a year of completion of the development, procurement procedures and logistics practices, and the sustainability of the School's own vehicles, to ensure that delivery, servicing and School-related transport activities have the minimum possible environmental impact, including during construction and thereafter to achieve a 10% reduction in delivery vehicle trips within three years (T9).

16.8 The School will deliver these aims and objectives, and thereby meet the above targets, through a series of site-specific actions and measures that are set out in the Travel Plan. These actions and measures are laid out in the Travel Plan as an Action Plan, indicating when and by whom the action is to be completed or measure implemented. The actions and measures will be to:

- Appoint a site-specific Travel Plan Co-ordinator prior to completion of the scheme to oversee the development and implementation of the Travel Plan;
- Reduce the need to travel for work by supporting flexible working;
- Exploit as far as possible communications technologies to reduce the need to travel for business or study;
- Provide on-site, secure cycle parking for staff and visitors, with associated locker and shower facilities to promote cycling;
- Develop a web page as a resource for sustainable travel information and include in staff/student induction process;
- Participate in/support Travel Plan initiatives developed and promoted by others, to encourage cycling, walking and other sustainable transport modes;
- Work with suppliers to improve cycle safety training through the FORS scheme (or equivalent) and embed this in contracts;
- Promote the availability of cycle skills training and the 'Camden Try a Bike' scheme, that allows anyone who lives, works or studies in Camden and is new to cycling to borrow a bike, free of charge, for four weeks;

- Commit to the Cycle To Work Guarantee Scheme operated by the Department for Transport, which challenges businesses to become cycle friendly employers by making it easy for staff to cycle to and from work. The scheme requires businesses to facilitate the purchase and maintenance of cycles and equipment. Consideration would be given to the Government's Cycle to Work Scheme and the TPC would negotiate with local cycle retailers with a view to securing discounts on cycle purchases for staff. More information is available at www.cycletoworkguarantee.org.uk;
- Offer personal travel planning on request and promote the use of online Journey Planners;
- Investigate the use of bicycles for 'internal' and local deliveries;
- Ensure, when considering the cost and sustainability of business travel that cannot be avoided, that the use of Car Club vehicles (e.g. Enterprise Car Club which has a location on Marchmont Street just to the south of the school site) is taken into account;
- Work to ensure that, where vehicles are under the direct control of the School, trips are scheduled to take place outside the peak hours;
- Ensure that future procurement of vehicles will take account of fuel efficiency, adopting 'green' technologies where tested and appropriate;
- Improve operational site logistics to achieve a 10% reduction in delivery vehicle trips within three years;
- Continue to monitor staff/student travel behaviour and use the information obtained to focus future initiatives.

16.9 The Travel Plan sets out how the plan would be developed and implemented, within the responsibility of a senior member of staff acting as Travel Plan Co-ordinator, how it would be monitored and reviewed and provides a commitment to the provision of the necessary funding to secure the success of the plan.

Summary and Conclusion

17 Summary

17.1 In January 2017, planning permission was secured for a development of the Tavistock Place building of the London School of Hygiene & Tropical Medicine (the School), located at 15-17 Tavistock Place in the King's Cross Ward of the London Borough of Camden. Planning permission 2015/3406/P refers.

17.2 That scheme, referred to in this Transport Statement as the approved scheme, would have involved the demolition of the existing single storey structure to the rear of the site and the development, in its stead, of additional laboratory space.

17.3 The School does not intend to implement that permission and now seeks permission for a development of reduced scale, which would still involve the demolition of the single storey structure and the construction to the rear of the site of additional laboratory, research and higher education space. The new-build element of the proposed development would be almost a third smaller (31.5%) than the approved scheme, having a gross internal floor area of 3,747m^2 compared with 5,474m^2 for the approved scheme.

17.4 The planning application for the approved scheme was supported, as required by the London Borough of Camden Council, by a Transport Statement, Travel Plan and draft Construction Management Plan. Each of those documents has been reviewed and amended and updated as necessary to reflect the now-proposed reduced scheme and changes in, in particular, background transport information that have occurred in the intervening period.

17.5 Subject to receipt of planning approval, it is envisaged that building completion would be by the end of 2019.

17.6 The present Transport Statement has been prepared in accordance with national, regional and local development policies to demonstrate the impacts that the proposed development would be expected to have on the transport network.

17.7 The Transport Statement demonstrates that the proposed development would occupy a sustainable location. The site enjoys a PTAL score of 6b, the highest and best score achievable, indicating an excellent level of accessibility to public transport services, with a large number of bus services that operate at high frequencies throughout the daytime and evening to a broad range of destinations across London, five Underground stations and three mainline railway stations all accessible within a short walking distance of the site.

17.8 The application site is also readily accessible on foot and by bicycle. There are extensive shopping and leisure facilities within the immediate vicinity of the site (including The Brunswick, a purpose built pedestrianised district shopping centre that provides a broad range of retail outlets and service providers) allowing a number of trips for a variety of purposes (shopping, banking, fitness and leisure trips for example) to be undertaken on foot during break periods. An extensive residential area is accessible on foot or by bicycle from the application site, access by the latter mode facilitated by two cycle routes that pass the frontage of the site on Tavistock Place, accommodated within one-way segregated cycle tracks.

17.9 The Tavistock Place site lies within a Controlled Parking Zone and a 20mph speed limit zone. On-street parking for non-residents' vehicles is closely controlled and largely restricted in the vicinity of the application site. These restrictions serve to provide a disincentive to travel to and from the application site by private motorcar and encourage sustainable travel. A study of road traffic collisions resulting in personal injury that have occurred in the vicinity of the application site during the period 2014-2016, shows a significant improvement in road safety compared with the period 2011-2013, the collision record for which was analysed in the Transport Statement for the approved scheme. In the latest three-year period, only two personal injury collisions were recorded in the immediate vicinity of the Tavistock Place/Marchmont Street junction (both occurring in 2014, both involving a single vehicle and both resulting in slight injuries to pedestrians), compared with a total of 13 in the period 2011-2013 (which resulted in 14 casualties, 12 slight and 2 serious, with pedestrians involved in 11 of the thirteen collisions, including both of the collisions resulting in serious casualties). No collisions were recorded at or near to the junction of Tavistock Place and Marchmont Street in 2015 or 2016. Traffic arrangements at this location were amended during 2015, with Tavistock Place being made one-way eastbound for general traffic, the existing two-way cycle track on the

northerly side made one-way eastbound, and a new westbound cycle track introduced on the southerly side. Whilst it is not possible from the collision record to ascribe the significant reduction in collisions evident at the junction over the two periods to the introduction of the traffic scheme, the associated reductions in conflict may have been important contributory factors.

17.10 In order to determine the existing pattern of trips to and from the application site, a multi-modal survey was commissioned and was undertaken on Tuesday, 21 April 2015, representing a 'typical' day during term time. The survey consisted of two elements; firstly, a count of all arrivals and departures at the site entrance between the hours of 0800 and 1800 and secondly a direct interview survey with people arriving at the building to determine mode of travel (including main secondary mode by distance travelled). The results of that survey were used to inform the earlier Transport Statement submitted in support of the approved scheme and are considered to remain valid for use in the present study.

17.11 Over the ten-hour survey period a total of 464 people arrived at the site and a total of 396 departed from the site. No-one arrived during the surveyed hours by private car, and only 0.4% by motorcycle, with 1.8% arriving by taxi. Overall during the survey period, 44.7% travelled wholly by non-motorised means, with almost a third travelling on foot for the whole of the journey (32.5%) and 12.2% travelling all the way by bicycle. Over half of journeys (53.1%) involved a trip by public transport, with 51.6% completing their journey on foot having travelled by tube (28.4%), train (15.5%) and bus (7.7%), and with 1.5% completing their rail journey by bicycle. In total, 97.8% of trips were made by sustainable modes of transport.

17.12 If the morning peak period (0800 – 1000) is considered, there were 106 arrivals and 19 departures, a total of 125 trips. Of the 106 arrivals, 30% travelled wholly by non-motorised means (12% walking and 18% cycling), whilst 69% of trips involved public transport (59% by rail and 10% by bus). Over half of arrivals (56%) travelled by rail, completing their journeys on foot, (38% by tube and 18% by train) with a further 3% travelling by rail and completing the journey by cycle. In total 99% of trips were made by sustainable modes of transport. No journeys were made by private car and only 1% of trips were made by motorcycle.

17.13 It is considered that the number of trips recorded by mode would not represent a significant impact on the respective transport networks.

17.14 To complement the above survey information, the School recorded details of delivery and service vehicle activity at the site, each day for the working week 20th – 24th April 2015. This demonstrated that the number and size of service and delivery vehicles accessing the site are small; there were no service/delivery vehicles recorded on Monday or Thursday and only two vehicle movements on each of the other three days. This level of activity is considered by the School to be typical.

17.15 In accordance with current Local Plan policies, the completed development at Tavistock Place would be car-free. The only car parking that would be permitted on site would be for the use of disabled drivers; two parking spaces, designed to appropriate mobility standards, would be provided within the courtyard.

17.16 Given that the proposed development represents an extension of the School's current activities at the Tavistock Place site, it is considered reasonable to assume that the modal split of trips to and from the site would, in the absence of a Travel Plan, remain as surveyed. Similarly, it is considered reasonable to assume that the pattern of arrivals and departures over the course of the working day would remain consistent with the survey data. The main change in travel characteristics arising from the proposed development is therefore the quantum of trips that is likely to be generated.

17.17 The Transport Statement provides an assessment of that aspect of trip generation, reasoning that consideration of the relative populations for which the existing building and proposed extension are designed would provide an assessment of trip generation that is both robust and consistent with the assessment of the approved scheme. The extension now proposed is designed for maximum occupancy of 390 people.

17.18 A realistic, robust assessment of the trip generation characteristics of the proposed development is therefore considered to be obtained by applying a reduction on the existing, recorded trips to take account of the proposed demolition of part of the existing LSHTM building and adding the trips associated with 390 new people. Taking a robust approach to the trip rates applied to existing, removed trips and to

new trips, the projected total number of arrivals for the proposed development (including the retained LSHTM) over the ten-hour period under consideration is 1,043, an increase of 579, broadly equivalent to one additional arrival every minute on average. The projected total number of departures over the same period is 883, an increase of 487, equivalent to one additional departure every 1.23 minutes on average. Whilst these figures are higher than those predicted for the approved scheme, nonetheless these increases are considered unlikely to have a significant impact on the transport system.

17.19 In the morning peak period, 0800-1000, the projected total number of arrivals for the proposed development (including the retained LSHTM) is 239, an increase of 133, equivalent to one additional arrival every 0.9 minutes on average. The projected total number of departures over the same period is 43, an increase of 24, equivalent to one additional departure every 5 minutes on average. These increases are, similarly, unlikely to have a significant impact on the transport system.

17.20 Over the ten-hour period between 0800 and 1800 the number of additional trips arising from the proposed development that are predicted to be undertaken entirely sustainably (on foot or by cycle) would be 476. It is predicted that 82 trips would be by bus and 484 trips would be by rail (the journey completed on foot or by cycle) with 303 by tube and 181 by other rail services, which is similarly considered to be a modest increase across the public transport network as a whole. Only 4 trips are predicted to be by personal motorised transport (motorcycle), whilst nineteen trips are predicted to be by taxi, which again would not represent a significant impact on the local highway network.

17.21 In the morning peak period (0800 – 1000) the number of additional trips arising from the proposed development that are predicted to be undertaken entirely sustainably (on foot or by cycle) would be 47. It is predicted that 15 trips would be by bus and 92 trips would be by rail (the journey completed on foot or by cycle) with 59 by tube and 33 by other rail services, which spread across the public transport network and a two-hour period is considered to represent an insignificant impact. Only one arrival is predicted to be by personal motorised transport (motorcycle), which again would not be a significant impact on the local highway network.

17.22 It is proposed to provide a total of 64 cycle parking spaces, the same number for both the proposed extension and for the retained existing School building as were proposed as part of the approved scheme. All cycle parking would be readily accessible at ground floor level. Showers and lockers would be provided within the basement of the proposed extension. An assessment has been carried out to show that the proposed cycle parking provision would be sufficient to meet the projected demand, with spare capacity to allow for natural variations in arrival and departure patterns and to accommodate future growth in cycle usage.

17.23 It is the applicant's view that the number of service and delivery vehicle trips would increase as a result of the current project. The assessment is that vehicle trips could increase to a maximum of around 5 per day and would be largely laboratory related. This remains a low number of trips. Access to the site for service and delivery vehicles would continue to be accommodated via the existing vehicular access from Tavistock Place and would thus continue to impose a constraint on the size of vehicles. It is clear that the number of vehicles accessing the site following completion of the project would be significantly lower than the number generated during the demolition and construction phases of development. There is a natural emphasis, therefore, on ensuring that there are robust protocols and measures in place to adequately manage and control the potential adverse impacts of construction traffic generated by the project, and consequently a need for an effective Construction Management Plan (CMP). A comprehensive draft CMP was prepared and accompanied the planning application for the approved scheme. As the present scheme is of reduced scale relative to the approved scheme, and as the CMP would, of necessity, need to be reviewed and finalised following the appointment of the Principal Contractor, it is considered that the earlier draft CMP represents a robust assessment of the environmental and highways/traffic impacts that it is anticipated would arise during the demolition and construction phases of the currently proposed development and presents management arrangements and mitigation measures that continue to be appropriate. The CMP document now submitted is, therefore, essentially the same as that submitted with the application for the approved scheme. The Transport Statement presents a summary of the highways and traffic management aspects of the CMP.

17.24 A construction period of 104 weeks (two years) was envisaged for the approved scheme. This has been revised to approximately 77 weeks (385 days) for the main

contract, preceded by an advance works contract, primarily demolition, of 30 days, with the scheme completed by the end of 2019.

17.25 It is proposed, as previously, that access to the site for construction vehicles during the demolition and construction phase of the project would be from Tavistock Place. As before, accommodation works would be required to temporarily increase headroom to allow access through to the rear courtyard for all construction vehicles likely to require access to the site. With these accommodation works carried out, it is considered that the Tavistock Place access can be safely used for access to and egress from the site for all construction vehicles likely to require access throughout the duration of the demolition/construction phases of the project. These arrangements are as previously approved and should, therefore, continue to be acceptable to Camden Council. Two one-day closures of Tavistock Place are envisaged to enable erection and dismantling of a tower crane within the site, which it is anticipated would be at weekends. Additionally, a small number of abnormal load deliveries are anticipated, in respect of which the timing and any special traffic management measures would be agreed in advance with the local authority.

17.26 Use would be made of a local holding area to marshal vehicles before despatch, by radio, to the construction site. This holding area would ensure not only that vehicles of the requisite size are despatched to the Tavistock Place site, but also that only one vehicle at a time is so despatched. This would prevent a build up of vehicles at the site that might otherwise lead to construction vehicles standing on the highway. The intended arrangements for access routes to and from the currently proposed development site are unchanged and are as previously approved.

17.27 In support of the planning application for the approved scheme, an assessment was made of the anticipated movements of vehicles to and from the site during the progress of the works. As the currently proposed scheme is of reduced scale – the new-build element being a third smaller than that approved - the earlier assessment of construction vehicle movements is considered to be robust in relation to the current scheme.

17.28 At the site entrance on to Tavistock Place it would be proposed to control vehicle access and egress across the existing footway and cycle facility with the use of temporary barriers deployed and removed by trained marshals (2 each side). This arrangement would operate in conjunction with the radio-controlled arrival and

despatch protocol described above and which ensures that only a single vehicle is present at the site at any one time, and would allow the deployment of barriers on a 'just in time' basis thereby minimising disruption and delay to the travelling public, particularly pedestrians and cyclists. Measures to control, as far as is reasonably practicable, mud, dust, or other deposits on adjacent carriageways and footways would also be put in place.

17.29 All sub-Contractors and suppliers who deliver to the site would be required to be members of Transport for London's Fleet Operator Recognition Scheme (FORS) or equivalent. This would help to promote lower vehicle emissions and high standards of efficiency and safety, in particular with respects to cyclists. In this last context, the School would also require all sub-Contractors and suppliers delivering to the site to adhere to the CLOCS Standard for Construction Logistics (Construction Logistics and Community Safety) to help manage work-related road risk, especially to protect the safety of cyclists.

17.30 Community liaison would be a key element of effective site management. In addition to regular liaison with all stakeholders, senior site personnel would be on hand throughout the operative hours of the project to deal with any complaints or comments from members of the public regarding such issues as highway safety, traffic management or street cleanliness. The Principal Contractor would be required to liase with other Contractors working in the vicinity of the site and to endeavour to co-ordinate activities with them in order to minimise any potential cumulative impacts arising from the combined activities.

17.31 There would be no car parking available on site for staff, operatives or visitors throughout the period of demolition/construction. All site staff and visitors would be made aware of this restriction and would be briefed on the parking and waiting restrictions that are in force within the vicinity of the site. Sub-Contractors would be made aware of the public transport services available and would be required to encourage their staff and operatives to travel to and from the site by public transport, on foot or by cycle. Adequate on-site cycle parking would be provided.

17.32 The Transport Statement incorporates the Delivery and Servicing Plan (DSP) for the project, which sets out the proposed strategy for managing and reducing the transport impacts associated with servicing and delivery activities. The DSP for 15-17

Tavistock Place sets out a package of measures that are designed to encourage the efficient, safe and sustainable movement of goods and vehicles associated with deliveries to and servicing of the School's Tavistock Place site. As such it complements the Construction Management Plan and the Travel Plan for the site.

17.33 Following completion of the construction phase of the project it is proposed that the temporary ramp installed at the existing vehicular access to the site from Tavistock Place would be removed, with the present floor levels below the archway reinstated, the headroom returning to the present 3.35m. The size of vehicles gaining access to the site will continue, therefore, to be constrained by the physical headroom available at the access from Tavistock Place. Typically vehicles will continue to be of Transit van size or equivalent. It is proposed to provide a turntable within the internal courtyard area. This would allow all vehicles that access the site to enter and leave in forward gear.

17.34 The Delivery and Service Plan contains an action plan setting out the design features, management measures, procurement strategies, waste management arrangements and trip reduction measures that would be introduced in order to ensure, as far as possible, that delivery and service vehicle activity generated by the proposed development is conducted safely, efficiently and in an environmentally-friendly way; minimises its impact on the highway network by seeking an overall reduction in delivery/servicing trips, by scheduling trips to take place outside the peak hours and ensuring that delivery and servicing activity, including where possible waste removal, takes place within the site; minimises impact on local residents, neighbours and the public; contributes to a reduction in traffic congestion; reduces operating costs including those of companies that deliver to and service the premises; and promotes the robustness of the supply chain and its resilience to planned or foreseeable events and disruption.

17.35 A Travel Plan document was submitted in support of the planning application for the approved scheme. That document has been thoroughly revised, updated and expanded and accompanies the present planning application as the **LSHTM Tavistock Place Travel Plan**.

17.36 The Transport Statement summarises the contents of the Travel Plan, the overall aim of which is "…to enable efficient and optimal travel choices to be made, which

support the School's business, educational and research activities, minimise social and environmental impacts and respect and contribute to the local transport agenda and London's wider transport challenges."

17.37 To achieve the above aim, the Travel Plan establishes four principal objectives as follows:

- OBJ 1 – To reduce the need to travel for work and study, where appropriate, through IT and flexible working arrangements;
- OBJ 2 – To enhance travel mode choices for journeys, through the provision of appropriate information, infrastructure and support;
- OBJ 3 – To work in partnership with our neighbours, Camden Council, Transport for London, transport groups and other stakeholders to improve sustainable travel outcomes; and
- OBJ 4 – To improve the logistics of managing day-to-day operations, deliveries and servicing, thereby contributing to a reduction in traffic, congestion and improved air quality.

17.38 As with all Travel Plans, the LSHTM Tavistock Place Travel Plan sets specific, measurable, attainable, realistic and time-bound (SMART) targets, which given the already high levels of sustainable travel generated by School activities are related to the delivery of the necessary infrastructure to support sustainable travel, the continued promotion of sustainable travel modes and initiatives designed to reduce the need to travel, including for service and delivery trips. The Travel Plan sets the following nine targets, the attainment of which would help the School achieve the aims and objectives of the plan:

- To implement secure cycle parking facilities that would encourage staff, students and visitors to cycle to the School by the time the development is completed (T1);
- To implement the shower and locker facilities that would encourage staff, students and visitors to cycle and walk to the School by the time the development is completed (T2);
- To appoint a Travel Plan Co-ordinator (TPC) prior to the development opening (T3);
- To develop a full package of Travel Plan measures within six months of completion of the development; to maintain the current levels of sustainable transport usage (T4);
- To establish links with neighbours operating Travel Plans and to explore the possibilities for working together on Travel Plan initiatives (T5);
- To develop, within six months of completion of the development, a strategy to increase video and voice conferencing facilities and promote their use (T6);
- To review business travel and promote sustainable travel options within six months of completion of the development (T7);

- To promote travel mode choices by ensuring appropriate information is available immediately and offering future personal travel planning on request (T8); and
- To review, within a year of completion of the development, procurement procedures and logistics practices, and the sustainability of the School's own vehicles, to ensure that delivery, servicing and School-related transport activities have the minimum possible environmental impact, including during construction and thereafter to achieve a 10% reduction in delivery vehicle trips within three years (T9).

17.39 The School will seek to meet the above targets through a series of site-specific actions and measures that are set out in an Action Plan, indicating when and by whom the action is to be completed or measure implemented.

18 Conclusion

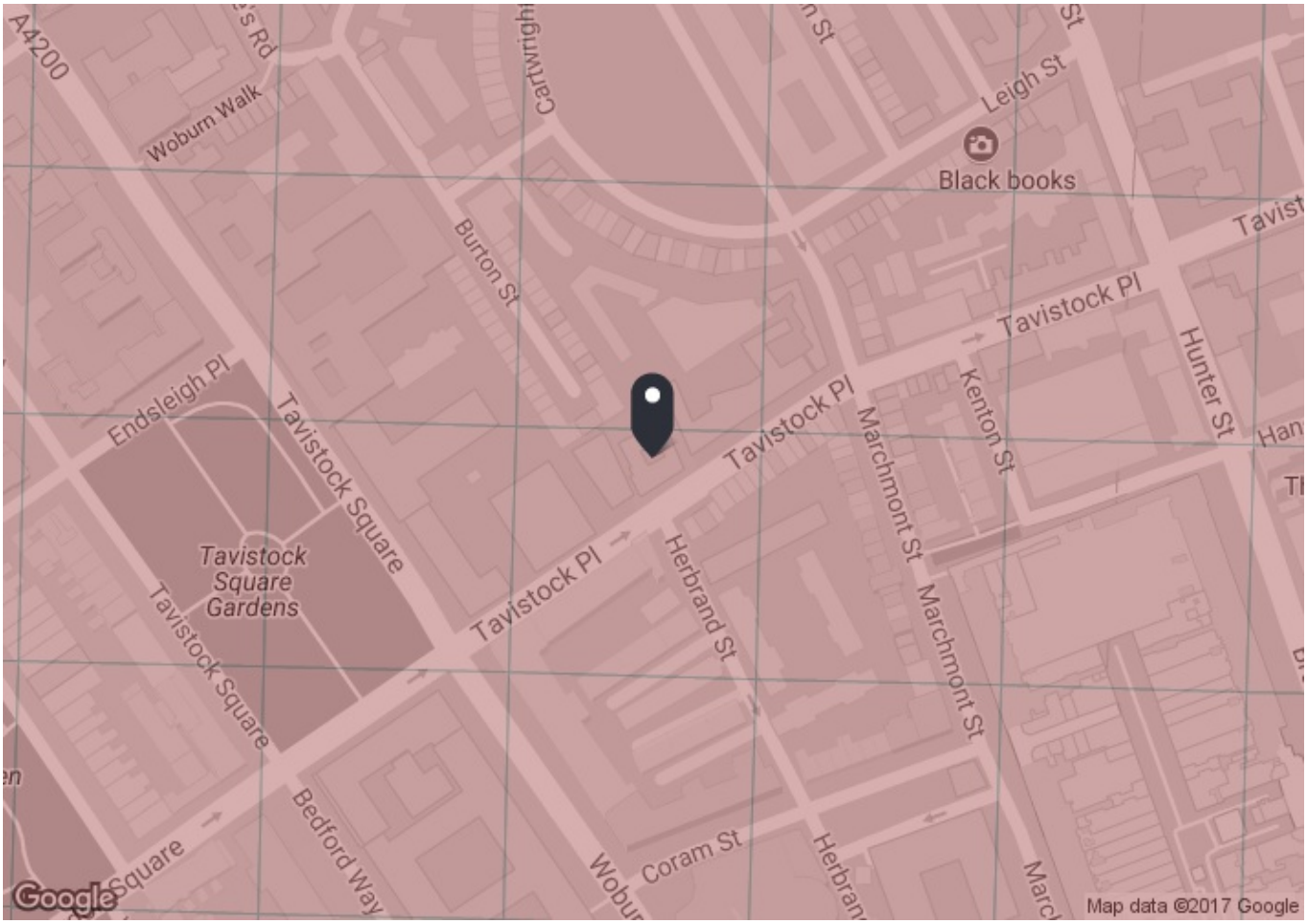
18.1 It is concluded, based on the assessments described in this report, that the proposed development can be constructed and operated in a sustainable manner, with suitable mitigation measures in place (including an effective Construction Management Plan, Travel Plan and appropriate Delivery and Servicing Plan), in accordance with national, regional and local policies, and can be accommodated within the existing transport system without undue impact. As such, it is concluded that the development should be acceptable to the local planning and highway authorities.

Wilde Carter Clack Consulting Engineers – October 2017

Appendices

Appendix A
PTAL Assessment Results
for 2011 and 2021

TRANSPORT FOR LONDON



PTAL output for Base Year
6b

15-17 Tavistock Pl
15-17 Tavistock Pl, Kings Cross, London WC1H 9SH, UK
Easting: **530053**, Northing: **182383**

Grid Cell: 89899

Report generated: 21/09/2017

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

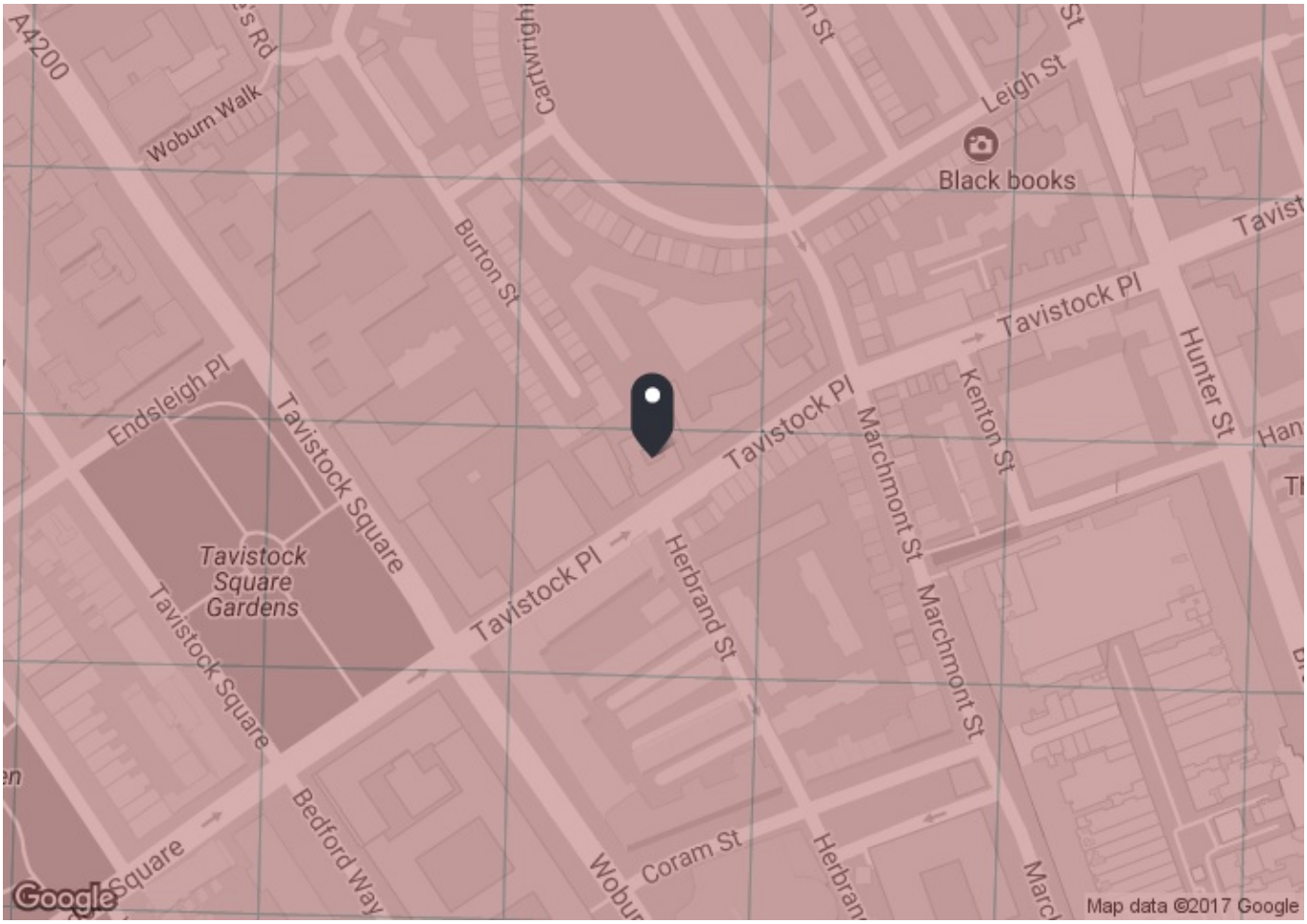
Calculation data

Mode	Stop	Route	Distance (metres)	Frequency(vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	GOWER ST TORRINGTON PL	24	571.62	10	7.15	5	12.15	2.47	0.5	1.24
Bus	GOWER ST TORRINGTON PL	134	571.62	12	7.15	4.5	11.65	2.58	0.5	1.29
Bus	GOWER ST TORRINGTON PL	29	571.62	15	7.15	4	11.15	2.69	0.5	1.35
Bus	GOWER ST TORRINGTON PL	14	571.62	13	7.15	4.31	11.45	2.62	0.5	1.31
Bus	EUSTON BUS STATION	253	614.14	12	7.68	4.5	12.18	2.46	0.5	1.23
Bus	EUSTON STATION EUSTON RD	18	567.21	17	7.09	3.76	10.85	2.76	0.5	1.38
Bus	TAVISTOCK SQUARE	59	139.36	10	1.74	5	6.74	4.45	1	4.45
Bus	TAVISTOCK SQUARE	91	139.36	9	1.74	5.33	7.08	4.24	0.5	2.12
Bus	TAVISTOCK SQUARE	68	139.36	9	1.74	5.33	7.08	4.24	0.5	2.12
Bus	TAVISTOCK SQUARE	168	139.36	9	1.74	5.33	7.08	4.24	0.5	2.12
Bus	EUSTON R BRITISH LIBRARY	10	464.48	4.5	5.81	8.67	14.47	2.07	0.5	1.04
Bus	EUSTON R BRITISH LIBRARY	390	464.48	8	5.81	5.75	11.56	2.6	0.5	1.3
Bus	EUSTON R BRITISH LIBRARY	30	464.48	7.5	5.81	6	11.81	2.54	0.5	1.27
Bus	EUSTON R BRITISH LIBRARY	73	464.48	18	5.81	3.67	9.47	3.17	0.5	1.58
Bus	EUSTON R BRITISH LIBRARY	476	464.48	7.5	5.81	6	11.81	2.54	0.5	1.27
Bus	EUSTON R BRITISH LIBRARY	205	464.48	8	5.81	5.75	11.56	2.6	0.5	1.3
Bus	RUSSELL SQUARE STH SIDE	X68	583.1	4	7.29	9.5	16.79	1.79	0.5	0.89
Bus	RUSSELL SQ NTH/WOBURN PL	98	347.85	9	4.35	5.33	9.68	3.1	0.5	1.55
Bus	RUSSELL SQ NTH/WOBURN PL	188	347.85	8	4.35	5.75	10.1	2.97	0.5	1.49
Rail	St Pancras	'BEDFDM-SVNOAKS 1E62'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'BEDFDM-BROMLYS 1E83'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'BEDFDM-ORPNGTN 1L60'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'BEDFDM-SUTTON 1O13'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'BEDFDM-KENTHOS 1S85'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'BEDFDM-BRGHTN 1T11'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'BEDFDM-BRGHTN 1T15'	693.01	0.67	8.66	45.53	54.19	0.55	0.5	0.28
Rail	St Pancras	'BRGHTN-BEDFDM 1T83'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'BEDFDM-SUTTON 1V23'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'BEDFDM-SUTTON 1V82'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'BRGHTN-BEDFDM 1W06'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'BRGHTN-BEDFDM 1W81'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'BEDFDM-BRGHTN 1W84'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'BEDFDM-BRGHTN 1W86'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'STALBCY-SVNOAKS 2E11'	693.01	1	8.66	30.75	39.41	0.76	0.5	0.38
Rail	St Pancras	'BEDFDM-SVNOAKS 2E19'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'LUTON-SVNOAKS 2E21'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'STALBCY-SVNOAKS 2E95'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'SUTTON-LUTON 2O00'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'SUTTON-BEDFDM 2O04'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'SUTTON-STALBCY 2O06'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'SUTTON-LUTON 2O10'	693.01	1	8.66	30.75	39.41	0.76	0.5	0.38
Rail	St Pancras	'LUTON-SUTTON 2O17'	693.01	0.67	8.66	45.53	54.19	0.55	0.5	0.28
Rail	St Pancras	'STALBCY-SUTTON 2O21'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'STALBCY-SUTTON 2O29'	693.01	0.67	8.66	45.53	54.19	0.55	0.5	0.28
Rail	St Pancras	'LUTON-BCKNHMJ 2S91'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'STALBCY-BROMLYS 2S93'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'BRGHTN-BEDFDM 2T02'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'BRGHTN-BEDFDM 2T04'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'BEDFDM-BRGHTN 2T15'	693.01	1	8.66	30.75	39.41	0.76	0.5	0.38
Rail	St Pancras	'BEDFDM-BRGHTN 2T25'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'BRGHTN-LUTON 2T99'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'SUTTON-STALBCY 2V02'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'SUTTON-STALBCY 2V08'	693.01	0.67	8.66	45.53	54.19	0.55	0.5	0.28
Rail	St Pancras	'BEDFDM-SUTTON 2V15'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'SUTTON-BEDFDM 2V16'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'LUTON-SUTTON 2V19'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'SUTTON-KNTSHTN 2V20'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'STALBCY-SUTTON 2V27'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15

Mode	Stop	Route	Distance (metres)	Frequency(vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Rail	St Pancras	'LUTON-SUTTON 2V31'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'BRGHTN-BEDFDM 2W08'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'BRGHTN-BEDFDM 2W12'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'BRGHTN-BEDFDM 2W16'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'ASHFKY-BEDFDM 1E61'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'ASHFKY-BEDFDM 1E63'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'RCHT-BEDFDM 1E67'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'SVNOAKS-BEDFDM 1E69'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'BROMLYS-BEDFDM 1E82'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'BCKNHMJ-BEDFDM 1G65'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'KENTHOS-BEDFDM 1G71'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'ORPNGTN-STALBCY 2D93'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'ORPNGTN-LUTON 2D95'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'SVNOAKS-STALBCY 2E59'	693.01	0.67	8.66	45.53	54.19	0.55	0.5	0.28
Rail	St Pancras	'SVNOAKS-LUTON 2E61'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'SVNOAKS-WHMPSTM 2E63'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'SVNOAKS-KNTSHTN 2E65'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'SVNOAKS-KNTSHTN 2E67'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'BROMLYS-LUTON 2E93'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'ORPNGTN-LUTON 2L59'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'ORPNGTN-KNTSHTN 2L65'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'BEDFDM-ELPHNAC 1J87'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'BEDFDM-ELPHNAC 1J88'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'STPANCI-FAVRSHM 1F08'	693.01	2	8.66	15.75	24.41	1.23	0.5	0.61
Rail	St Pancras	'BRSR-STPANCI 1F13'	693.01	0.67	8.66	45.53	54.19	0.55	0.5	0.28
Rail	St Pancras	'FAVRSHM-STPANCI 1F17'	693.01	1	8.66	30.75	39.41	0.76	0.5	0.38
Rail	St Pancras	'EBSFLTI-STPANCI 1F85'	693.01	1.33	8.66	23.31	31.97	0.94	0.5	0.47
Rail	St Pancras	'STPANCI-MARGATE 1J08'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'STPANCI-DOVERP 1J10'	693.01	1	8.66	30.75	39.41	0.76	0.5	0.38
Rail	St Pancras	'RAMSGTE-STPANCI 1J11'	693.01	0.67	8.66	45.53	54.19	0.55	0.5	0.28
Rail	St Pancras	'STPANCI-MARGATE 1J12'	693.01	0.67	8.66	45.53	54.19	0.55	0.5	0.28
Rail	St Pancras	'MARGATE-STPANCI 1J13'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'MARGATE-STPANCI 1J17'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'DOVERP-STPANCI 1J19'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'MARGATE-STPANCI 1J21'	693.01	0.33	8.66	91.66	100.32	0.3	0.5	0.15
Rail	St Pancras	'MSTONEW-STPANCI 1T91'	693.01	1	8.66	30.75	39.41	0.76	0.5	0.38
Rail	King's Cross	'CAMBDGE-KNGX 1C82'	813.1	0.33	10.16	91.66	101.82	0.29	0.5	0.15
Rail	King's Cross	'ROYSTON-KNGX 1R50'	813.1	0.33	10.16	91.66	101.82	0.29	0.5	0.15
Rail	King's Cross	'ROYSTON-KNGX 1R51'	813.1	0.67	10.16	45.53	55.69	0.54	0.5	0.27
Rail	King's Cross	'CAMBDGE-KNGX 2C91'	813.1	0.33	10.16	91.66	101.82	0.29	0.5	0.15
Rail	King's Cross	'HITCHIN-KNGX 2R94'	813.1	0.33	10.16	91.66	101.82	0.29	0.5	0.15
LUL	King's Cross	'Oakwood-RayLane'	813.1	0.33	10.16	91.66	101.82	0.29	0.5	0.15
Rail	King's Cross	'KNGX-CAMBDGE 1C33'	716.66	0.67	8.96	45.53	54.48	0.55	0.5	0.28
Rail	King's Cross	'KNGX-CAMBDGE 1C35'	716.66	0.33	8.96	91.66	100.62	0.3	0.5	0.15
Rail	King's Cross	'KNGX-PBRO 1P11'	716.66	1	8.96	30.75	39.71	0.76	0.5	0.38
Rail	King's Cross	'PBRO-KNGX 1P62'	716.66	1.33	8.96	23.31	32.26	0.93	0.5	0.46
Rail	King's Cross	'KNGX-CAMBDGE 2C03'	716.66	1	8.96	30.75	39.71	0.76	0.5	0.38
Rail	King's Cross	'CAMBDGE-KNGX 2C92'	716.66	0.67	8.96	45.53	54.48	0.55	0.5	0.28
Rail	King's Cross	'KNGX-PBRO 2P04'	716.66	1	8.96	30.75	39.71	0.76	0.5	0.38
Rail	King's Cross	'PBRO-KNGX 2P90'	716.66	0.33	8.96	91.66	100.62	0.3	0.5	0.15
Rail	King's Cross	'LTCE-KNGX 2R07'	716.66	0.67	8.96	45.53	54.48	0.55	0.5	0.28
Rail	King's Cross	'WLWYNGC-KNGX 2Y13'	716.66	0.67	8.96	45.53	54.48	0.55	0.5	0.28
LUL	King's Cross	'Hammersmith-Edgware'	716.66	6	8.96	5.75	14.71	2.04	0.5	1.02
LUL	King's Cross	'Barking-Hammersmith'	716.66	6.34	8.96	5.48	14.44	2.08	0.5	1.04
LUL	King's Cross	'Hammersmith-Plaistow'	716.66	1	8.96	30.75	39.71	0.76	0.5	0.38
LUL	King's Cross	'Amer-AldgateFast'	716.66	1	8.96	30.75	39.71	0.76	0.5	0.38
LUL	King's Cross	'Ches-AldgateFast'	716.66	2	8.96	15.75	24.71	1.21	0.5	0.61
LUL	King's Cross	'Uxbridge-AldSlow'	716.66	5.33	8.96	6.38	15.34	1.96	0.5	0.98

Mode	Stop	Route	Distance (metres)	Frequency(vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
LUL	King's Cross	'Watford-AldSfast'	716.66	3.67	8.96	8.92	17.88	1.68	0.5	0.84
LUL	King's Cross	'Aldg-WatfordSlow'	716.66	3.67	8.96	8.92	17.88	1.68	0.5	0.84
LUL	King's Cross	'Ald-HarrowHill'	716.66	1.33	8.96	23.31	32.26	0.93	0.5	0.46
LUL	King's Cross	'Edgware-Morden'	716.66	9	8.96	4.08	13.04	2.3	0.5	1.15
LUL	King's Cross	'Morden-HighBarnet'	716.66	14.67	8.96	2.79	11.75	2.55	0.5	1.28
LUL	King's Cross	'Morden-MillHillE'	716.66	4	8.96	8.25	17.21	1.74	0.5	0.87
Rail	Kings Cross St Pancras	'CAMBDGE-KNGX 2C54'	820.78	0.67	10.26	45.53	55.79	0.54	0.5	0.27
Rail	Kings Cross St Pancras	'WLWYNGC-KNGX 2Y04'	820.78	0.33	10.26	91.66	101.92	0.29	0.5	0.15
LUL	Kings Cross St Pancras	'ArnosGrove-RayLane'	820.78	0.33	10.26	91.66	101.92	0.29	0.5	0.15
LUL	Goodge Street	'Morden-Edgware'	837.74	4.67	10.47	7.17	17.65	1.7	0.5	0.85
LUL	Goodge Street	'HighBarnet-Kenningt'	837.74	5.33	10.47	6.38	16.85	1.78	0.5	0.89
LUL	Goodge Street	'MillHillE-Kenningt'	837.74	1.67	10.47	18.71	29.19	1.03	0.5	0.51
Rail	Euston	'BLTCHLY-EUSTON 2B04'	698.32	0.33	8.73	91.66	100.39	0.3	0.5	0.15
Rail	Euston	'WATFDJ-EUSTON 2J06'	698.32	0.67	8.73	45.53	54.26	0.55	0.5	0.28
Rail	Euston	'EUSTON-MKNSCEN 2K21'	698.32	0.33	8.73	91.66	100.39	0.3	0.5	0.15
Rail	Euston	'EUSTON-TRING 2T11'	698.32	0.67	8.73	45.53	54.26	0.55	0.5	0.28
Rail	Euston	'EUSTON-TRING 2T19'	698.32	1.33	8.73	23.31	32.04	0.94	0.5	0.47
Rail	Euston	'MKNSCEN-EUSTON 2W01'	698.32	0.67	8.73	45.53	54.26	0.55	0.5	0.28
Rail	Euston	'TRING-EUSTON 2W02'	698.32	1	8.73	30.75	39.48	0.76	0.5	0.38
Rail	Euston	'TRING-EUSTON 2W26'	698.32	0.33	8.73	91.66	100.39	0.3	0.5	0.15
Rail	Euston	'BLTCHLY-EUSTON 2W57'	698.32	0.33	8.73	91.66	100.39	0.3	0.5	0.15
Rail	Euston	'RUGBY-EUSTON 2W59'	698.32	0.33	8.73	91.66	100.39	0.3	0.5	0.15
Rail	Euston	'TRING-EUSTON 2W63'	698.32	0.33	8.73	91.66	100.39	0.3	0.5	0.15
Rail	Euston	'MKNSCEN-EUSTON 2W93'	698.32	0.33	8.73	91.66	100.39	0.3	0.5	0.15
Rail	Euston	'WATFJDC-EUSTON 2C06'	698.32	2.67	8.73	11.99	20.71	1.45	0.5	0.72
Rail	Euston	'EUSTON-WATFJDC 2D86'	698.32	3	8.73	10.75	19.48	1.54	1	1.54
LUL	Euston	'HighBarnet-Morden'	698.32	0.33	8.73	91.66	100.39	0.3	0.5	0.15
LUL	Euston	'Kennington-Edgware'	698.32	14.67	8.73	2.79	11.52	2.6	0.5	1.3
LUL	Euston	'MillHill-Morden'	698.32	1.67	8.73	18.71	27.44	1.09	0.5	0.55
LUL	Euston	'Brixton-WalthamstowC'	698.32	15.67	8.73	2.66	11.39	2.63	0.5	1.32
LUL	Euston	'SevenSisters-Brixton'	698.32	11.67	8.73	3.32	12.05	2.49	0.5	1.24
LUL	Russel Square	'Cockfosters-LHRT4LT'	328.41	4.67	4.11	7.17	11.28	2.66	0.5	1.33
LUL	Russel Square	'RayLane-Cockfosters'	328.41	3.67	4.11	8.92	13.03	2.3	0.5	1.15
LUL	Russel Square	'LHRT4LT-ArnosGrove'	328.41	4.67	4.11	7.17	11.28	2.66	0.5	1.33
LUL	Russel Square	'ArnosGrove-Nthfields'	328.41	3	4.11	10.75	14.86	2.02	0.5	1.01
LUL	Russel Square	'Nthfields-Cockfoster'	328.41	1	4.11	30.75	34.86	0.86	0.5	0.43
LUL	Russel Square	'LHRT5-Cockfosters'	328.41	6	4.11	5.75	9.86	3.04	1	3.04
LUL	Russel Square	'Uxbridge-Cockfosters'	328.41	3.67	4.11	8.92	13.03	2.3	0.5	1.15
LUL	Russel Square	'Ruislip-Cockfosters'	328.41	2.33	4.11	13.63	17.73	1.69	0.5	0.85
LUL	Russel Square	'ArnosGrove-Uxbridge'	328.41	1	4.11	30.75	34.86	0.86	0.5	0.43
LUL	Russel Square	'Oakwood-Uxbridge'	328.41	0.33	4.11	91.66	95.76	0.31	0.5	0.16
LUL	Russel Square	'Oakwood-Ruislip'	328.41	0.33	4.11	91.66	95.76	0.31	0.5	0.16
									Total Grid Cell AI:	**82.05**

TRANSPORT FOR LONDON



PTAL output for 2021 (Forecast)
6b

15-17 Tavistock Pl
15-17 Tavistock Pl, Kings Cross, London WC1H 9SH, UK
Easting: **530053**, Northing: **182383**

Grid Cell: 89899

Report generated: 21/09/2017

This information is produced using forecasting tools and is subject to uncertainty

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency (vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	GOWER ST TORRINGTON PL	24	571.62	10.35	7.15	4.9	12.04	2.49	0.5	1.25
Bus	GOWER ST TORRINGTON PL	134	571.62	12.42	7.15	4.42	11.56	2.59	0.5	1.3
Bus	GOWER ST TORRINGTON PL	29	571.62	15.52	7.15	3.93	11.08	2.71	0.5	1.35
Bus	GOWER ST TORRINGTON PL	14	571.62	13.46	7.15	4.23	11.37	2.64	0.5	1.32
Bus	EUSTON BUS STATION	253	614.14	12.42	7.68	4.42	12.09	2.48	0.5	1.24
Bus	EUSTON STATION EUSTON RD	18	567.21	17.6	7.09	3.71	10.8	2.78	0.5	1.39
Bus	TAVISTOCK SQUARE	59	139.36	10.35	1.74	4.9	6.64	4.52	1	4.52
Bus	TAVISTOCK SQUARE	91	139.36	9.32	1.74	5.22	6.96	4.31	0.5	2.15
Bus	TAVISTOCK SQUARE	68	139.36	9.32	1.74	5.22	6.96	4.31	0.5	2.15
Bus	TAVISTOCK SQUARE	168	139.36	9.32	1.74	5.22	6.96	4.31	0.5	2.15
Bus	EUSTON R BRITISH LIBRARY	10	464.48	4.66	5.81	8.44	14.25	2.11	0.5	1.05
Bus	EUSTON R BRITISH LIBRARY	390	464.48	8.28	5.81	5.62	11.43	2.62	0.5	1.31
Bus	EUSTON R BRITISH LIBRARY	30	464.48	7.76	5.81	5.86	11.67	2.57	0.5	1.29
Bus	EUSTON R BRITISH LIBRARY	73	464.48	18.63	5.81	3.61	9.42	3.19	0.5	1.59
Bus	EUSTON R BRITISH LIBRARY	476	464.48	7.76	5.81	5.86	11.67	2.57	0.5	1.29
Bus	EUSTON R BRITISH LIBRARY	205	464.48	8.28	5.81	5.62	11.43	2.62	0.5	1.31
Bus	RUSSELL SQUARE STH SIDE	X68	583.1	4.14	7.29	9.25	16.54	1.81	0.5	0.91
Bus	RUSSELL SQ NTH/WOBURN PL	98	347.85	9.32	4.35	5.22	9.57	3.14	0.5	1.57
Bus	RUSSELL SQ NTH/WOBURN PL	188	347.85	8.28	4.35	5.62	9.97	3.01	0.5	1.5
Rail	St Pancras	'WELWYNGC-TATNHMC E13'	693.01	2	8.66	15.75	24.41	1.23	0.5	0.61
Rail	St Pancras	'TATNHMC-WELWYNGC S73'	693.01	2	8.66	15.75	24.41	1.23	0.5	0.61
Rail	St Pancras	'PBRO-THBDGS E19/20'	693.01	2	8.66	15.75	24.41	1.23	0.5	0.61
Rail	St Pancras	'THBDGS-PBRO S61/62'	693.01	2	8.66	15.75	24.41	1.23	0.5	0.61
Rail	St Pancras	'HORSHAM-CAMBDGE S63/'	693.01	2	8.66	15.75	24.41	1.23	0.5	0.61
Rail	St Pancras	'CAMBDGE-HORSHAM E21/'	693.01	2	8.66	15.75	24.41	1.23	0.5	0.61
Rail	St Pancras	'MSTONEE-CAMBDGE K81/'	693.01	2	8.66	15.75	24.41	1.23	0.5	0.61
Rail	St Pancras	'CAMBDGE-MSTONEE E23/'	693.01	2	8.66	15.75	24.41	1.23	0.5	0.61
Rail	St Pancras	'BEDFDM-ORPNGTN M7/8'	693.01	2	8.66	15.75	24.41	1.23	0.5	0.61
Rail	St Pancras	'ORPNGTN-BEDFDM K41/4'	693.01	2	8.66	15.75	24.41	1.23	0.5	0.61
Rail	St Pancras	'BEDFDM-EGRNSTD M9/10'	693.01	2	8.66	15.75	24.41	1.23	0.5	0.61
Rail	St Pancras	'EGRNSTD-BEDFDM S79/8'	693.01	2	8.66	15.75	24.41	1.23	0.5	0.61
Rail	St Pancras	'BEDFDM-BRGHTN M11'	693.01	1	8.66	30.75	39.41	0.76	0.5	0.38
Rail	St Pancras	'BRGHTN-BEDFDM S57'	693.01	1	8.66	30.75	39.41	0.76	0.5	0.38
Rail	St Pancras	'BEDFDM-BRGHTN M12'	693.01	1	8.66	30.75	39.41	0.76	0.5	0.38
Rail	St Pancras	'BRGHTN-BEDFDM S58'	693.01	1	8.66	30.75	39.41	0.76	0.5	0.38
Rail	St Pancras	'BEDFDM-BRGHTN M13/14'	693.01	2	8.66	15.75	24.41	1.23	0.5	0.61
Rail	St Pancras	'BRGHTN-BEDFDM S59/60'	693.01	2	8.66	15.75	24.41	1.23	0.5	0.61
Rail	St Pancras	'LUTON-DARTFD M15/16'	693.01	2	8.66	15.75	24.41	1.23	0.5	0.61
Rail	St Pancras	'DARTFD-LUTON K1/2'	693.01	2	8.66	15.75	24.41	1.23	0.5	0.61
Rail	St Pancras	'STALBCY-CATERHAM M19'	693.01	2	8.66	15.75	24.41	1.23	0.5	0.61
Rail	St Pancras	'CATERHAM-STALBCY S71'	693.01	2	8.66	15.75	24.41	1.23	0.5	0.61
Rail	St Pancras	'LUTON-SUTTON'	693.01	2	8.66	15.75	24.41	1.23	0.5	0.61
Rail	St Pancras	'SUTTON-LUTON'	693.01	2	8.66	15.75	24.41	1.23	0.5	0.61
Rail	St Pancras	'STALBCY-SUTTON'	693.01	2	8.66	15.75	24.41	1.23	0.5	0.61
Rail	St Pancras	'SUTTON-STALBCY'	693.01	2	8.66	15.75	24.41	1.23	0.5	0.61
Rail	St Pancras	'RAMSGTE-STPANCI K57/'	693.01	2	8.66	15.75	24.41	1.23	0.5	0.61
Rail	St Pancras	'STPANCI-RAMSGTE K57/'	693.01	2	8.66	15.75	24.41	1.23	0.5	0.61
Rail	St Pancras	'EBSFLTI-STPANCI K59/'	693.01	2	8.66	15.75	24.41	1.23	0.5	0.61
Rail	St Pancras	'MSTONEW-STPANCI K61/'	693.01	2	8.66	15.75	24.41	1.23	0.5	0.61
Rail	St Pancras	'BRSR-STPANCI K63/64'	693.01	2	8.66	15.75	24.41	1.23	0.5	0.61
Rail	St Pancras	'STPANCI-BRSR K63/64'	693.01	2	8.66	15.75	24.41	1.23	0.5	0.61
Rail	King's Cross	'WLWYNGC-KNGX'	716.66	2	8.96	15.75	24.71	1.21	0.5	0.61
LUL	King's Cross	'Edgware-Hammersmith'	716.66	8	8.96	4.5	13.46	2.23	0.5	1.11
LUL	King's Cross	'Hammersmith-Edgware'	716.66	8	8.96	4.5	13.46	2.23	0.5	1.11
LUL	King's Cross	'Barking-Hammersmith'	716.66	8	8.96	4.5	13.46	2.23	0.5	1.11
LUL	King's Cross	'Hammersmith-Barking'	716.66	8	8.96	4.5	13.46	2.23	0.5	1.11
LUL	King's Cross	'AMRSHM-ALDGT F'	716.66	2	8.96	15.75	24.71	1.21	0.5	0.61
LUL	King's Cross	'AMRSHM-ALDGT SF'	716.66	2	8.96	15.75	24.71	1.21	0.5	0.61

Mode	Stop	Route	Distance (metres)	Frequency(vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
LUL	King's Cross	'ALDGT-AMRSHM S '	716.66	4	8.96	8.25	17.21	1.74	0.5	0.87
LUL	King's Cross	'CHSHM-ALDGT F '	716.66	2	8.96	15.75	24.71	1.21	0.5	0.61
LUL	King's Cross	'ALDGT-CHSHM S '	716.66	2	8.96	15.75	24.71	1.21	0.5	0.61
LUL	King's Cross	'UXBRDG-ALDGT SF '	716.66	2	8.96	15.75	24.71	1.21	0.5	0.61
LUL	King's Cross	'ALDGT-UXBRDG S '	716.66	6	8.96	5.75	14.71	2.04	0.5	1.02
LUL	King's Cross	'WATFDJ-ALDGT S '	716.66	4	8.96	8.25	17.21	1.74	0.5	0.87
Rail	Euston	'TRING-EUSTON '	698.32	0.33	8.73	91.66	100.39	0.3	0.5	0.15
Rail	Euston	'BLTCHLY-EUSTON '	698.32	0.33	8.73	91.66	100.39	0.3	0.5	0.15
Rail	Euston	'TRING-EUSTON '	698.32	0.33	8.73	91.66	100.39	0.3	0.5	0.15
Rail	Euston	'MKNSCEN-EUSTON '	698.32	0.33	8.73	91.66	100.39	0.3	0.5	0.15
Rail	Euston	'EUSTON-TRING '	698.32	1.33	8.73	23.31	32.04	0.94	0.5	0.47
Rail	Euston	'TRING-EUSTON '	698.32	1	8.73	30.75	39.48	0.76	0.5	0.38
Rail	Euston	'EUSTON-MKNSCEN '	698.32	0.33	8.73	91.66	100.39	0.3	0.5	0.15
Rail	Euston	'MKNSCEN-EUSTON '	698.32	0.67	8.73	45.53	54.26	0.55	0.5	0.28
Rail	Euston	'EUSTON-TRING '	698.32	0.67	8.73	45.53	54.26	0.55	0.5	0.28
Rail	Euston	'BLTCHLY-EUSTON '	698.32	0.33	8.73	91.66	100.39	0.3	0.5	0.15
Rail	Euston	'WATFDJ-EUSTON '	698.32	0.67	8.73	45.53	54.26	0.55	0.5	0.28
Rail	Euston	'NMPTN-EUSTON '	698.32	0.33	8.73	91.66	100.39	0.3	0.5	0.15
Rail	Euston	'WATFJDC-EUSTON '	698.32	3	8.73	10.75	19.48	1.54	0.5	0.77
Rail	Euston	'EUSTON-WATFJDC '	698.32	3	8.73	10.75	19.48	1.54	1	1.54
LUL	Euston	'Edgware-Morden '	698.32	15	8.73	2.75	11.48	2.61	0.5	1.31
LUL	Euston	'MillHill-Morden '	698.32	5	8.73	6.75	15.48	1.94	0.5	0.97
LUL	Euston	'Morden-HighBarnet '	698.32	25.97	8.73	1.91	10.63	2.82	0.5	1.41
LUL	Euston	'Kennington-Edgware '	698.32	30	8.73	1.75	10.48	2.86	0.5	1.43
LUL	Euston	'HighBarnet-Kenn '	698.32	15	8.73	2.75	11.48	2.61	0.5	1.31
LUL	Euston	'WalthamstowC-Brixton'	698.32	35.29	8.73	1.6	10.33	2.9	0.5	1.45
LUL	Russel Square	'Cockfosters-LHRT4LT '	328.41	4.67	4.11	7.17	11.28	2.66	0.5	1.33
LUL	Russel Square	'RayLane-Cockfosters '	328.41	3.67	4.11	8.92	13.03	2.3	0.5	1.15
LUL	Russel Square	'LHRT4LT-ArnosGrove '	328.41	4.67	4.11	7.17	11.28	2.66	0.5	1.33
LUL	Russel Square	'ArnosGrove-RayLane '	328.41	0.33	4.11	91.66	95.76	0.31	0.5	0.16
LUL	Russel Square	'ArnosGrove-Nthfields'	328.41	3	4.11	10.75	14.86	2.02	0.5	1.01
LUL	Russel Square	'Oakwood-RayLane '	328.41	0.33	4.11	91.66	95.76	0.31	0.5	0.16
LUL	Russel Square	'Nthfields-Cockfoster'	328.41	1	4.11	30.75	34.86	0.86	0.5	0.43
LUL	Russel Square	'LHRT5-Cockfosters '	328.41	6	4.11	5.75	9.86	3.04	1	3.04
LUL	Russel Square	'Uxbridge-Cockfosters'	328.41	3.67	4.11	8.92	13.03	2.3	0.5	1.15
LUL	Russel Square	'Ruislip-Cockfosters '	328.41	2.33	4.11	13.63	17.73	1.69	0.5	0.85
LUL	Russel Square	'ArnosGrove-Uxbridge '	328.41	1	4.11	30.75	34.86	0.86	0.5	0.43
LUL	Russel Square	'Oakwood-Uxbridge '	328.41	0.33	4.11	91.66	95.76	0.31	0.5	0.16
LUL	Russel Square	'Oakwood-Ruislip '	328.41	0.33	4.11	91.66	95.76	0.31	0.5	0.16
									Total Grid Cell AI:	**84.4**

Appendix B

Euston Station Bus Station Route Map

Buses from Euston

Route finder

Bus route	Towards	Bus stops
10 24hr Daily	Hammersmith	M N
	King's Cross	C K L
18	Sudbury	F H P
30	Hackney Wick	D
	Marble Arch	H P
59	King's Cross	C K L
	Streatham Hill	E M N
68	West Norwood	E M N
73	Oxford Circus	H P
	Stoke Newington	D
91	Crouch End	C K L
	Trafalgar Square	M N
168	Hampstead Heath	A K L
	Old Kent Road	B M N
205	Bow Church	D
	Paddington	H P
253	Hackney	A G
390 24hr Daily	Archway	C
	Notting Hill Gate	H P
476	Northumberland Park	D

Route finder

Bus route	Towards	Bus stops
748	Hemel Hempstead Monday-Friday evening peak	CH

Key

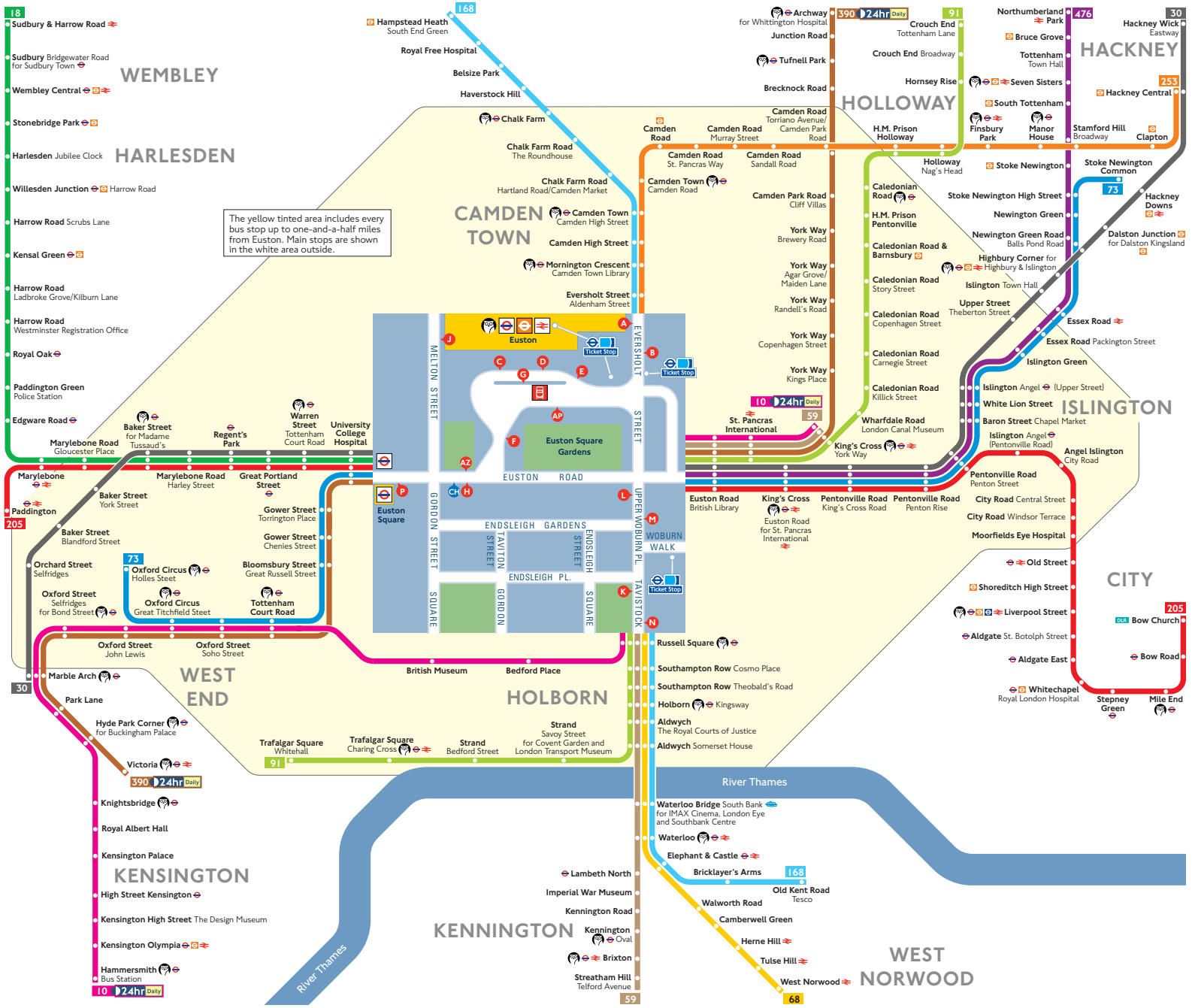
- Connections with London Underground
- Connections with London Overground
- Connections with National Rail
- Connections with Docklands Light Railway
- Connections with river boats
- Tube station with 24-hour service Friday and Saturday nights

Ways to pay

Use your contactless debit or credit card. It's the same fare as Oyster and there is no need to top up.

Top up your Oyster pay as you go credit or buy Travelcards and bus & tram passes at around 4,000 shops across London.

Sign up for an online account to top up online and see your travel history and spending



Information correct from 17 June 2017

Appendix C

Construction Access Options Appraisal

University College London: London School of Hygiene and Tropical Medicine: Tavistock Place, London

Construction Access Options Appraisal

1. Background

1.1 The subject site, known as 15 – 17 Tavistock Place, is located in the King's Cross Ward of the London Borough of Camden.

1.2 The site is owned and occupied by the London School of Hygiene and Tropical Medicine (LSHTM).

1.3 University College London (UCL) and LSHTM proposes to redevelop part of the site to provide additional laboratory and office space, which would involve the demolition of the existing steel structure in the rear courtyard of the building and the construction on the area to the rear of the site of an extension comprising two basement levels, ground floor and two upper storeys plus accommodation for roof-level plant. It is currently proposed to seek planning approval for the development in June 2015.

1.4 As part of the process of preparing a comprehensive planning application, consideration is currently being given to construction logistics relating to the proposed development. Discussions with officers of London Borough of Camden (LBC) are on-going, as part of which the highways officer has raised concerns about the access to the site for vehicles during construction.

1.5 In response, available access options have been examined, in conjunction with LBC's highways officer, and the following represents an appraisal of the options available. In this context, there are three possible access options to be considered:

- Burton Street, to the north west of the site;
- Marchmont Street, to the east of the site; and
- Tavistock Place, to the southerly frontage of the site.

1.6 A site visit with representatives of UCL, the project design team and LBC's highways engineer in attendance took place on Tuesday, 31 March 2015.

2. The Site

2.1 The subject site is located in the Bloomsbury area of Central London, within postcode area WC1.

2.2 The site is located on the northerly side of Tavistock Place, approximately 150m to the north east of Tavistock Square (the easterly side of which, Woburn Place, is designated as part of the A4200) and approximately 300m south of the Euston Road, A501.

2.3 Having an area of some 0.28 hectares, the site is broadly rectangular in shape, with a single highway frontage, to Tavistock Place, which runs along its southerly boundary. The main building on the site, having four-storeys plus basement, is located on this southerly boundary, for all practical purposes contiguous with the highway. The proposals envisage a development towards the rear of the site and do not affect the principal existing building.

2.4 The existing main vehicular and pedestrian access to the site is from Tavistock Place. This is located towards the westerly end of the site frontage. Given the developed form of the site, the vehicular access passes through the principal building via a gated passageway that provides access to the internal courtyard. The main pedestrian entrance to the building is accessed from the covered passageway.

2.5 A short distance to the east of the site and separated from it by a largely retail frontage, is Marchmont Street, which runs in a generally north-south direction leading to the Euston Road to the north and to the B502 Bernard Street to the south.

2.6 Leading from the westerly side of Marchmont Street, South Crescent Mews passes through the developed frontage, to the side of the Lord John Russell public house. The cul-de-sac end of the mews provides a gated access to the UCL site.

3. Burton Street

3.1 Burton Street is a single carriageway residential road that lies to the north west of the site of the proposed development. It is fronted on both sides by terraced residential property. It can be accessed from Cartwright Gardens via Burton Place and Flaxman Terrace, whilst Duke's Road provides a one-way connection from Euston Road to the northerly end of Burton Street (in that direction).

3.2 The length of Burton Street that would, potentially, provide access for construction traffic to the site is that to the south of Burton Place. This length of road is largely provided with parking bays to both sides of the road, leaving space for single file traffic along its centre. The parking bays provide for resident permit holders during the weekday daytime and on Saturday mornings.

3.3 This length of road is a cul-de-sac with no turning facility. Lengths of working day waiting restrictions have been introduced towards the cul-de-sac end to afford some turning space for smaller vehicles. It appears, from the location of the yellow line restrictions that there is a length of carriageway at the end of the cul-de-sac that is not public highway. (This can be seen in Figure 1).

3.4 At the southerly end of the cul-de-sac a passageway through the easterly terraced building provides access to a rear car park for residents. This car park shares a boundary with the proposed development site. Potentially, therefore, this has been identified as a possible access route to the site for construction vehicles during the building phase of the project.

3.5 The passageway is orientated at ninety degrees to the carriageway of Burton Street and measures 3.59m wide by 3.65m high. Entrance to the passageway is restricted (Figure 2) with footways creating a pinch point and with one pedestrian entrance to the building projecting into the accessway. This, stepped entrance, shown on the right in Figure 2, serves 17 apartments. A similar pedestrian entrance is evident to the left of the access.

Figure 1 **Burton Street looking southwards towards the cul-de-sac end showing the area beyond the transverse yellow line that is not public highway and the covered passageway to the left at ninety degrees to the road**

Figure 2 **Covered passageway from Burton Street leading to rear car park, showing narrow access, proximity of pedestrian entrances and orientation relative to the road**

3.6 The orientation of the passageway relative to the carriageway of Burton Street makes manoeuvring of large construction vehicles extremely difficult and establishes unacceptable conflicts with pedestrians gaining access to and egress from the adjoining residential premises.

3.7 It is anticipated that construction vehicles that would access the site during construction would include concrete lorries, 8.7m long and 3.75m high and small tipper lorries, 8m in length. The height of the existing passageway would therefore not permit access by the anticipated size of concrete lorry and the orientation of the access to the road would preclude access by all such vehicles. Damage to the footways would be likely to arise as a result of construction vehicles attempting to enter the site. It was noted that during a site visit on 31 March 2015 the local authority refuse vehicle manoeuvred at the junction of Burton Street and Burton Place and reversed along this length of Burton Street.

3.8 Consideration of the construction logistics suggests that, at peak, there would be 36 lorry movements per day (1 movement equates to either an arrival at or despatch from the site), which is considered likely to cause disturbance and inconvenience to residents. During a site visit on 31 March 2015 it was noted that several vehicles were parked in the area between the limit of the public highway and the cul-de-sac end and these vehicles would need to be removed in order to facilitate access via this route.

3.9 In addition to the practicalities of securing access via the Burton Street route and passageway, there are also legal issues to be overcome. The site is not contiguous with the public highway but would need to be accessed across private land and rights of access would therefore need to be secured. As indicated above, access to the covered passageway is across an area of carriageway that is not public highway. It would therefore be necessary to secure a legal right of access over this land with the owners and, as indicated above, to ensure that current parking within this area is suspended for the duration of the work. Further, the site is only accessible via the covered passageway across a private car park. Again, a legal right of access would need to be secured and this may impact significantly on residents' parking.

3.10 In this context, there have been negotiations with the owners of the car park regarding rights of access and boundary construction issues. Extensive negotiations have failed to secure the purchase of the car park or to secure any agreement with the owners beyond the lease, for the duration of the works only, of two car parking spaces. It is UCL's opinion, based on the outcome of these negotiations, that it would not prove possible to secure the necessary agreements to access the site for construction traffic via this route. A copy of an e-mail outlining the outcome of negotiations to date is attached to this report by way of substantiation of UCL's conclusion in this matter.

3.11 It is concluded that there are a number of significant obstacles to the use of Burton Street as an access to the site for construction traffic during the building of the project. These can be summarised as:

- It is unlikely to be possible to secure the necessary agreements to allow access for construction traffic across the private car park
- Access to the covered passageway from the public highway is across an area of carriageway that is not part of the highway, requiring a right of access with the owners to be secured
- Parking in this area would need to be suspended for the duration of the works, which would need to be negotiated with the owners

of the land and would have an impact on those parking in this area

- The covered accessway is narrow and low, too low to accommodate the concrete lorries likely to access the site
- Vehicles would be likely to overrun the footways, potentially causing damage
- Significant conflicts would arise between construction vehicles and residents entering and leaving via the pedestrian entrance that projects into the access
- The covered passageway is orientated at ninety degrees to the carriageway of Burton Street that precludes access to larger vehicles.
- Construction traffic would be likely to cause disturbance and inconvenience for residents
- Access via the car park would be likely to lead to a loss of parking for residents during the works.

3.12 It is therefore concluded that access for construction vehicles via Burton Street is not a practicable option.

4. Marchmont Street (South Crescent Mews)

4.1 There is access to the site from Marchmont Street via South Crescent Mews, an alleyway that runs between the Lord John Russell public house and the adjacent retail premises (Figure 3).

4.2 The Marchmont Street frontages within the vicinity of the subject site are largely retail and commercial in character and are likely, therefore, to generate a requirement for on-street loading and servicing activity. Single yellow waiting restriction lines are evident to these frontages. Footways are present on each side of the street.

4.3 The alleyway does lead into the site, where there is a gated access, but in common with the Burton Street and Tavistock Place accesses would require vehicles to pass between and beneath buildings. In the case of South Crescent Mews, the width of the passageway is 3.3m and the minimum height available is 3.64m. The available headroom is, therefore, insufficient to afford access to the concrete lorries anticipated to deliver to the site (paragraph 3.7 above). This would preclude the use of this access for a significant proportion of the construction vehicles likely to service the site during the building phase. As none of the frontage buildings and associated forecourt areas are in the ownership of the developer it is considered unlikely that it would be possible to carry out works in these areas to improve the headroom.

4.4 The alleyway is also relatively narrow, and there are air conditioning units that project into the alleyway. These would represent a significant impediment to the passage of construction vehicles.

Figure 3 View of access from Marchmont Street via South Crescent Mews showing restricted width and height

4.5 The legal status of South Crescent Mews is not immediately apparent. Although a named 'street' it is understood that it has never been a through route, and has only ever been a cul-de-sac serving private premises. Under these circumstances it is not clear that there are public rights of way over the Mews. It is understood that UCL enjoys a private right of way over the Mews but only for the purposes of emergency evacuation from the site. UCL does not own the land over which the Mews runs.

4.6 It is evident that, whether or not legal rights of way and access exist, there has been some encroachment on the enjoyment of the use of the Mews as a means of access by adjoining property occupiers. Recent observations have revealed the presence of benches within the Mews that prevent access and that, in addition to the air conditioning units from the pub that protrude into the Mews, hanging baskets, shelves etc have been fixed to the outside wall of the public house. The area clearly provides an important extension to the activities of the public house that is, potentially, economically beneficial to the business, and it is considered likely therefore that negotiation of the suspension of this activity during the course of the building works would be difficult to achieve. There is also a door to the public house premises on the corner of the alleyway that could lead to unacceptable conflicts between pedestrians and construction traffic.

4.7 It is concluded that there are a number of significant barriers to the use of South Crescent Mews as an access to the site for construction traffic during the building of the project. These can be summarised as:

- Access from Marchmont Street via South Crescent Mews is via a passageway with restricted width and headroom; the present headroom is insufficient to allow access to concrete lorries and there appears little if any prospect of carrying out physical works to increase the headroom sufficiently.
- The width of the alleyway is restricted further by the projection of air conditioning units into the passageway from adjoining buildings.
- There would be potential conflict between construction traffic accessing and egressing via this route and delivery and other vehicles servicing the adjoining commercial premises.
- The status of rights of way over South Crescent Mews is unclear but it is understood that UCL only have a right of way for the purposes of emergency evacuation from their site; additional rights would thus have to be negotiated with adjoining third party landowners/tenants.
- Irrespective of rights of way, the public house has established use of the alleyway as an extension to the commercial activity of the premises; use of the access would require this activity to be suspended for the duration of the works, which would need to be the subject of negotiation.

4.8 During a site visit on 31 March 2015 the LBC highways officer acknowledged that South Crescent Mews would be unlikely to represent a satisfactory access to the site of the proposed development for construction vehicles. It is therefore concluded that access for construction vehicles from Marchmont Street via South Crescent Mews is not practicable.

5. Tavistock Place

5.1 The existing access to the site, for pedestrians and vehicles, is from Tavistock Place.

5.2 As with the other access points under consideration, access from Tavistock Place requires vehicles to pass under and through an existing building via a covered passageway. In the case of this access, the width of the existing access is 3.87m and the headroom is 3.35m.

5.3 The headroom is currently, therefore, insufficient to afford access to the concrete lorries that it is anticipated would deliver to the site (paragraph 3.7 above). However, as the building and its forecourt area are within the ownership of UCL there is greater scope than elsewhere to make alterations in order to accommodate the anticipated construction vehicles. Preliminary examinations have been carried out and it is considered that the opportunity exists to amend the levels of the private forecourt area and passageway in order to achieve an increase in headroom of 0.5m, sufficient to enable access to the inner courtyard for all anticipated construction vehicles. Suitable protection measures for any underground services could be provided.

5.4 The major advantage of this proposal relative to the other two options is that negotiations over access rights with third parties would not be required. Works required to facilitate access for construction vehicles, and provision of measures to protect the public, would therefore be entirely within the control of UCL.

5.5 It is recognised that Tavistock Place is the busier road from which to take access and that, other things being equal, there would be a preference for taking access from less busy roads. However, in this case, it is considered that the obstacles to the provision of access from alternative less busy highways, as described above, are such that access from Tavistock Place is the only realistic, practical and achievable access during the construction phase of the works and that, providing satisfactory measures are put in place to manage the arrival and departure of construction vehicles, access from Tavistock Place should be acceptable to the highway authority.

5.6 Tavistock Place in the vicinity of the subject site is a single carriageway, two-way urban street with footways to both sides. At this location the development within the street is predominantly residential in character, some premises providing hotel accommodation. It is accepted therefore that access arrangements for construction vehicles to the UCL site cannot have an unacceptable impact on neighbouring properties, including their servicing and access needs.

5.7 Currently, the carriageway of Tavistock Place at this point provides a single traffic lane in each direction. Waiting restriction lines are evident along both sides of the road. On the northerly side of Tavistock Place, adjacent to the frontage of the subject site (and extending from beyond its junction with Tavistock Square to the west to its junction with Judd Street to the east) is a two-way cycle lane segregated from the main carriageway by raised, kerbed and paved islands. These latter provide a largely continuous division of the cycle lanes from the main carriageway, interrupted only to provide level crossing points for pedestrians and to afford vehicular access to off-street parking and loading areas. There is a break in the island at the vehicular access point to the subject site from Tavistock Place. In discussions with the LBC highways officer it is apparent that, in the Summer of 2015, LBC intends to introduce an experimental traffic scheme on Tavistock Place. This will involve no physical works (during the experimental period) but will mean that general traffic flow will become one-way (eastwards from Gower Street to Judd Street) and a new westbound cycle lane will be provided along the southerly side of the carriageway. Again, the arrangements for access to the proposed development site need to take this experimental arrangement into account. UCL believes that this can readily be accommodated.

5.8 The junction of Tavistock Place with Marchmont Street is controlled by traffic signals. Both the left turn and right turn for general traffic from Tavistock Place into the northerly arm of Marchmont Street are prohibited at this junction, whilst Marchmont Street to the south of the Tavistock Place junction is one-way in a southwards direction, leading away from the junction.

5.9 The existing access, and the preferred access for construction vehicles, is located well away from the traffic signal controlled junction with Marchmont Street and is ‘set back’ relative to the pedestrian footway desire line, thereby affording the opportunity of amending levels to generate the additional headroom required.

5.10 Even so, it is recognised that the access places constraints on the size of construction vehicle that will be able to enter the site and UCL would implement a logistics operation that ensures that only vehicles of that size would travel to the site and that no loading or unloading would take place from the highway of Tavistock Place (except temporary one day closures of

Tavistock Place that would be required for the placing and decommissioning of the necessary cranes required).

5.11 UCL is currently carrying out a major building programme at a number of sites within its estate and has established a logistics centre at Silvertown in Docklands for the receipt of large, indivisible loads. For sites in the Bloomsbury area, a Local Logistics Zone has been established at Gordon Square by the temporary closure of part of Endsleigh Place, adjacent to the UCL Department of Anthropology. This provides an area where vehicles can be marshalled before being despatched, by radio, to the relevant construction site. This holding area would ensure not only that vehicles of the requisite size are despatched to the Tavistock Place site but that only one vehicle at a time is so despatched. This prevents a build up of vehicles at the site that might lead to construction vehicles standing on the highway.

5.12 Conscious that the site is physically constrained, UCL has taken advice from a leading contractor with experience of working within constrained, inner-London sites, about the 'buildability' of the scheme. Within the site it is their advice that a gantry could be constructed at ground level, above the basement construction, to provide somewhere to stand vehicles during delivery and removal of material from the site. Given the size of vehicles that would be able to gain entry to this area, it is envisaged that there would be sufficient space to allow vehicles to turn within the site so as to be able to enter and leave the site in forward gear – a major advantage.

5.13 At the site entrance on to Tavistock Place it would then be proposed to control vehicle access and egress across the existing footway and cycle facility with the use of temporary barriers deployed and removed as necessary by marshals. This arrangement would operate in conjunction with the radio-controlled arrival and despatch protocol described above and which ensures that only a single vehicle is present at the site at any one time, and would allow the deployment of barriers on a 'just in time' basis thereby minimising disruption and delay to the travelling public, particularly pedestrians and cyclists.

5.14 The barrier-plus-marshal methodology described above is already in use by the developer at a nearby site on Torrington Place, where the access for construction vehicles crosses a footway and the same cycle facility that passes the Tavistock Place site. It is understood that that arrangement has now been in place for around six months and has operated without incident.

5.15 Suitable access routes to and from the site via Tavistock Place would be agreed with LBC as part of the Construction Logistics Plan and would ensure that impact on neighbouring residents and businesses would be minimised,

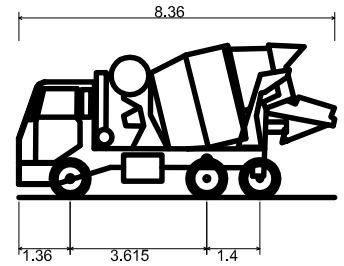
6. Conclusions

6.1 From the above it can be concluded that the most practicable access to the site of the proposed development during the construction phase of the project is that from Tavistock Place.

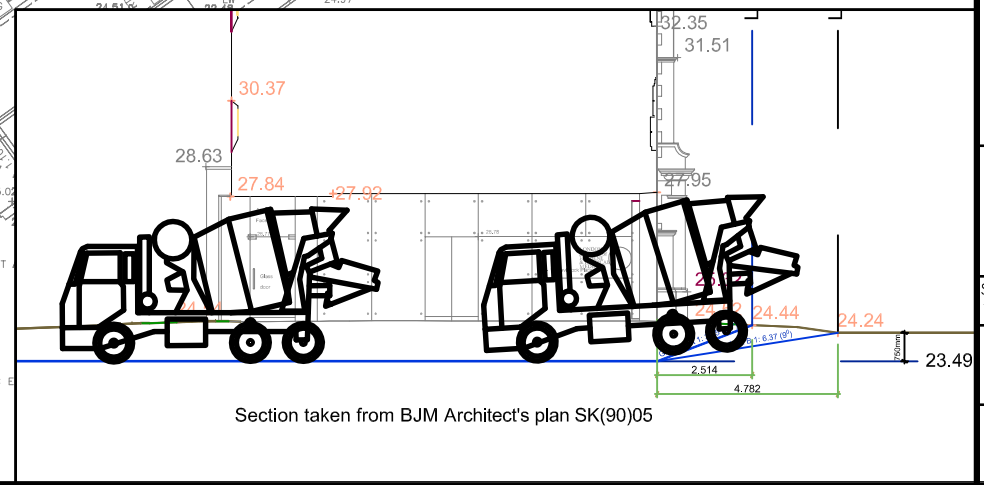
Wilde Carter Clack Consulting Engineers
April 2015
AG

Appendix D

Swept Path Analyses – Construction Vehicle Access



Concrete Mixer	
Overall Length	8.360m
Overall Width	2.390m
Overall Body Height	4.027m
Min Body Ground Clearance	0.358m
Max Track Width	2.413m
Lock to Lock Time	6.00s
Kerb to Kerb Turning Radius	8.210m



Section taken from BJM Architect's plan SK(90)05

REV	DRN	CHK	APP	DATE	DESCRIPTION
B	TB	BB	TF	02/06/15	Access profile added
A	TB	TB	TF	29/05/15	Issued for information

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Title
CONSTRUCTION TRAFFIC
CONCRETE MIXER
SWEPTH PATH ANALYSIS

Scale	Drawn	Date	Chkd	Approved
1:200	TB	May 2014	TB	TF

Drawing No.
683_013_ATR01

Revision
B

Status
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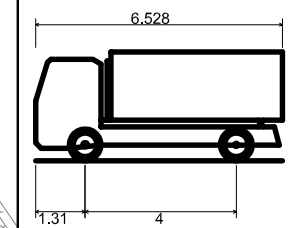

Small Tipper	
Overall Length	6.528m
Overall Width	2.500m
Overall Body Height	2.877m
Min Body Ground Clearance	0.327m
Track Width	2.393m
Lock to Lock Time	6.00s
Kerb to Kerb Turning Radius	7.850m

REV	DRN	CHK	APP	DATE	DESCRIPTION
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SMALL TIPPER
SWEPTH PATH ANALYSIS

Scale	Drawn	Date	Chkd	Approved
1:200	TB	May 2014	TB	TF

Drawing No.
683_013_ATR02

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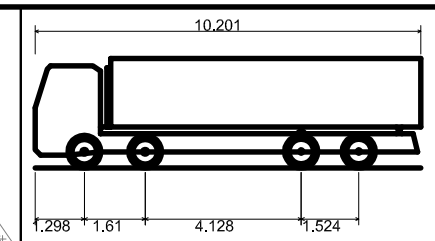

Large Tipper	
Overall Length	10.201m
Overall Width	2.500m
Overall Body Height	2.893m
Min Body Ground Clearance	0.343m
Max Track Width	2.500m
Lock to Lock Time	6.00s
Kerb to Kerb Turning Radius	11.550m

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LARGE TIPPER
SWEPTH PATH ANALYSIS

Scale	Drawn	Date	Chkd	Approved
1:200	TB	May 2014	TB	TF

Drawing No.
683_013_ATR03

Revision
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Status
FOR INFORMATION

Sheet Size
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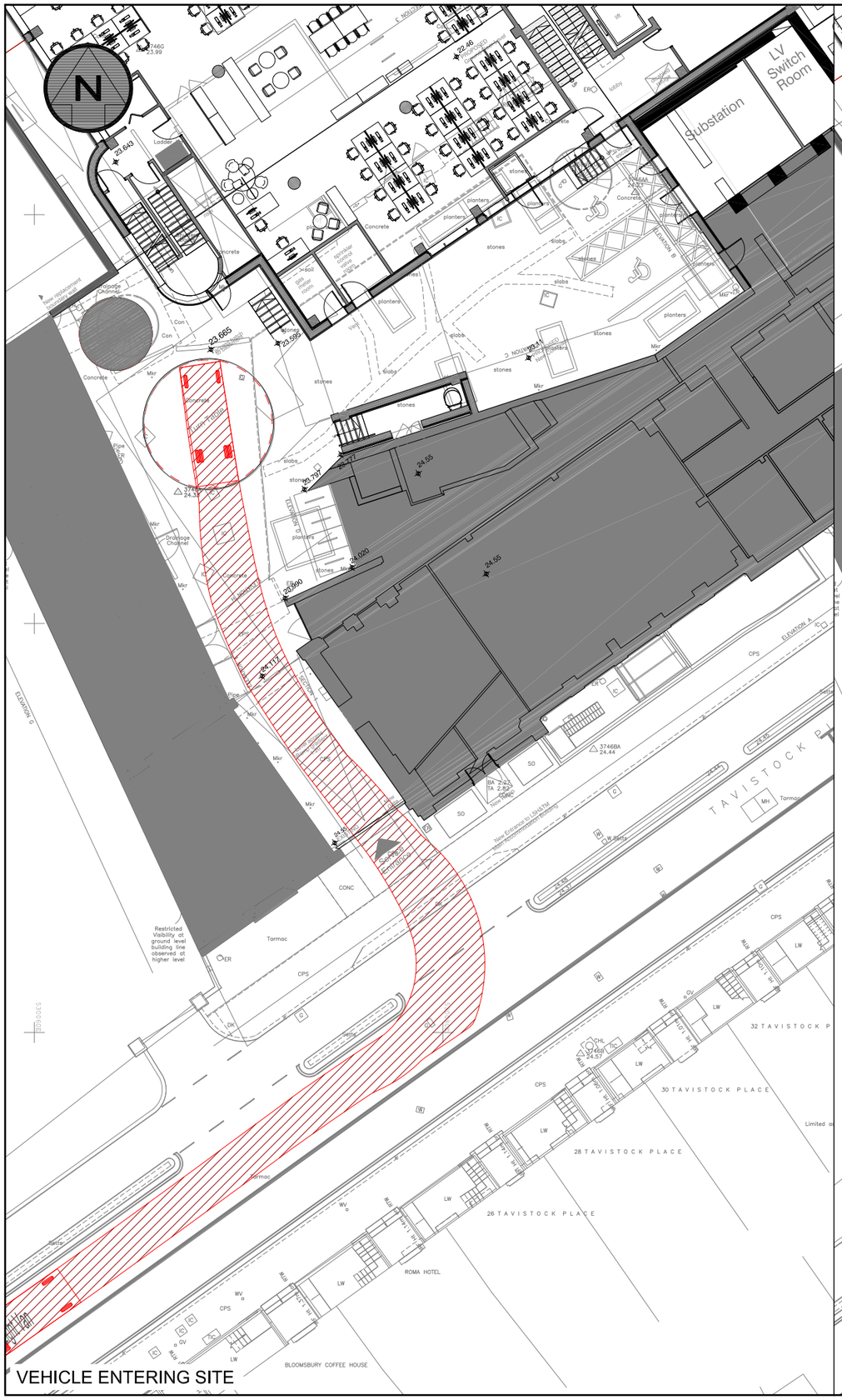
Appendix E

Swept Path Analyses – Delivery and Servicing Vehicle Access



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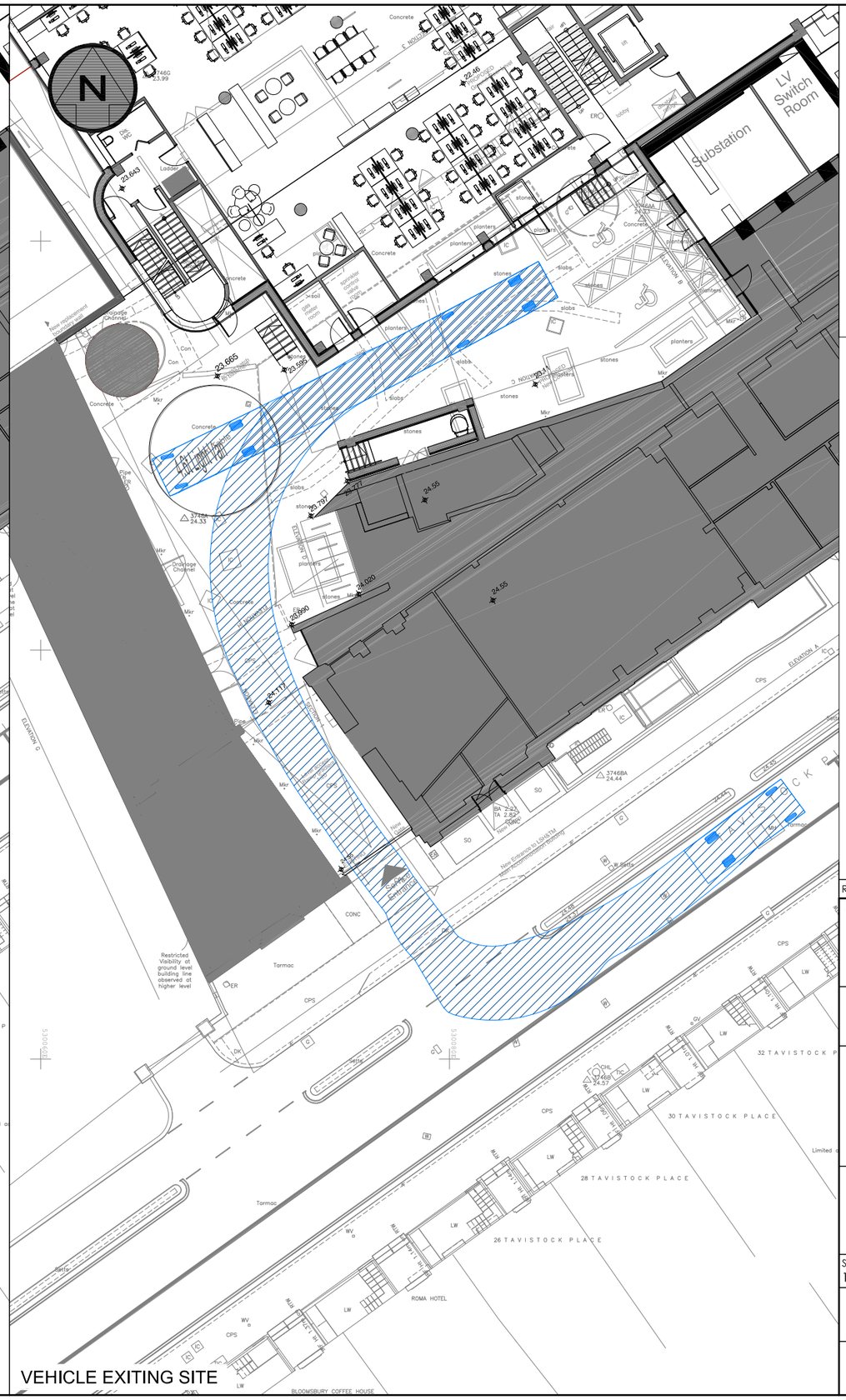

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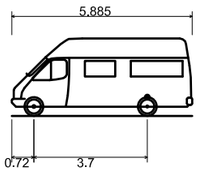

4.6t Light Van	
Overall Length	5.885m
Overall Width	2.000m
Overall Body Height	2.526m
Min Body Ground Clearance	0.299m
Track Width	1.765m
Lock to Lock Time	4.00s
Kerb to Kerb Turning Radius	6.000m

REV	DRN	CHK	APP	DATE	DESCRIPTION

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TAVISTOCK PLACE, LONDON

Title
DELIVERY/SERVICE TRAFFIC
TRANSIT VAN
SWEPTH PATH ANALYSIS

Scale	Drawn	Date	Chkd	Approved
1:250	SD	11.10.17	TF	TF

Drawing No.
683_036_ATR02

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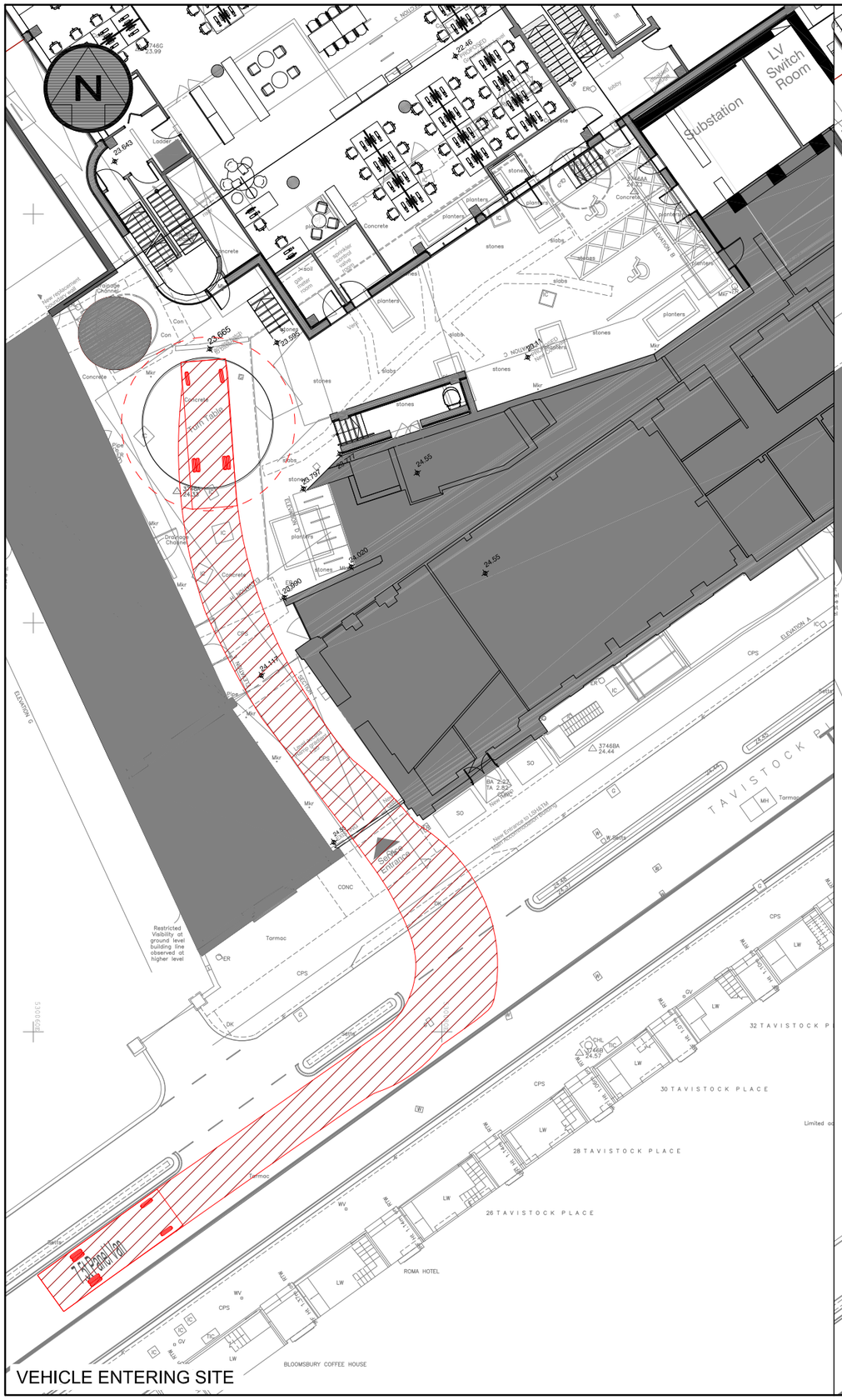

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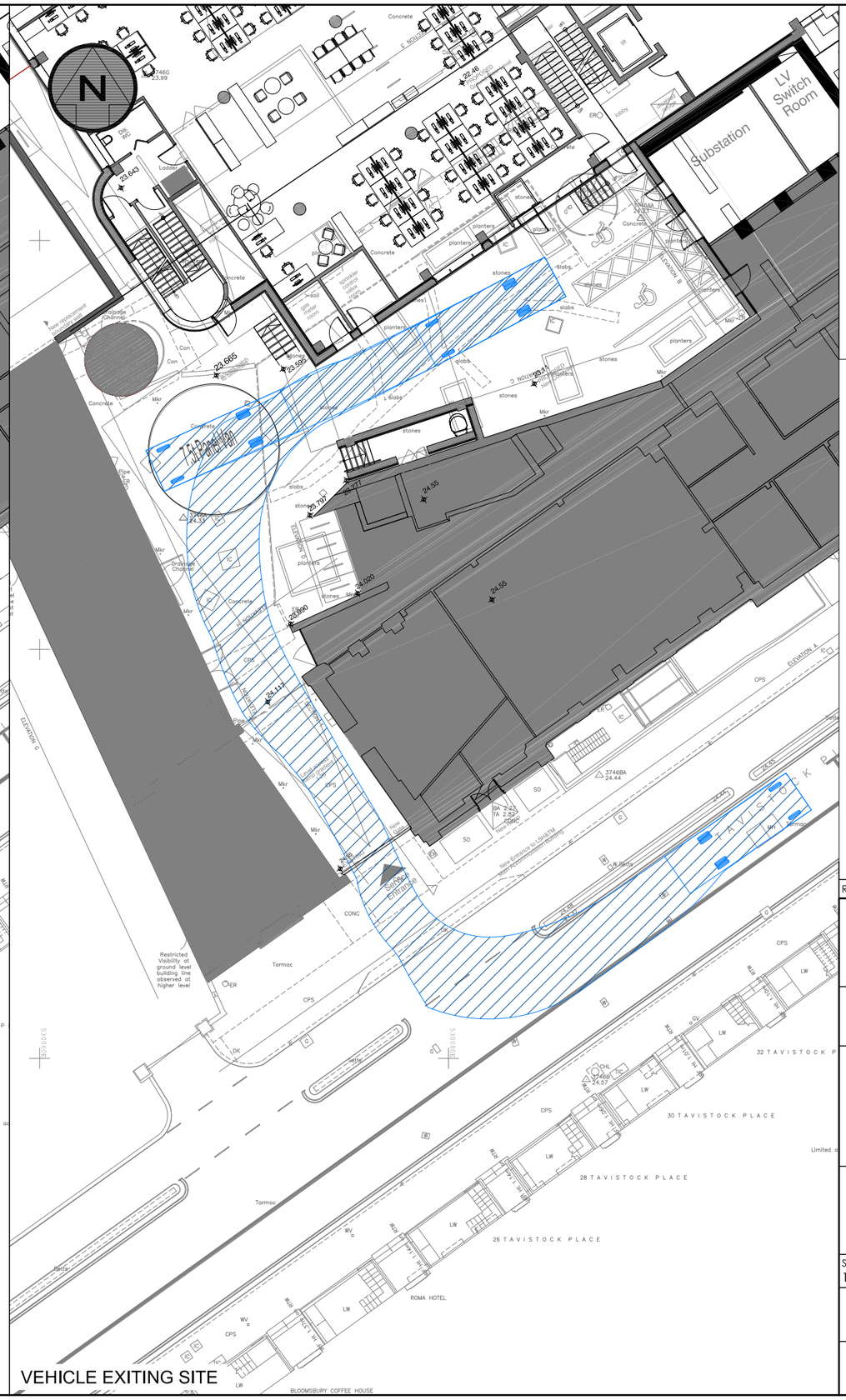

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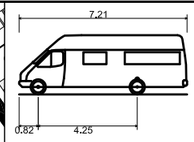

7.5t Panel Van	
Overall Length	7.210m
Overall Width	2.192m
Overall Body Height	2.544m
Min Body Ground Clearance	0.316m
Track Width	1.865m
Lock to Lock Time	4.00s
Kerb to Kerb Turning Radius	7.400m

REV	DRN	CHK	APP	DATE	DESCRIPTION

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Title
DELIVERY/SERVICE TRAFFIC
7.5t PANEL VAN
SWEPTH PATH ANALYSIS

Scale	Drawn	Date	Chkd	Approved
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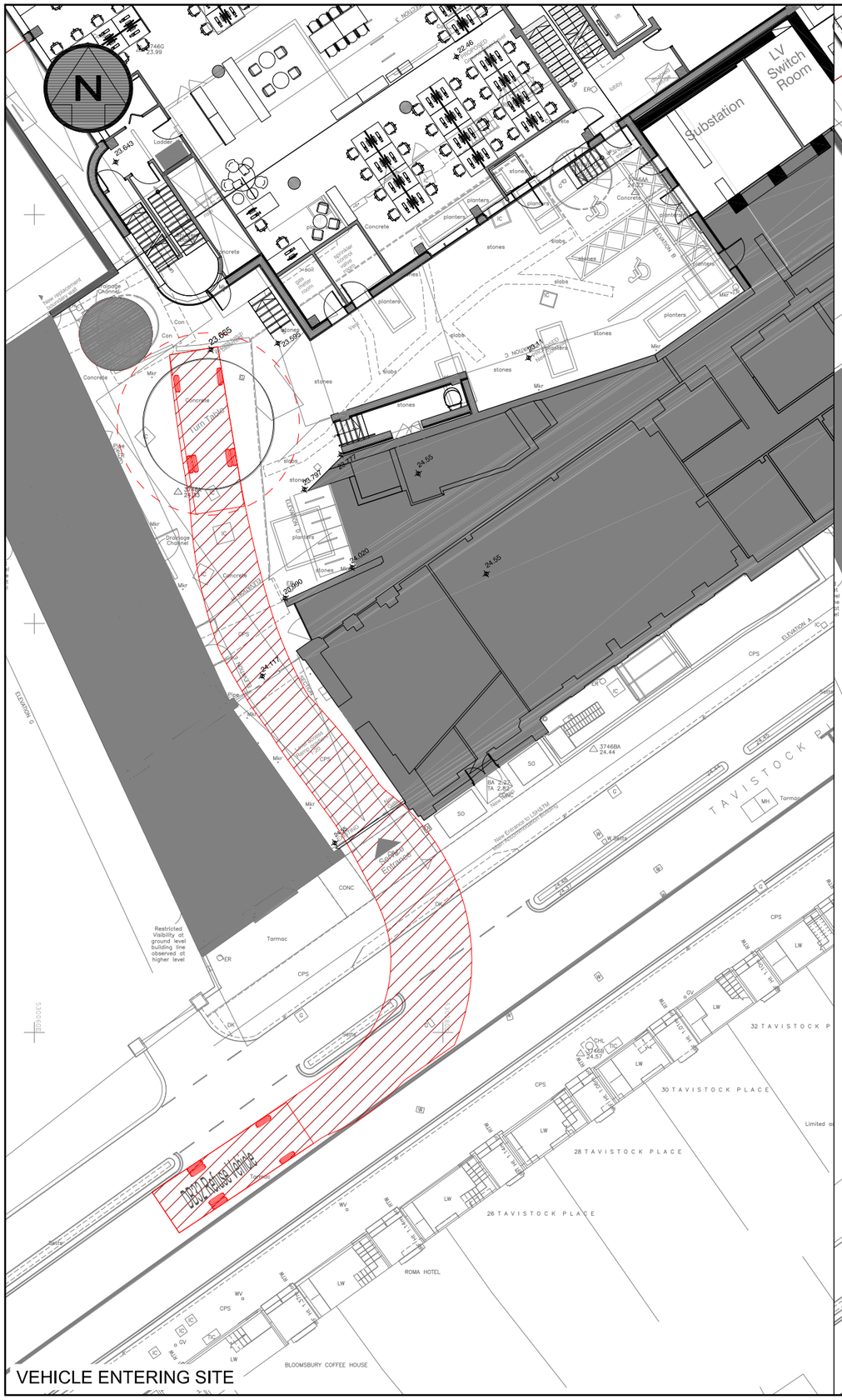

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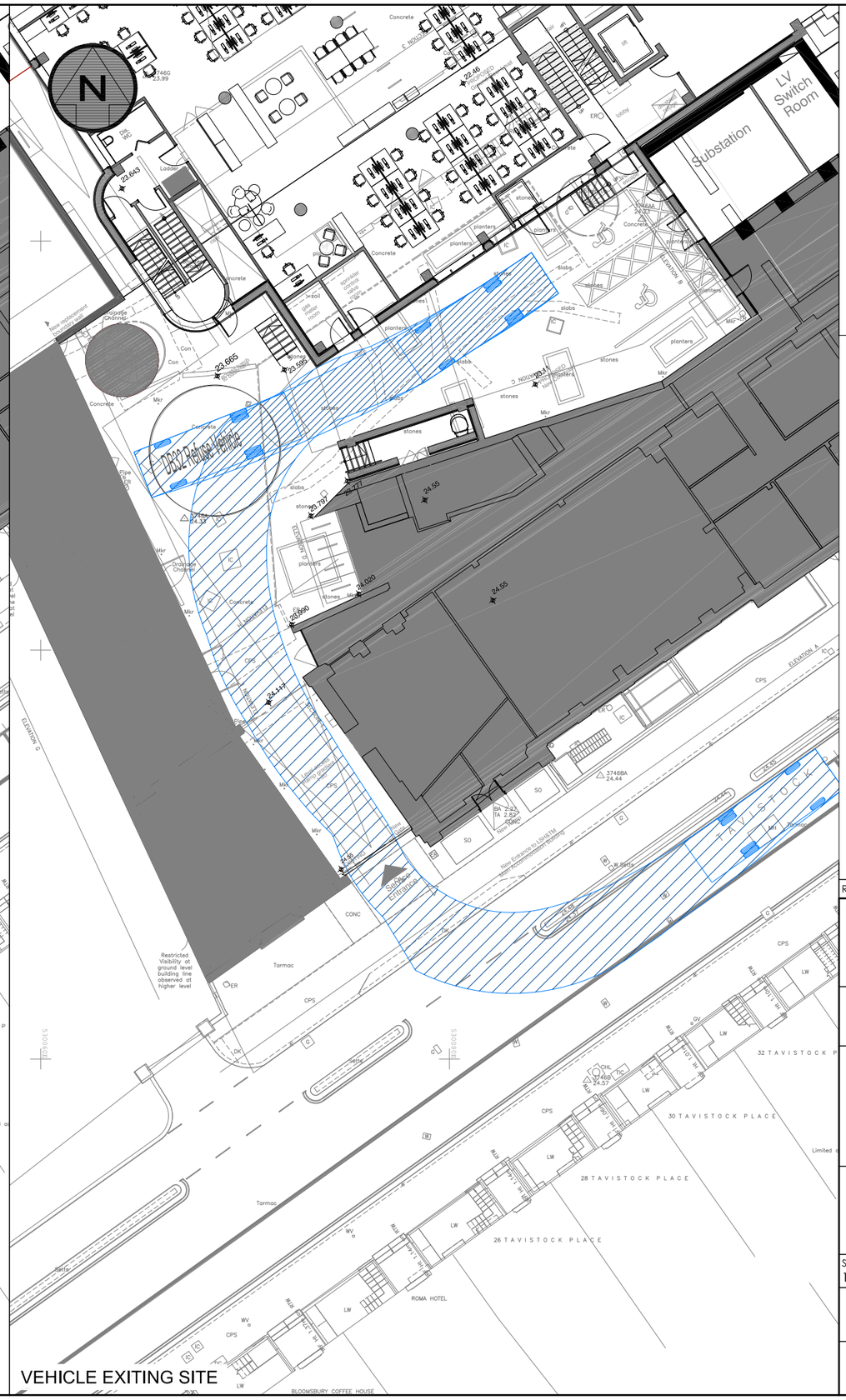

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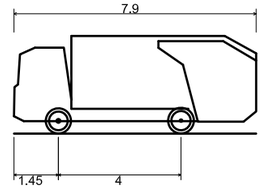

DB32 Refuse Vehicle	
Overall Length	7.900m
Overall Width	2.400m
Overall Body Height	3.183m
Min Body Ground Clearance	0.388m
Max Track Width	2.400m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	9.625m

REV	DRN	CHK	APP	DATE	DESCRIPTION

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Title
DELIVERY/SERVICE TRAFFIC
REFUSE VEHICLE
SWEPTH PATH ANALYSIS

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