



Pentavia, Mill Hill

London NW7 2ET

Outline Construction Traffic Management Plan

Date: 15/03/19

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1 INTRODUCTION

1.1 INTRODUCTION

1.1.1 Velocity Transport Planning was appointed by Meadow Residential in May 2016 to provide transport planning advice in relation to the redevelopment of Pentavia Retail Park, in the Mill Hill ward, to the north of London Borough of Barnet (LBB). The location of the site is illustrated on **Figure 1-1** (below).

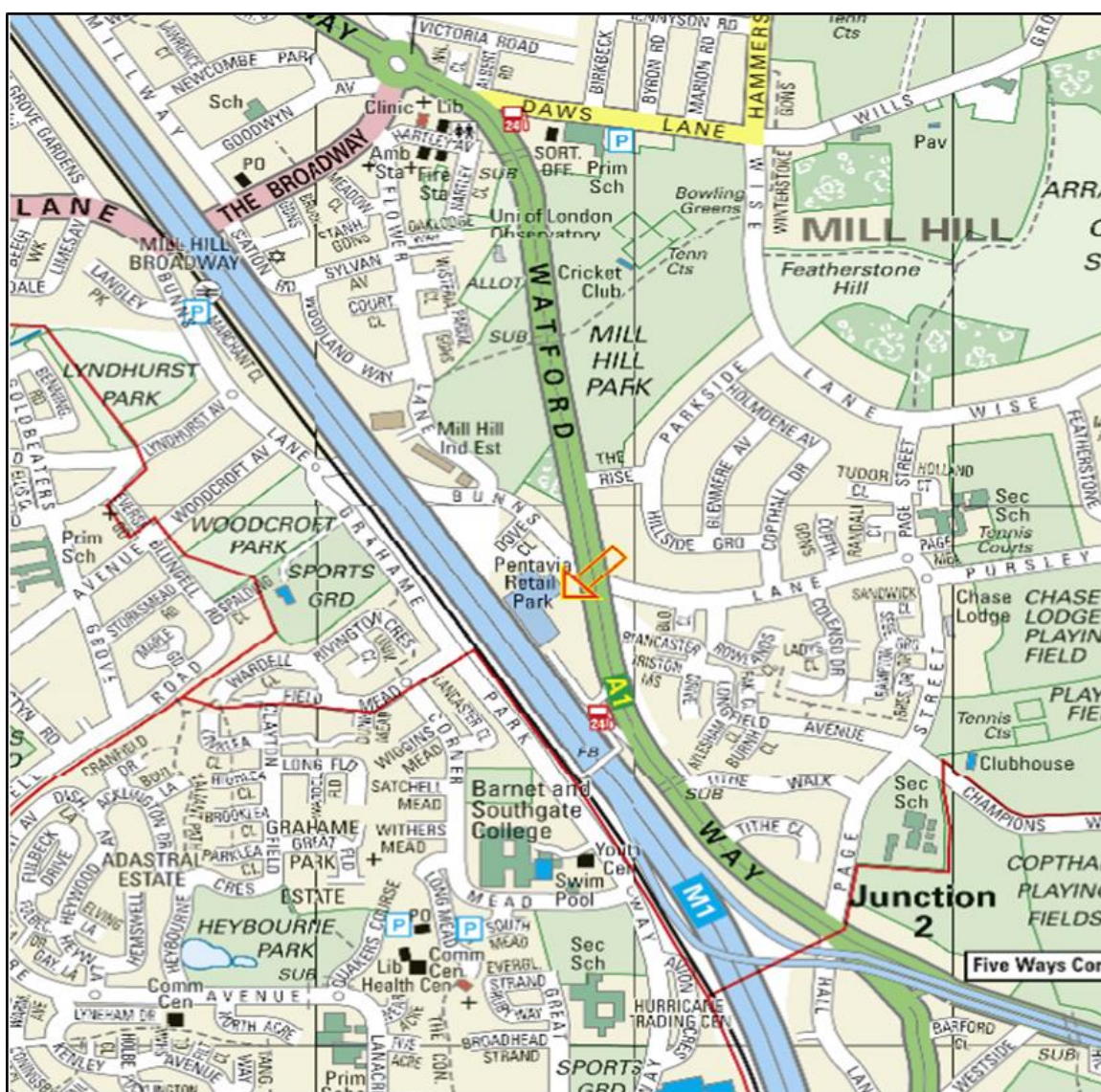


Figure 1-1: Site Location Plan

1.1.2 The site consists of a former out-of-town retail park with associated parking. The retail development comprised 9,717sqm of A1 / A3 floor space (9,053sqm A1, 644sqm A3).

1.1.3 The Pentavia Retail Park was built in the early 1990s following planning consent in 1988 for a scheme comprising non-food retail warehouses, a garden centre and petrol station. Prior to 1988 the site had been used as allotments and a sports ground as well as a construction site for the M1.

1.1.4 Up until 2015 the site had been occupied by major national retailers including Homebase, Comet and Argos (Use Class A1). Since September 2015 the site has been temporarily occupied by Kosher Outlet Store. More recently a TGI Friday restaurant (Use Class A3) has ceased trading from the site.

1.2 PROPOSED DEVELOPMENT

1.2.1 The proposed development comprises the demolition of all existing buildings and construction of 844 new Class C3 residential units and ancillary Class C3 Build to Rent facilities; 405sqm Gross Internal Area (GIA) Class A1 Retail; 326sqm (GIA) Class A3 and A4 food; and 297sqm (GIA) Class D1 Community; new pedestrian access to Bunns Lane; open space, landscaping; car parking; and highway/pedestrian improvements. It is anticipated that works could take place between 2019 and 2023.

1.2.2 The proposals will transform Pentavia Retail Park into a thriving and sustainable neighbourhood with green public parks and local amenities; a destination for people to live, work and enjoy. It will help to address Barnet's housing need by delivering high quality affordable homes.

1.2.3 The proposals will unlock this constrained site with new pedestrian routes and cycle links. This will create economic benefits to the local area as the development will help to increase footfall and spending on Mill Hill Broadway.

1.3 SCOPE OF WORK

1.3.1 This Outline Construction Traffic Management Plan (CTMP) has been prepared in accordance with the TfL Construction Logistics Plan (CLP) Guidance, a document developed by TfL in order to support sustainable construction practices in London.

1.3.2 Planning for enabling, demolition and construction works and the key activities is necessarily broad at this stage and will be subject to modification during any future detailed construction planning with the appointed Principal Contractor. For this reason, this document has been prepared under the title of a CTMP, it is however recognised that it seeks to provide the same traffic related information and function as a CLP document covered by TfL guidance. As such, where reference is made to guidance on the production of CLP's it is considered that this can be directly replaced by the reference CTMP.

1.3.3 The TfL guidance identifies that there are two types of CLP's:

- ⊙ *An Outline CLP* - This type of CLP accompanies an associated application to a planning authority. It may be submitted earlier in the planning process during pre-application discussions. This CLP gives the planning authority an overview of the expected logistics activity during the construction project.
- ⊙ *A Detailed CLP* - This type of CLP goes to a planning authority at the post-granted discharge of conditions stage, and/or at the highways design stage. This CLP provides the planning authority with the detail of the logistics activity expected during the construction stage of the project.

1.3.4 At this stage, full details of the construction arrangements are unknown as the principal contractor is yet to be appointed and the submission of this document is in support of the planning application. This document has therefore been produced as an Outline CTMP for the purposes of validation and identifies the future content of the full CLP.

- 1.3.5 The principal contractor will be responsible for complying with the full CLP and will be responsible for ensuring that all sub-contractors conform to restrictions, mitigations and obligations contained within the full CLP.
- 1.3.6 The full CLP will set out the key methodology that the principal contractor will follow to manage construction traffic during the development. This will include the potential scope of construction works, the means by which construction vehicles will access the site, and the mitigation proposed to reduce the impact of construction vehicles on the local highway network and local residents.
- 1.3.7 The TfL CLP guidance is part of a series of documents that are designed to give specific help to transport planners and those working in the construction industry. Section 8 of the guidance document presents a checklist of the sections to include within CLP's. This CTMP has been prepared accordingly.
- 1.3.8 Following this introduction, the remainder of this report is structured as follows:
- ⦿ **Section 2** provides information about the site and its surroundings;
 - ⦿ **Section 3** outlines information on details pertinent to the construction;
 - ⦿ **Section 4** outlines information on traffic management;
 - ⦿ **Section 5** outlines polices and measures to be in place during construction;
 - ⦿ **Section 6** outlines how the CTMP will be monitored and reviewed, and
 - ⦿ **Section 7** outlines how the CTMP will be managed.

2 SITE INFORMATION

2.1.1 This Section of the CTMP confirms the location of the site, provides a description of the key, relevant parts of surrounding highway network, and the means by which the site can be accessed by all modes.

2.2 SITE LOCATION

2.2.1 Pentavia Retail Park, in the Mill Hill ward, to the north of London Borough of Barnet. The location of the site is shown in **Figure 1-1**.

2.3 LOCAL HIGHWAY NETWORK

A1 Watford Way / Great North Way

2.3.1 The A1 is located adjacent to the site. The road is a trunk road with a dual carriageway. Each carriageway has three lanes and the speed limit is 50mph. The opposing traffic flows are separated by median with guard railing and fencing.

2.3.2 The A1 forms part of the strategic network and connects to the M1 to the north and A41 to the south. It is served by the 113 and N113 bus services.

2.3.3 The A1 has a number of junctions in proximity to the site. Fiveways Corner is a signalised network of junctions connecting A1 Watford Way, A1 Great North Way, A41 Watford Way, Hall Lane and Page Street. Signalised pedestrian crossing facilities are located on Page Street, A41 Watford Way and Great North Way.

2.3.4 Page Street forms a signalised junction with A1 Watford Way and represents the minor arm of the junction. Traffic coming from Page Street is allowed left turn only southbound on A1 Watford Way. Those seeking to head north on A1 Watford Way would head south and undertake a U-turn at the junction of Five Ways Corner. Traffic from northbound carriageway of the A1 Watford Way can undertake a right turn into Page Street. The junction has a yellow box to ensure that traffic is not stopped.

2.3.5 The junction of A1 Watford Way and Hall Lane is a priority junction with Halls Lane being the minor arm. Hall Lane can be entered by northbound traffic only on the A1 and egress is in the northbound direction only as well. This results in left turns to access the road and left turns to egress the road.

2.3.6 Mill Hill Circus is a part signalised roundabout. The signal controls traffic driving past the entry to the roundabout from A1 Watford Way in both northbound and southbound direction. Additionally, there are signalised pedestrian crossings on A1 Watford Way on the entry and exit arms of the roundabout.

2.3.7 The Broadway and Lawrence Street arms are give-way arms. All entry arms of the roundabout have three lanes albeit the arms entry arms on The Broadway and Lawrence Street have short flared entries as the third lane. The roundabout has three internal lanes.

2.3.8 The junction of A1 Watford Way and Hall Lane is a priority junction with Halls Lane being the minor arm. Hall Lane can be entered by northbound traffic only on the A1 and egress is in the northbound direction only as well. This results in left turns to access the road and left turns to egress the road.

Bunns Lane

- 2.3.9 Bunns Lane extends from a mini roundabout junction with Hale Lane and The Broadway south to a mini roundabout junction with Page Street. It is located in a predominantly residential area and is subject to a 30mph speed limit.
- 2.3.10 There are single yellow lines in place on both sides of the road for the full length of the road. The single yellow lines located north west of the M1 are in force Monday to Saturday 8am to 6.30pm. East of the M1 the single yellow lines are in force 1pm to 6pm on event days relating to Saracens Rugby Club.
- 2.3.11 Parking is provided on footways east of the M1. The parking bays are for resident permit holders only during event days. A number of unrestricted parking bays are provided on-street west of the M1.
- 2.3.12 The north west section of the road has a painted median which is approximately 3m wide. Along the road are ghost right turn lanes for those accessing residential or other uses to the west.
- 2.3.13 Bunns Lane connects to Lyndhurst Avenue in a mini roundabout junction. It connects to Woodcroft Avenue via a priority junction (Woodcroft Avenue being the minor arm), with a ghost right turn lane provided for southbound traffic making a right turn. An uncontrolled pedestrian crossing is provided south of the junction with dropped kerbs and tactile paving.
- 2.3.14 The junction of Bunns Lane and Flower Lane is a priority junction with Flower Lane forming the minor arm. A ghost right turn lane is provided for traffic coming from the east turning into Flower Lane. A zebra crossing is located east of the junction with a central reserve island, tactile paving and dropped kerbs. An uncontrolled crossing is located on Flower Lane with a central refuge island. Tactile paving and dropped kerbs are provided on the footway on either side.

2.4 ACCESSIBILITY BY NON-CAR MODES

Walking and Cycling Access

- 2.4.1 Pedestrian access to the site is possible from the western side of the A1 (Watford Way) via the existing footway. Connectivity to the west of the site is achieved via a pedestrian bridge over the M1 approximately 200m south of the site and via a subway under the railway line at the southern end of the site. This route connects to Grahame Park Way.
- 2.4.2 It is noted that there is no direct access to the site from Bunns Lane. Pedestrians that intend to approach the site from Bunns Lane are required to walk up a staircase that connects to the western footway of the A1 and then access the site. The staircase is located approximately 230m north of the main access to the site, where Bunns Lane is located beneath the A1. Additionally, the western footway of the A1 can be accessed from Bunns Lane from a pedestrian ramp located approximately 90m north-west from the underpass. The ramp features a guardrail and leads to the bus stop of the 113 northbound service on the A1.
- 2.4.3 A pedestrian underpass which links the western footway of the A1 to Tithe Walk is located approximately 350m south-east from the site and enables pedestrians to access bus stops for buses that travel southbound.
- 2.4.4 A pedestrian link to the site is also available from Grahame Park Way, where an underpass allows pedestrians to walk underneath the railway line and access a footway bridge that enables them to cross the M1 and access the site.

2.4.5 A number of uncontrolled pedestrian crossing facilities are located along Bunns Lane, with a zebra crossing with flashing beacons and a central pedestrian island located near the junction with Flower Lane. An additional zebra crossing facility is located near the mini roundabout between Bunns Lane and Page Street and features flashing beacons and tactile paving on both sides of the road. Further detail on the footways and local crossing facilities in the area is provided in the Pedestrian Environment Reviews System (PERS) assessment in this chapter.

2.4.6 There is an off-road cycle route (Green) which extends south to Hendon and on to Brent Cross. Grahame Park Way that runs parallel to the M1 is also signed for cyclists (Blue). This route can be accessed by cyclists via the provision of the subway and footbridge, but cyclists are required to dismount as cycling is not permitted.

Bus Routes

2.4.7 The nearest bus stops to the site are located on South Grove, to the south of the application site. Both stops are served by routes 58, 230 and W19. Both bus stops have a shelter, seating, timetable and flag. The stop on the southern side of the carriageway also has a bin. There are further stops located within walking distance of the site, offering access to a total of nine bus routes.

2.4.8 It is understood that there are anywhere between 41 to 59 buses per hour in the morning and afternoon peak hours. Services are less frequent at the weekend although a good level of service is still provided across all routes.

2.4.9 The closest bus stop to the site is on the northbound carriageway of the A1 adjacent the existing petrol station at the southern end of the site and serves the northbound bus route. The bus stop is located within a five-minute walking distance from Pentavia Retail Park.

2.4.10 Access to southbound bus stops is available via two routes. Pedestrians can head north on the western footway of the A1 and take steps down onto Bunns Lane, walk under the A1 and up steps on the eastern side to gain access to the footpath adjacent southbound traffic. It is noted that an 11-minute walk is required to access the southbound bus stop from the retail park.

2.4.11 Alternatively, pedestrians can walk south on the western side of the A1 to access an underpass which links to Tithe Walk to the east, and bus stop just south of this point. The bus stops are served by bus route 113 which provides services between Edgware and Marble Arch. This would require an eight-minute walk from the site.

2.4.12 A bus route 221 operates frequent service between Edgware and Turnpike Lane and provide direct service from the Site to Mill Hill Station. Bus stops are located on Bunns Lane and are accessed via the steps on the A1.

2.4.13 More bus services are available within the residential streets to the west of the M1, (303,302, 251, 114, and 186) and are accessible via the existing subway / footbridge.

2.4.14 **Figure 2-1** shows the bus stops in the area surrounding the site.

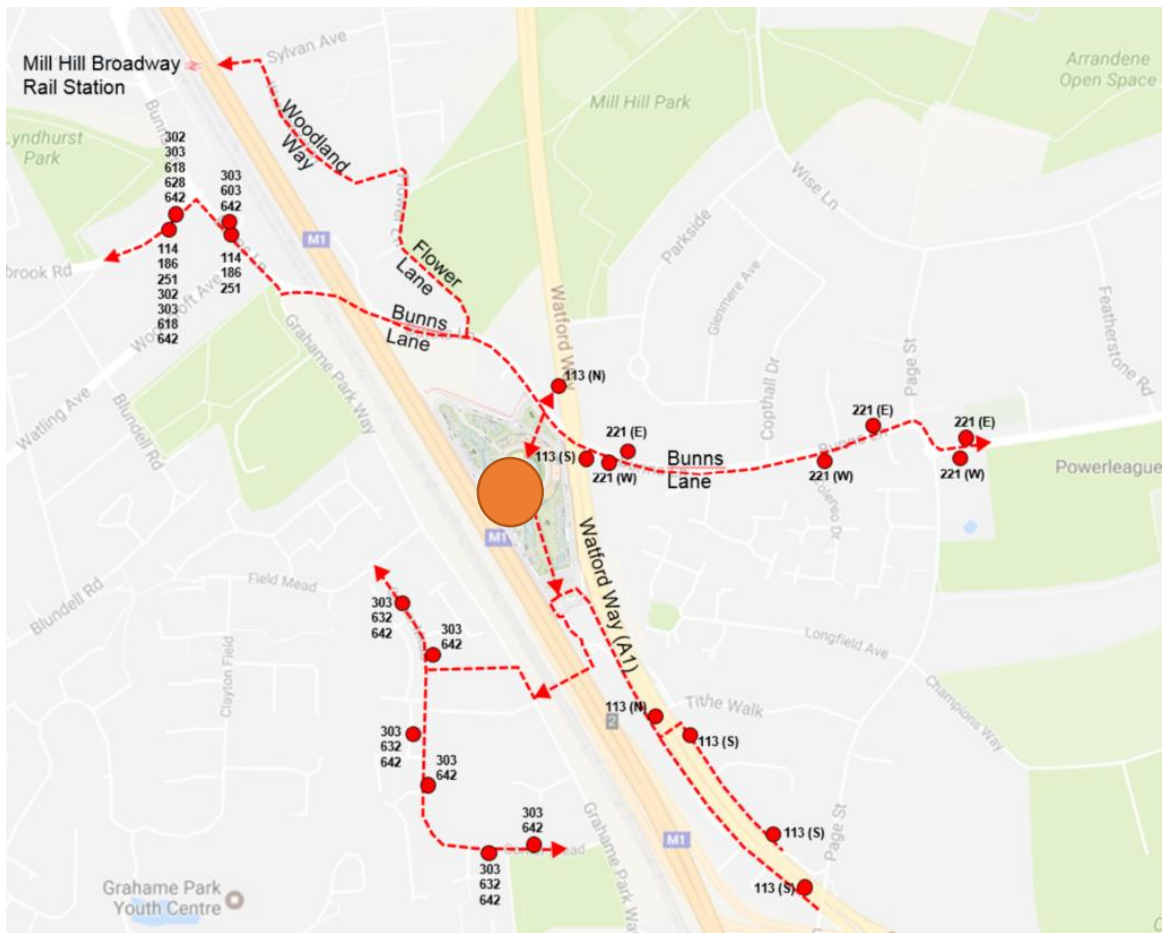


Figure 2-1: Bus Stops Locations Surrounding the Site

2.4.15 **Table 2-1** presents the details of the routes in closest proximity to the site inclusive of directions and frequencies.

Service Number	Locations	Direction / Route	First / Last Bus	AM Peak Frequency	PM Peak Frequency
113	A1 / Watford Way / Barnet By-Pass	Marble Arch Station	First 04:40 Last 00:09	5-9 minutes	8-11 minutes
		Edgware Station	First 06:08 Last 01:38	7-11 minutes	7-11 minutes
221	Bunns Lane	Turnpike Lane Station	First 05:35 Last 00:30	9-12 minutes	10-13 minutes
		Edgware Station	First 05:49 Last 00:49	10-12 minutes	10-12 minutes
302	Lyndhurst Avenue	Kensal Rise Station	First 05:30 Last 00:10	6-10 minutes (6-10 per hour)	6-10 minutes (6-10 per hour)
		Mill Hill Broadway Station	First 06:19 Last 00:37	6-9 minutes	6-9 minutes
303	Lyndhurst Avenue	Colindale Superstores	First 05:27 Last 00:07	13-14 minutes	15 minutes
		Edgware Station	First 05:37 Last 00:15	15 minutes	14-15 minutes
114	Lyndhurst Avenue / Woodcroft Avenue / Watling Avenue	Ruislip Station	First 04:55 Last 01:15	8-12 minutes	8-12 minutes
		Mill Hill Broadway Station	First 05:22 Last 01:17	7-11 minutes	7-11 minutes
186	Lyndhurst Avenue / Woodcroft Avenue	Brent Cross	First 06:08 Last 00:48	9-13 minutes	8-12 minutes
		St Mark's Hospital	First 05:26 Last 00:01	11-13 minutes	11-13 minutes
251	Lyndhurst Avenue / Woodcroft Avenue / Watling Avenue	Edgware Station	First 05:30 Last 00:20	9-12 minutes	9-12 minutes
		Arnos Grove Station	First 05:19 Last 00:29	7-12 minutes	10-14 minutes
240	The Broadway	Edgware Station	First 06:27 Last 01:30	10-14 minutes	10-14 minutes

		Golders Green Station	First 05:47 Last 00:27	11-14 minutes	11-14 minutes
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Table 2-1: Accessible Local Bus Routes

Rail/Underground

2.4.16 The nearest railway station is Mill Hill Broadway, located approximately 1.0Km FROM the site and accessible within a 13-minute walking distance. It is served by First Capital Connect running Thameslink services. The typical daytime service from the station is four trains per hour to central London, Wimbledon and Sutton, of which two terminate at St Albans and two at Luton.

2.4.17 A summary of the services available at Mill Hill Broadway is presented in **Table 2-2**.

Service	Direction / Destination	First / Last Train	AM Peak Frequency	PM Peak Frequency
Railway (Mill Hill Broadway)	Towards Three Bridges	First 00:03 Last 23:35	None during peak	None during peak
	Towards Bedford	First 00:05 Last 23:37	Service at 09:42	Service at 18:05
	Towards Brighton	First 03:33 Last 03:33	None during peak. Only one service at 03:33	None during peak. Only one service at 03:33
	Towards Sutton	First 05:14 Last 23:18	3-4 services per hour	3-4 services per hour
	Towards St Albans	First 06:06 Last 22:14	2-3 services per hour	2-3 services per hour
	Towards Luton	First 06:32 Last 22:00	1-2 per hour	2 per hour
	Towards Sevenoaks	First 06:32 Last 20:12	1-2 per hour	1-2 per hour
	Towards Bromley South	First 07:10 Last 07:48	2 services between 07:00-08:00	None

Table 2-2: Mill Hill Broadway Rail Services

7.3.22 The nearest underground stations are Burnt Oak and Colindale, located 2.0km from the site and accessible within a 26-minute walking distance. The stations are served by the Northern Line. A summary of the service frequencies at Burnt Oak Station is presented in **Table 2-3**.

Service	Accessed via Bus Route	Direction / Destination	First / Last Train	AM Peak Frequency	PM Peak Frequency
Northern Line (Burnt Oak)	302 114	Towards Edgware	First 05:42 Last 01:10	21	20
		Towards Morden / Golders Green	First 05:25 Last 00:47	21	20
Northern Line (Mill Hill East)	221	Towards Finchley Central / Kennington	First 05:25 Last 00:54	5	4
Northern Line (Colindale)	N/A	Towards Edgware	First 05:40 Last 01:08	19	21
		Towards Morden / Golders Green	First 05:27 Last 00:49	21	20
Northern Line (Hendon Central)	113	Towards Edgware	First 05:38 Last 01:05	19	21
		Towards Morden / Golders Green	First 05:30 Last 00:52	21	20

Table 2-3: London Underground Services

3 CONSTRUCTION OPERATIONAL DETAILS

3.1.1 Planning for enabling, demolition and construction works and the key activities is necessarily broad at this stage and will be subject to modification during any future detailed construction planning with the appointed Principal Contractor. For this reason, the following assessment is based on reasonable assumptions in the enabling, demolition and construction works programme and the collective experience of the design and consultant team with similar projects.

3.2 PROGRAMME OF WORKS

3.2.1 The current indicative development programme for construction works would take approximately 48 months, completing in 2023.

3.2.2 Whilst all details regarding future construction have not been finalised at this stage, it is possible to provide general information about the construction activities. The anticipated programme is presented and summarised in **Table 3-1**.

Activity	Approximate Duration (months)
Enabling Works	
Services Disconnections & Diversion	2.5
Demolition	4.5
Site works, road infrastructure and services	5
Energy Centre Fit Out & Distribution	4
Commissioning	2
*Construction Period	15
Phase 1	
Undercroft Carpark and Podium	3
Superstructure, and Fit Out	15.5
Commissioning	2
*Construction Period	19
Phase 2	
Undercroft Carpark and Podium	3
Superstructure, and Fit Out	15.5
Commissioning	1.5
*Construction Period	18
Phase 3	
Undercroft Carpark and Podium	3
Superstructure, and Fit Out	15.5
Commissioning	1
*Construction Period	22
Phase 4	
Undercroft Carpark and Podium	3
Superstructure, and Fit Out	15.5
Commissioning	1
*Construction Period	21

Table 3-1: Indicative Phasing Durations

*Activities will overlap, refer to Post Planning Submission Programme for full breakdown attached in Volume 2 of the ES, Appendix 5.1

3.2.3

A Post Planning Submission Programme has been prepared by CPC Consulting and describes the various stages of the enabling, demolition and construction works and their indicative timeframes for completion. This is contained in Volume 2 of the ES, Appendix 5.1.

3.3 DESCRIPTION OF WORKS

3.3.1 It is anticipated that construction of Development will be undertaken in one continuous construction phase, commencing on the south eastern portion of the Site (Phase 1) progressing north west (Phase 4). Within the construction programme, the Development has been broken down in four phases, as shown in **Figure 3-1**.

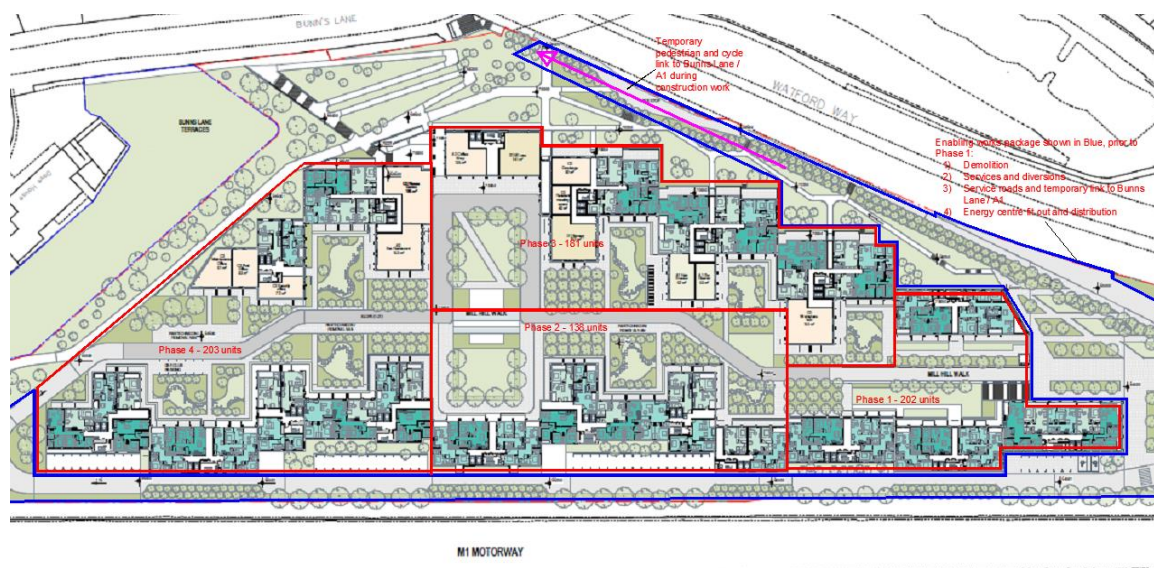


Figure 3-1: Site Phasing Plan

Enabling Works, Demolition, Infrastructure and Services

3.3.2 The following works will be undertaken during the enabling works, demolition, infrastructure and services stage:

- ⊙ Hoarding will be erected around the boundary of the construction site areas, and fencing around all trees to be protected, where required;
- ⊙ All relevant enabling works to utilities will be carried out and this will involve capping-off or removal of redundant utilities, diversions, new supplies and connections as agreed with the statutory undertakers;
- ⊙ Existing buildings will be soft stripped back to the structural shell, prior to being demolished;
- ⊙ Existing hardstanding (concrete/asphalt parking areas, concrete floor slabs and foundations) will be broken up. During the course of these activities, large quantities of materials including concrete, asphalt, sub-base material, engineered fill material, aggregates, soils and sub-soils are to be generated;
- ⊙ To achieve the required site levels during enabling works, there will be some general civil engineering groundwork activities including excavation, grading and preparation of surfaces, and the placement / compaction of fill undertaken.

Aggregate material, i.e. concrete, asphalt, brick, sub-base material, engineering fill, aggregate, from the demolition activities will be incorporated into the construction of the Development, for example, concrete and brick will be crushed to form re-usable secondary aggregates for the new building programme and incorporated into the sub-base for roads, foundations and to bring up site levels in existing depressions;

- ⊙ During engineering groundwork activities for the Site infrastructure and services required by the Development, including but not limited too electrical, telecommunications, potable water and drainage infrastructure, will be installed for the Development;
- ⊙ Following completed completion of the engineering groundwork activities, construction of the peripheral access road, inner circus, car parking area and access points to the Site will be undertaken; and
- ⊙ Following the completion of enabling, demolition works, engineering groundwork activities, perimeter access road, and commercial car parking area, construction will commence on the building structures of the Development.

Phased Rolling Construction Programme (Phase 1-4)

- 3.3.3 Phase 1 incorporates the south east portion of the Site, and involves the construction of Blocks A, B, C and E which includes a total of 202 units.
- 3.3.4 Phase 2 incorporates the central portion of the Site located adjacent to the M1, and involves the construction of the Blocks G, I, J and L which includes 138 units.
- 3.3.5 Phase 3 incorporates the central portion of the Site located adjacent to Watford Way, and involves the construction of the Blocks D, F, H and K which includes 181 units.
- 3.3.6 Phase 4 incorporates the northern portion of the Site located adjacent to Bunn Lanes and the M1, and involves the construction of the Blocks M, N, O, P, Q and R which includes 203 units.
- 3.3.7 Construction activities to be undertaken during the Development across the rolling construction programme for the four phases is outlined as follows:

- ⊙ **Foundations** - The structural loads generated by the proposed buildings would necessitate the use of piled foundations. The specific type of piles would be determined as part of the detailed design stage. A piling mat would be prepared for the piling rig, following which piled foundations to support each building would be installed;
- ⊙ **Sub-structure and Undercroft** - Construction of the sub-structure would comprise reinforced concrete pile caps for cores and columns, with reinforced concrete ground beams interconnecting the pile caps, where needed. Some drainage runs would also be required under the ground or beneath the ground floor slabs. It has also been assumed that the ground floor slab would be of suspended construction and comprise as a minimum 250mm thick reinforced concrete slab with waterproofing and a gas membrane. The undercroft will house the main car parking area, plant rooms, cycle storage, refuse areas, and electrical sub-stations for the Development. Minimal retaining walls will be required around the outside perimeter of the Development due to the Site levels. Once the reinforced concrete ground floor slab has been poured, the frame to cast any walls will be erected and walls cast. A column grid of reinforced concrete columns, which tie into the piled foundations, will be formed to support the ceiling concrete slab which will form the base level of the ground floor and podium areas above;

- **Superstructure** - Construction will progress vertically up each of the building's superstructure with the stair and lift cores being used as the lateral stability. It is expected that once construction on the buildings reach the second floor that material hoists, tower and/or mobile cranes will be used to ferry materials to the various levels;
- **Façade** - Upon completion of the buildings superstructure, the façade of the buildings will be installed/constructed. Upon completion of each floors façade, interior fit out together with mechanical, electrical and plumbing systems will commence; and
- **Public realm (including landscaping)** - Will be completed around each building up to hoarding lines (in accordance with the Landscaping Strategy submitted as part the Design and Access Statement) to enhance the area during each phase while enabling the other buildings to continue to be constructed.

3.4 MATERIALS AND QUANTITIES

Demolition of Buildings

- 3.4.1 The quantity of material that is likely to be generated from the demolition of the existing buildings and car parking hardstanding areas onsite is shown in **Table 3-2**.

Demolition Materials	Estimated Quantity
Soft Strip (Floors, ceilings, services, partitions, sundry fixtures)	10,500m ²
External Cladding incl. roof	11,350m ²
Superstructure Concrete	Nil
Structural Steel	55t

Table 3-2: Estimated Demolition Quantities

Excavation and Groundwork Activities

- 3.4.2 Waste arising from enabling works, demolition, primary infrastructure and engineering groundwork activities is expected to comprise vegetation (limited), topsoil (limited), concrete and asphalt from former hardstanding, gravel and spoil material. The likely material that will be generated onsite is shown in **Table 3-3**.

Excavation	Estimated Quantity (m3)
Hard Standing (Concrete/Asphalt/Engineering Fill) *Existing concrete slab to be crushed onsite and used as fill	5,100m ³
Bulk Dig (Spoil)	27,000m ³

Table 3-3: Estimated Earthworks Quantities

- 3.4.3 Where practicable, the materials generated during these activities will be reused onsite, reducing the need to import material to the Site, provided it meets all the specification requirements, is inert and free of any contamination.

3.5 HOURS OF WORK

- 3.5.1 It is anticipated that the core working hours for the Development will be set out as follows:

- ⦿ 08:00 – 18:00 hours Weekdays;
- ⦿ 08:00 – 13:00 hours Saturday; and
- ⦿ No working normally undertaken on Sundays or Bank Holidays.

3.5.2 It is recognised that approval from the LBB is required for any works that need to be undertaken outside these permitted hours, and that the LBB may vary these hours where the works are in close proximity to sensitive businesses or residential properties.

3.5.3 Typically, the works that may need to be undertaken out of hours would be for the delivery and removal of the tower crane sections to/from Site, for which the Principal Contractor will be expected to make the necessary road closure applications to the LBB, if required.

3.6 SITE SECURITY AND ACCESS CONTROL

3.6.1 All security operations shall be developed and implemented in accordance with the latest British Standards applicable to the Security Industry i.e. BS 7858:2012 and BS 7499:2013; and full compliance with the Private Security Industry Act 2001.

Physical Security

3.6.2 Physical security of the site will be afforded by the erection of perimeter hoarding and fencing, erected by prior agreement with LBB.

3.6.3 Hoardings will incorporate a number of lockable gates to effect access and egress for both pedestrians and vehicles. Vehicle gates may be supplemented by raising arm barriers which offer a more practical solution during the working day whereas gates will secure the site perimeter during silent hours.

3.6.4 The physical security will be further enhanced by the installation of a computerised access control system, complete with turnstiles. This control for pedestrian access will be established within a security reception, located inside the site entrance, to prevent access by any unauthorised persons into the site demise. A further control, including full height turnstiles, will be installed between the welfare compound and working site area.

3.6.5 Further details of the proposed arrangements for pedestrian access will be included within the full CLP.

3.6.6 Measures including closed circuit television, alarms to scaffolding and floodlighting to security sensitive areas during the hours of darkness will also be considered. Such enhanced security may be of particular benefit during the fit out stage of construction. Any CCTV or floodlighting will be installed in such a manner that preserves the privacy and avoids nuisance to residents/occupants of neighbouring properties.

Manned Security (during hours of construction operation)

3.6.7 The site shall be manned by a combination of static and mobile guards. Access/egress points (both vehicular and pedestrian) shall be manned by static guards during construction operations whilst mobile guards undertaking regular patrols will monitor the physical perimeter security and randomly challenge personnel on site to ensure they hold a valid security pass for the project.

3.6.8 Additional personnel may be deployed during the latter stages of the project, typically when areas are nearing completion or when high value fixtures, fittings and equipment are present on site. Permit to access procedures may also be implemented at such time and will be managed by the site security team.

- 3.6.9 To maximise efficiency, the mobile guards provide relief cover for the static guards and may also undertake additional tasks as part of their regular daily duties, most commonly traffic and fire marshalling.
- 3.6.10 All operatives involved with site security must meet the requirements of British Standard 7858:2012 (security screening of individuals employed in a security environment).
- 3.6.11 All security operatives shall have minimum training standards i.e. Level 2 Certificate for Security Guards. Additional complementary training is also recommended for security personnel (e.g. Fire Marshalling, Traffic Marshalling and First Aid) in order to obtain maximum benefit from the service provided.

3.7 MATERIAL DISTRIBUTION AND STORAGE

- 3.7.1 Material distribution will be reviewed in full CLP and assessed in line with the following key considerations:
- ⦿ Offloading materials close to their final location, where practicable (minimise distribution around the site);
 - ⦿ Distribution directly from off-load to workforce (“just in time” deliveries to minimise storage and double handling), and
 - ⦿ Use of materials handling equipment to transport materials.
- 3.7.2 Unloading and vertical distribution for materials could take place in a number of ways. The methodology of unloading and material distribution will be defined in the full CLP in conjunction with the appointed contractor.
- Storage Zones*
- 3.7.3 It is anticipated that the project will operate a policy of just-in-time material deliveries as far as is practicable, but due to the size of the site it will be possible to store materials where appropriate. On-site storage will enable traffic movements to be managed more effectively such that they can avoid peak traffic periods.

3.8 PLANT AND EQUIPMENT

3.8.1 An indicative list of large plant and equipment that are likely to be used at various stages of construction across the phases have been considered, these are shown in **Table 3-4**.

Plant and Equipment	Stage of Works				
	Demolition	Substructure	Superstructure	Facade	Fit-Out
Concrete Crusher	✓	X	X	X	X
360° Excavator	✓	✓	✓	X	X
Tower / Mobile Crane	X	✓	✓	✓	✓
Breaker	✓	X	X	X	X
Compressor & Air Tools	✓	✓	✓	✓	✓
Drills / Cutters	✓	✓	✓	✓	✓
Compacter / Roller	X	✓	X	X	X
Piling Rigs	X	✓	X	X	X
Concrete Pumps	X	✓	✓	X	X
Generators	✓	✓	✓	✓	✓
Concrete Vibration Equipment	X	✓	✓	X	X
Scaffolding	✓	✓	✓	✓	✓
Asphalt Plant	✓	✓	X	X	X
Fork Lift Truck	✓	✓	✓	✓	✓
Goods/ Passenger Hoist	X	✓	✓	✓	✓
Mast-climber Platforms	X	✓	✓	X	X
Mechanical Road Sweeper	✓	✓	✓	✓	✓
Floodlights	✓	✓	✓	✓	✓
Hydraulic benders and cutters	✓	✓	✓	X	X
Lorries and Vans	✓	✓	✓	✓	✓
Ready mix concrete trucks	X	✓	✓	X	X

Table 3-4: List of Large Equipment to be used

4 TRAFFIC MANAGEMENT

4.1.1 Full details on the anticipated approaches to traffic management will be included in the full CLP upon appointment of the Principal Contractor.

4.1.2 The Site will be registered with the 'Considerate Constructors Scheme' (CCS). The CCS ensures that contractors carry out their operations in a safe and considerate manner with due regard to passing pedestrians, road users and surrounding properties.

4.2 VEHICULAR ACCESS

4.2.1 An advisory construction HGV route will be put in place to manage the arrival and departure of vehicles from the surrounding highway network. The route will be identified such that it minimises the impact both on the local highway network and considers the access requirements of local residents. It will also highlight the specific corridors that construction vehicles must avoid using to access the site.

4.2.2 It is proposed that construction access and egress will take place via the existing slip roads of the northbound carriageway of the A1. It is anticipated that all trips will originate from north of the Site and return to the north.

4.2.3 By way of a formal signage strategy the detailed CTMP will also identify what traffic signs will be provided and installed by the lead contractor to guide construction traffic in and out of the site and minimise disturbance to local residents.

4.2.4 On-site parking for construction workers will be restricted to an absolute minimum. This will only be made available to those construction personnel who need to carry heavy equipment or materials to the Site.

4.2.5 Earthworks are anticipated to take place in 2019 and are expected to generate the peak traffic movements of the demolition and construction period. During these works existing hardstanding (concrete/asphalt parking areas, concrete floor slabs and foundations) will be broken up. Large quantities of materials including concrete, asphalt, sub-base material, engineered fill material, aggregates, soils and sub-soils are to be generated, with approximately 27,000 cubic meters to be removed from site.

4.2.6 The estimated numbers of enabling, demolition, and construction related vehicle journeys have been calculated based on volumes of demolition/excavated waste material, together with imported concrete, piling, and cladding.

4.2.7 The average daily and peak hour movements have been calculated on the following basis:

- ⊙ Construction will be undertaken for a period of 5.5 days (55 hours) each week;
- ⊙ Earthworks will take place for a period of 24 weeks;
- ⊙ 0% of personnel movements would take place within peak hours; and
- ⊙ During earthworks 27,000 cubic meters of material requires off-site removal;
- ⊙ Vehicles carry, on average, 20 cubic metres of spoil;

- ⦿ Each vehicle will generate an inbound and outbound movement on the highway network;
- ⦿ 10% of daily vehicle trips could occur in the AM and PM peak hours.

4.2.8 The assessment has been undertaken based on prudent professional judgement and experience of such analysis at other sites across London.

4.2.9 During the earthworks the development could generate up to 12 vehicle trips per day, and a maximum of two might generate an inbound and outbound traffic movement within the highway network peak hours.

4.2.10 **Table 4-1** presents the location and number of anticipated peak hour movements that could occur during peak demolition and construction activities relative to the traffic flows on the network.

Link Name	Baseline Flow		Construction Traffic (2019)		% Change	
	All vehicles	HGV's	All vehicles	HGV's	All Vehicles	HGV's
AM Peak Hour						
A1 (North of Mill Hill Circus)	3800	202	4	4	0.1%	2.0%
A1 (South of Mill Hill Circus)	4262	203	4	4	0.1%	2.0%
A1 (North of Page Street)	3948	196	4	4	0.1%	2.0%
PM Peak Hour						
A1 (North of Mill Hill Circus)	4323	118	4	4	0.1%	3.4%
A1 (South of Mill Hill Circus)	4670	108	4	4	0.1%	3.7%
A1 (North of Page Street)	3620	101	4	4	0.1%	4.0%

Table 4-1: Estimated Peak Hour Traffic Movements List of Large Equipment to be used

Traffic Management Operatives

- 4.2.11 All vehicle entrances and exits shall be manned by security traffic marshals during construction operation hours, responsible for receiving and dispersing vehicles. Duties will include checking that vehicles arrive in accordance with the planned delivery schedule, for advising drivers of site rules, issuing vehicle passes and directing to the appropriate off-loading zone (should this be required). When leaving, marshals will collect passes, confirm the legitimacy of any plant or materials being removed from site and check vehicles' cleanliness before finally dispersing back onto the public highway.
- 4.2.12 Marshals will also be responsible for directing and banking vehicles to ensure that manoeuvres are executed safely, minimising the risk to the general public. In particular, marshals will ensure that pedestrians are excluded from the vehicle manoeuvring zones.
- 4.2.13 Finally, marshals will ensure that these gates are used for vehicular traffic only, pedestrians seeking to gain entry or exit being directed to security reception.

Delivery Co-ordination

- 4.2.14 Site access/egress for all materials/waste will require tight control. The development of a scheduling system will provide an efficient and effective means of controlling all deliveries. The implementation of pre-agreed delivery schedules and programmes will ensure that all deliveries arrive at the right time, with materials being efficiently dispatched to the correct offloading and storage zone.
- 4.2.15 Where possible, it is proposed that delivery slot restrictions will be imposed to avoid deliveries being made during any peak traffic hours in and around the development (e.g. peak periods of general rush hour traffic and school runs). Given the limited number of vehicle movements expected and the ability to consolidate some storage on site it is anticipated that this is achievable.
- 4.2.16 The use of delivery management software will be considered. Such systems assist with scheduling deliveries and the allocation of common user material handling equipment, thus enabling the efficient planning of material delivery and distribution from arrival on site and subsequent movement to the workforce ('from gate to plate'). These systems are particularly efficient when operating in real time whereby bookings made are immediately updated and displayed.
- 4.2.17 Successful implementation of delivery management regimes requires commitment from all personnel involved (e.g. traffic marshals, hoist drivers, materials handling equipment operators, security, etc.). Where volumes of delivery vehicles dictate, consideration will be given to appointing a dedicated delivery manager who would be responsible for the control and co-ordination of all materials deliveries.
- 4.2.18 Regular delivery meetings between all Trade Contractors will be implemented to ensure that the delivery schedules are pre-agreed with all.

Maintaining Site Security

- 4.2.19 In order to maintain site security, it is important that vehicle gates provide access to vehicular traffic only. Pedestrian access should be prohibited at these points. Vehicle access gates will be kept closed, opened only to receive or disperse vehicles. Vehicle access and egress points should also be manned during site operational hours.

Vehicle / Pedestrian Segregation

- 4.2.20 As previously stated, construction vehicles shall enter/exit the site at a separate location to pedestrians. Furthermore, protected pedestrian routes will be established within the site to ensure segregation from vehicles.

Vehicle Manoeuvres

- 4.2.21 In order to promote safe manoeuvring in and around the site, it is recommended that reversing of vehicles is avoided wherever possible. This is most commonly achieved by the implementation of one-way systems and/or provision of drive through delivery zones.
- 4.2.22 Where reversing of vehicles is unavoidable, such manoeuvres will be kept to a minimum and due consideration given to, amongst others, the space required to complete such manoeuvres, the exclusion of personnel from this area and the supervision, direction and control afforded to the manoeuvre.

4.3 CYCLIST SAFETY

- 4.3.1 In 2012 TfL commissioned an independent review of the construction sector's transport activities to understand the causes of construction related vehicle/cycle collisions and how they might be prevented. The resulting 'Construction Logistics and Cyclist Safety'(CLOCS) report was published in February 2013 by Transport Research Laboratory (TRL) which subsequently led to the development of a common national standard, the CLOCS Standard for Construction Logistics Managing Work Related Road Risk.
- 4.3.2 All construction works and associated planning shall be undertaken in accordance with this standard.
- 4.3.3 This standard incorporates The Fleet Operator Recognition Scheme (FORS), or equivalent standard, and this scheme shall apply. Currently Bronze FORS accreditation will be required for all delivery vehicles attending site but this minimum will be reviewed and may be increased to Silver or Gold.

4.4 PEDESTRIAN ACCESS

- 4.4.1 When considering pedestrian access, the three primary issues to consider are:
- ⊙ Appropriateness of location;
 - ⊙ Maintaining site security;
 - ⊙ Segregation of pedestrian and vehicular traffic, and
 - ⊙ Appropriateness of location
- 4.4.2 Pedestrian access will be located sympathetically to principal arrival routes, typically determined by primary public transport routes. These access points will also be in reasonably close proximity to the site welfare accommodation which will be accessible via a safe, PPE free, 'green' route.
- 4.4.3 As a further consideration, pedestrian access will be located such that site personnel, when arriving at or leaving site, do not cause undue inconvenience or nuisance to neighbouring premises or to the general public.

Maintaining Site Security

- 4.4.4 In order to maintain site security, it is important to provide the minimum practicable number of pedestrian access/egress points. In this instance it is anticipated that a single access point into the will be sufficient.
- 4.4.5 Access into the site is expected to be managed by a computerised access control system, complete with turnstiles, to ensure that only authorised personnel gain access. The primary control point will be located at the designated pedestrian access. This control point shall be permanently manned by security officers to process visitors and non-inducted personnel.

Security Access Control

- 4.4.6 It is proposed that all personnel (management, operatives, visitors, etc.) arriving on site should immediately report to the project security reception. This post shall be permanently manned and security officers at this location will operate a computerised access control system.

4.4.7 All personnel entering the site will be required to log in and out of site at this point, this attendance information being essential should there be an emergency site evacuation. The issue of permanent passes for all personnel will be subject to satisfactory completion of the project induction. These passes will accurately record the holders' identity including name, company and photographic record. Cards will also hold relevant training information.

4.4.8 The system shall incorporate swipe in/out points, linked to turnstiles, which speeds the logging in/out process over a manual signing system. Having logged in, operatives will have safe passage to the welfare area where they shall change and equip themselves with appropriate PPE before proceeding on to the construction area of the site.

Pedestrian / Vehicle Segregation

4.4.9 Regulation 36 of the Construction (Design and Management) Regulations 2007 requires that every construction site shall be organised in such a way that, so far as is reasonably practicable, pedestrians and vehicles can move safely and without risks to health. In short, this Regulation requires the provision of safe, effective and functional pedestrian and vehicle segregation.

4.4.10 It is therefore proposed that pedestrians and vehicles should, wherever practicable, not share access/egress points or circulation routes within the site.

Site Layout

4.4.11 Within the site, pedestrian routes will be delineated and segregated from vehicular construction traffic. These shall be classified as site walkways and the wearing of PPE in these areas shall be mandatory.

Public Pedestrian Safety

4.4.12 Construction activity creates a hazard to pedestrians, particularly in the vicinity of site vehicle access and egress points, and control measures will be identified and introduced via the full CLP to minimise the risk.

5 DEVELOPING AND USING POLICIES

5.1.1 The full CLP will define the policies adopted for the duration of the construction. It is anticipated that the full CLP will be required to provide policies on:

- ⊙ Waste minimisation;
- ⊙ Public Consideration and Engagement;
- ⊙ Use of alternative modes of transport;
- ⊙ Vehicle renewal replacement, and
- ⊙ Consolidation and/or collaboration and off-site fabrication.

5.2 WASTE MANAGEMENT

5.2.1 Waste produced during all construction activities on Site will be subject to the 'Duty of Care' under the Environmental Protection Act 1990. It is the joint responsibility between the Principal Contractor and the Applicant to ensure that waste produced onsite is disposed of in accordance with relevant legislation.

5.2.2 All relevant contractors will be required to investigate opportunities to minimise and reduce waste generation in line with WRAP's Halving Waste to Landfill initiative by:

- ⊙ Agreeing with material suppliers to reduce the amount of packaging or to participate in a packaging take-back scheme;
- ⊙ Implementing a 'just in time' material delivery system to avoid materials being stockpiled, which increases the risk of their damage and disposal as waste;
- ⊙ Paying attention to material quantity requirements to avoid over ordering and generation of waste materials;
- ⊙ Segregating waste at source where practical;
- ⊙ Reusing and recycling of materials offsite where reuse onsite is not practical (e.g. through use of an offsite waste segregation facility and resale for direct reuse or reprocessing);
- ⊙ Prioritising preassembled and prefabricated construction materials, wherever practicable, to minimise onsite generation of waste and packaging and reduce the number of delivery and collection vehicles to and from the Site;
- ⊙ Colour coding and signposting skips to reduce risk of cross contamination. Skips will also be covered to prevent dust and debris blowing around the Site, these will be cleared on a regular basis; and
- ⊙ Not burning wastes or unwanted materials onsite.

- 5.2.3 In addition, disposal sites and routes will be identified by the Principal Contractor in consultation with the LBB and the Environment Agency (EA). When assessing the most suitable option for landfill disposal, the mode of waste transportation and alternatives to reduce adverse environmental impacts, transport times and landfill capacity must be considered.
- 5.2.4 The Development will seek to maximise the reuse of suitable soils onsite, where possible, in order to minimise waste disposal. Intrusive site investigation work has been undertaken to identify any significant areas of contamination.
- 5.2.5 Further soil sampling and testing will be undertaken for classification and disposal of waste soils, and will follow the methodology described in the following two EA publications: Framework for the Classification of Contaminated Soils in Hazardous Wastes 2004, and Waste Acceptance at Landfills: Guidance on waste acceptance procedures and criteria 2010.
- 5.2.6 All soil sampling and testing will be undertaken in accordance with BS 10175: Investigation of Potentially Contaminated Sites: Code of Practice.

5.3 PUBLIC CONSIDERATION AND ENGAGEMENT

- 5.3.1 A key aspect of the successful management of the project will be the maintenance of good relations with Site neighbours and the general public.
- 5.3.2 The Principal Contractor should commit to appointing a community liaison manager, who will be the first line of response to resolve issues of concern or complaints.
- 5.3.3 Reasonable steps will be taken to engage with local residents during the Development. Occupiers of neighbouring properties will be informed in advance of works taking place. Site boards outlining information on the project and forthcoming works will be erected at the entrance to the Site. Site contact numbers will be displayed as appropriate, along with the complaints procedure.

Considerate Constructors Scheme (CCS)

- 5.3.4 The project will be required to register with the Considerate Constructors Scheme and comply with their Site Code of Considerate Practice which commits contractors to be considerate and good neighbours, as well as clean, respectful, safe, environmentally conscious, responsible and accountable. The Principal Contractor will be required to demonstrate their commitment and compliance with the scheme, both prior to appointment and throughout construction.

5.4 LOCAL ENVIRONMENTAL CONSIDERATIONS

- 5.4.1 Construction activity has the potential to cause nuisance, or even harm, from environmental disturbance such as noise, vibration and dust. Such issues are often a cause for concern to the Local Authority, the project's neighbours and the general public.
- 5.4.2 The full CLP will incorporate suitable and appropriate controls and procedures that shall be implemented to help prevent, monitor and react to these potential impacts and to comply with any planning conditions set.
- 5.4.3 At this preliminary stage, a selection of potential measures are summarised below.

Maintaining Road Cleanliness

- 5.4.4 Wheel washing and/or road sweeping will help maintain an adequate level of road cleanliness. Wheel washing is likely to be required during the groundworks/substructure phase and during construction of the frame of each block. Options for drive through wheel wash systems, or jetwashing in conjunction with wheel spinner units or grid and pit systems will be reviewed and an appropriate arrangement implemented.
- 5.4.5 A visiting roadsweeper service will be implemented at a suitable frequency to ensure the cleanliness of public roads adjacent to the site. This will be supplemented by the provision of a jet wash which may be deployed for spot cleaning but should not be seen as a substitute for a proper and thorough road cleanliness regime.

Dust Suppression

- 5.4.6 Trade Contractors will be required to employ specific dust minimisation and suppression measures when undertaking activities that will generate an unacceptable level of dust migration. Measures may include isolation, encapsulation, damping down, local dust extraction or any other appropriate measure.
- 5.4.7 Any road sweeping service and/or the jet wash provision may also be utilised to provide a general dust suppression function but will not relieve trades of their obligations to provide task specific controls.

Cleanliness of Site Perimeter

- 5.4.8 Hoarding/fencing and common areas of the site generally will be regularly inspected by the logistics team to help maintain the site's tidy image, including any required action (cleaning, graffiti removal, repairs and maintenance, etc.).

Spill Kits

- 5.4.9 Traffic management personnel shall be trained to respond to any fuel (or similar) spillages, should such an event occur. Spill kits shall be provided and placed in all locations assessed to have a spill risk so that they are readily available in the event of an incident.

Ecology

- 5.4.10 The habitats within the Site consist of largely built form of negligible nature conservation value, with the small areas of landscape planting comprising largely of non-native ornamental species, and are of no intrinsic ecological interest. Furthermore, the Site is not connected to any statutory and non-statutory nature conservation sites by functional habitats.
- 5.4.11 Scrub, amenity planting and limited trees do however offer some limited opportunities for nesting birds, it is therefore recommended that all tree felling/vegetation clearance on the Site be undertaken outside the breeding bird season i.e. between September and February, inclusive.
- 5.4.12 Measures proposed to protect the local ecology during construction works will be included within the full CLP, and should any ecological issues be identified during the course of development, consultation with the relevant statutory and advisory bodies such as Natural England (NE) and the EA will be undertaken.

6 FURTHER MITIGATION

6.1.1 This section outlines measures that will be considered for inclusion within the detailed CTMP in order to minimise the impact of construction traffic at the site.

6.1.2 Mitigation measures which will be considered are, but not limited to, the following:

- ⦿ All HGV construction traffic associated with the development will follow a proposed construction traffic access route and associated signage strategy;
- ⦿ HGV arrivals will be actively managed so that the arrival profile is spread out as far as possible throughout each day. This can be achieved by assigning drivers specific time slots for arrival at site and will be managed by communication between the site manager and the source company. Where possible, an HGV holding area will also be provided within the construction compound to allow HGV's to be called for departure on a gradual basis;
- ⦿ As far as possible, the shifts for construction workers will be scheduled to minimise the number of staff trips arriving and departing the site between the highway network peak periods of 07:00 - 09:00 and 16:00 - 18:00, and the resultant impact of construction workforce related traffic on the highway network;
- ⦿ The site access will allow all vehicles to enter the site in a forward direction. In the event that HGV's are required to reverse, a banksman will be in attendance at all times. As set out within the Health and Safety Executive (HSE) guidance, the banksman directing vehicle movements will be trained and authorised to do so. In addition, a sufficient sized turning circle will be provided within the site where practicable so that vehicles can turn without reversing;
- ⦿ In due course, the tracking of various construction vehicles (including any abnormal loads) will be provided to demonstrate the safe manoeuvring of construction vehicles accessing and egressing the site, and manoeuvring within the site for demolition and construction phases;
- ⦿ Lockers will be provided for on-site operatives to allow storage of tools to encourage any construction workers that stay locally during the week to use sustainable modes of travel. Details of any welfare facilities including changing rooms, showers and secure cycle storage will be detailed within the full CLP;
- ⦿ Information will be provided to construction workers on local suitable lodgings to avoid unnecessary long daily journeys to the construction site and encourage sustainable travel, and
- ⦿ The Principal Contractor will establish a method of regular public engagement that covers both prior to, and during construction works.

7 MANAGEMENT, MONITORING AND REVIEW

7.1.1 It is important to monitor the full CLP and check it is effectively minimising congestion, air pollution, noise and visual intrusion.

7.2 MANAGEMENT

7.2.1 The developer and their contractor will have responsibility for collecting data according to a schedule agreed between them and LBB and as set out within the full CLP. LBB will nominate a person to be the contact for ongoing monitoring.

7.2.2 Targets for the CTMP need to be SMART (specific, measureable, achievable, realistic, timely) and easily collected and interpreted. They should be agreed between the developer, the main contractor and LBWF, as should the indicators and data used to measure them.

7.3 MONITORING AND REVIEW

7.3.1 The detailed CTMP may need to identify any potential construction activities within the area scheduled to coincide with the project.

7.3.2 If applicable, all developments should share the results of predicted vehicular activities so that the associated contractors can identify the impact of each individual development, development phases, and the numbers and the types of vehicles in use. This will help to coordinate demolition and construction activities between neighbouring developments and ensure the combined impacts are minimised as far as possible. Online delivery booking and tracking systems could also provide detailed evidence about the number and type of delivery vehicles, and the efficiency and accuracy of the deliveries made.

7.3.3 The exact methods for gathering information will be agreed between the developer/main contractor and the LBB and discussed via either review meetings or a data sharing process.