

Camden Lock Village, Hawley Wharf

Buildings D / E

Construction Management Plan

Report Ref Building D / E

Rev 01 | 30 March 2015

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

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

Job number

Ove Arup & Partners Ltd
13 Fitzroy Street
London
W1T 4BQ
United Kingdom
www.arup.com

ARUP

Document Verification

ARUP

Job title		Buildings D / E		Job number	
Document title		Construction Management Plan		File reference	
Document ref		Report Ref Building D / E			
Revision	Date	Filename	Construction and Logistics Plan_		
Initial	16 th March 2015	Description	Initial Issue		
			Prepared by	Checked by	Approved by
		Name	M Handley / A Brownlie	A Brownlie	
		Signature			
01	30 th March 2015	Description	Client team comments		
			Prepared by	Checked by	Approved by
		Name	A Brownlie	A Brownlie	
		Signature			
		Filename			
		Description			
			Prepared by	Checked by	Approved by
		Name			
		Signature			
		Filename			
		Description			
			Prepared by	Checked by	Approved by
		Name			
		Signature			
Issue Document Verification with Document					<input checked="" type="checkbox"/>

Contents

	Page
1 Introduction	3
1.1 Basis of the report	3
2 Construction Programme	3
2.1 Introduction	3
3 Methodology	8
3.1 The site	8
3.2 Proposed Scope of Works	8
3.3 Early Works and Demolition	9
3.4 Sub-Structure	10
3.5 Super-Structure	11
3.6 External Envelope	12
3.7 Roof and Terrace Works	12
3.8 Internal Fit Out	13
3.9 Basement	13
3.10 Mechanical, Electrical and Plumbing Services	14
3.11 Testing, Commissioning and Handover	14
3.12 External Works	15
3.13 Working Hours	15
4 Construction logistics	16
4.1 Considerations and Constraints	16
4.2 Construction Traffic Routes	16
4.3 Operative Access	20
4.4 Construction Vehicle Trips	20
4.5 Deliveries & Collections	20
4.6 Waste & Site Cleanliness	21
4.7 Site Set-Up & Temporary Accommodation	22
4.8 Hoardings and Gates	22
4.9 Site Security	22
4.10 Good Neighbour Policy	23
5 Plant and Equipment	24
5.1 Access Scaffolding	24
5.2 Tower Crane	24
5.3 Plant & equipment	24
5.4 Potential Impacts During Construction	26

6	Noise & dust control / mitigation measures	28
6.1	Environmental Management Plan	29
7	Considerate Constructors Scheme	32
8	Site Layout	32

1 Introduction

1.1 Basis of the report

This Construction and Logistics Plan (CLP) has been prepared by Arup on behalf of Camden Lock Village in support of the Town & Country Planning application for the proposed development of 39-45 Kentish Town Road (Building E), London NW1 within the London Borough of Camden.

The report sets out a preliminary construction methodology along with an assumed site logistics strategy for the works.

The report supports the construction programme ARUP/OOP/001 and is based upon the following;

- Allford Hall Monaghan Morris Client Report November 2014.
- Site visits
- Previous experience from projects of a similar nature

The report is intended to establish the overall delivery and control procedures for the project during the construction phase.

It is assumed that the Principal Contractor (when appointed) will use this report as a basis for development, agreement and implementation of his own working logistics strategy.

2 Construction Programme

2.1 Introduction

We have reviewed the available information and have considered the site logistics associated with the construction activities to allow us to develop the construction programmes and an assumed outline build methodology.

The assumptions regarding methodology, access and logistics contained within this report attempts to describe assumptions made when formulating the programme. These are all subject to final agreement with the client team.

Whilst this application is specific to Building E the construction programme, methodology and logistics are based upon a single simultaneous build of both buildings D and E.

The overall Demolition & Construction programme has been calculated at 29 Months based on the design information available and the initial assumption that all works will be undertaken under a single construction contract.

We attach over the following pages;

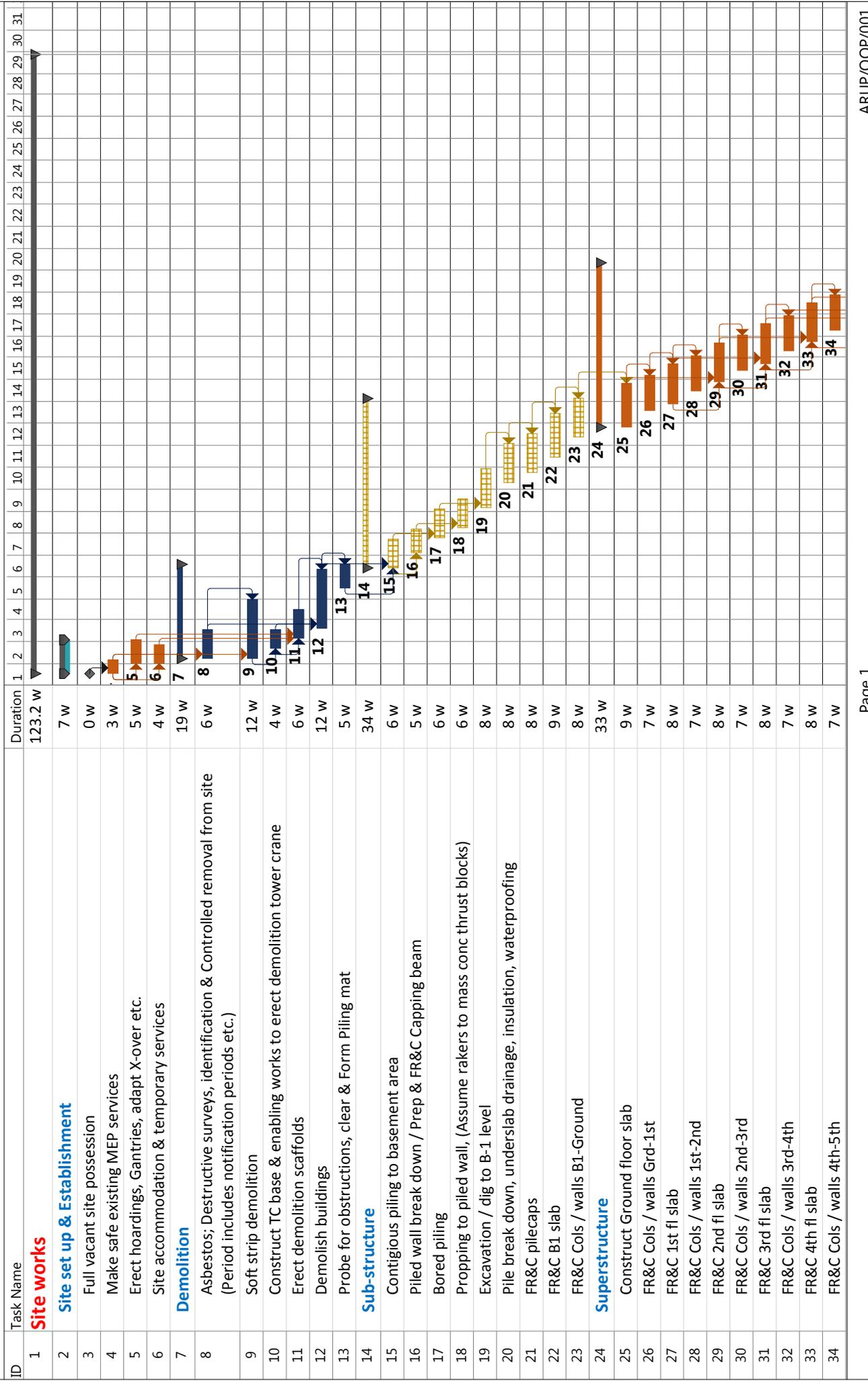
1. Level 1 (Summary) programme.

Area by area summarised bars, the durations of which are calculated by the level 3 detailed sub-networks that sit beneath them. This in turn generates the overall project duration.

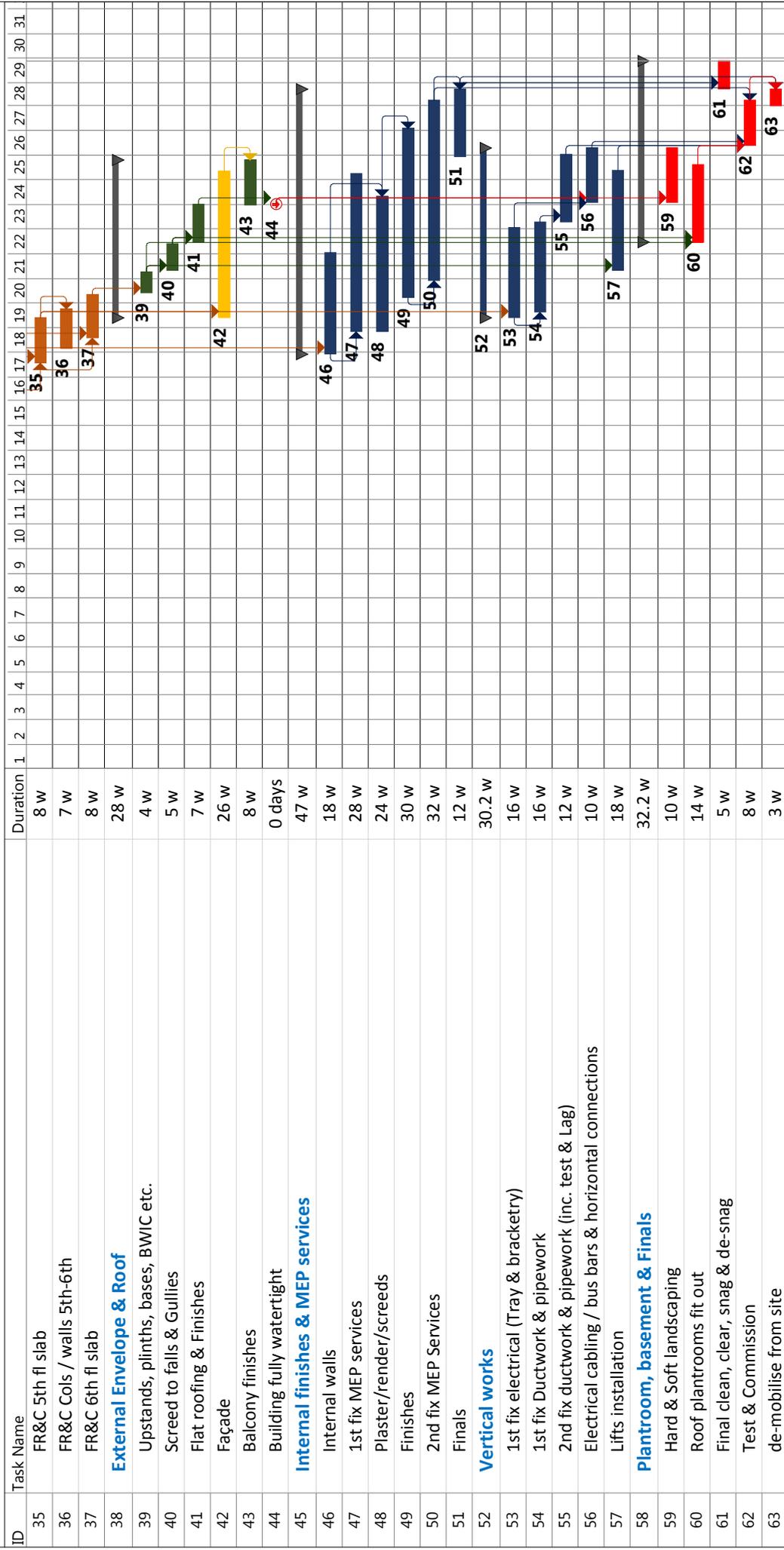
2. Level 2 Construction programme.

Area by area, trade by trade, interrelated detailed sub-networks that indicate assumed construction sequence and duration at a detailed level. These form the activity network which allows us to robustly calculate overall construction periods.

Camden Lock redevelopment - Area D/E
level 2 programme



Camden Lock redevelopment - Area D/E
level 2 programme



3 Methodology

3.1 The site

The site is located to the west side of Kentish Town Road and immediately to the north of the Regents Canal towpath and to the south of future site for Building D on the consented planning permission 2012/4628 (granted 23/01/13).

North of Building D is a railway line constructed on brick support arches with an access road between Building D and the brick arches.

At the west end of the development site is a market stall area that is the subject of future development.

3.2 Proposed Scope of Works

The scope of the works is to redevelop the area identified into a circa 4,119 m² (GEA) 6 storey building with a single basement for employment/retail use at basement and ground level and residential apartments above.

The scope of works is anticipated to be:

- Soft Strip and demolition of existing buildings on the footprint of the future Building D.
- Contiguous piled wall for the basement construction of Buildings D and E.
- Excavation and construction of new Reinforced concrete basement and cores.
- Reinforced concrete superstructure including cores.
- External cladding and windows appropriate for a residential scheme with terraces.
- Roof finishes including sedum roofs to upper levels.
- Fit-out of apartments and common areas.
- Shell fit-out to retail spaces (Building D only) including utility provisions for incoming operator to complete fit-out.
- MEPH (Mechanical, electrical & Public Health Services) installations throughout including new incoming utility supplies.
- Fit-out to residential areas, common & back of house areas at ground and basement.
- New Lifts.
- External works including remodelling access stairs from Kentish Town Road to Regents Canal towpath.

3.3 Early Works and Demolition

In order to facilitate the main demolition of the buildings currently on the footprint of the site, the following early works will be undertaken:

3.3.1 Enabling works

- It is possible that the existing buildings will have elements of asbestos material present. If so, this will need to be removed as an early works package by a specialist contractor and disposed of off-site to a licensed facility.
- All incoming utilities will be capped off at the boundaries.
- Any underground utilities crossing the site that will affect the basement construction will need to be identified at the earliest possible opportunity and be diverted.
- We are aware of presence of High Voltage electrical cables beneath the Regents Canal towpath and their exact position relative to the new basement will need to be checked and any diversion undertaken during this phase of the works.
- Internal soft strip of the buildings will be completed at this stage.

3.3.2 Demolition

For the proposed site layout please see our sketch SK003 on page 33.

For the demolition phase, it is likely that the contractor will undertake the following;

- We would expect that the contractor will erect a demolition tower crane on the site and that this would be located to the site in the current car park area.
- A fully protected independent access scaffold will need to be erected to the perimeter of the buildings that are to be demolished. The north and south elevations will be located within the development site boundary. The east elevation scaffold may require to be cantilevered above the current pavement line.
- The west side scaffold may be required to cantilever over the current market area.
- Demolition vehicle will access the site from the street through temporary site access gates and into the vacant area (future Building E), from here the vehicles will be loaded either by mechanical loaders or by the tower crane.
- Local basement areas within the existing building would be broken out and backfilled up to ground level for piling.
- If there are opportunities to re-use some/all of the demolition material within this site e.g. back-filling of the basement and piling mat construction then a 'crushing plant' could be temporarily located within the site for this purpose (Subject to agreement with LBC).

3.4 Sub-Structure

- Following completion of the demolition works and the construction of a piling mat across both Buildings D and E, piling operations could commence.
- It is anticipated that the piling to the perimeter will be of a contiguous type sited on the line of the new superstructure above and will have a cut-off level below basement slab level.
- The basement slab and cores will also be a bored pile solution with circa 1.2m diameter piles. These works will be piled from ground level with concreting only up to basement slab level and the tubes above then backfilled to ground level.
- We anticipate that two piling rigs would be used for the contiguous wall and bored piling operations and that these will be supported with handling cranes to position pre-formed steel bar reinforcement cages stored on the site.
- With the piling works to the walls, slab and cores complete the excavation would commence. It is anticipated that the excavation will be a traditional dig in “blue sky” conditions. With the depth of basement being a single level it is considered that minimal, if any temporary works will be required to support the contiguous piled wall during the excavation.
- It is likely that remedial works will be required to prevent water penetration through the contiguous piled wall, especially on the southern elevation. This would be undertaken progressively throughout the period.
- Vehicles would be brought onto the site from Kentish Town Road and onto the area of future Building E. Excavated material would be loaded into the vehicles for disposal off-site. The site access would be gradually ramped down as the excavation continues. The size of the area should enable a good flow of vehicles onto and off the site achieving an optimum programme period and minimising off site queuing of vehicles.
- At a point in the construction programme (Construction of Ground floor slab) the use of the access into the area of future Building E will be prohibitive to the construction process. At this stage the access/egress will move to the access road that runs alongside the railway arches. At this time it will be necessary to have agreed (with TfL & LBC) the relocation of the bus stop on Kentish Town Road, probably to a position north of the traffic lights.
- The excavation will continue to a level below the basement slab. When this is complete the central piles will be cut down to their cut-off level and pile caps formed.
- Under slab drainage will be installed followed by any anti-heave material, waterproofing layers and a concrete blinding layer.
- Indentations in the slab for lift pits, drainage pits etc. will be constructed.
- The slab reinforcement will then be laid and tied into the pits, pile caps and perimeter contiguous piled walls. Starter bars will be incorporated for the construction of the columns and core walls.
- The concrete for the slab will be poured in bays to form the basement slab.

- Traditional formwork solutions will be used to construct the basement slab to ground floor core walls. Shuttering will be positioned and cut-outs made for openings and reinforcement positioned and tied back to the basement slab starter bars.
- Concrete will then be poured into the shuttering and the cores constructed in stages.
- Basement to ground floor columns will also be constructed in this period with traditional or preformed shuttering.
- With the columns and core walls constructed the construction of the ground floor can be progressed.
- The contiguous piled wall will be cut down to a cut-off level and the capping beam constructed to the perimeter of the site.
- The ground floor slab will be constructed using traditional tables and formwork. The reinforcement will be laid on the formwork and tied into the capping beam, columns and core walls. Concrete will be poured in bays to construct the ground floor slab.
- The activities described above could be overlapped to optimise the programme.

3.5 Super-Structure

- It is assumed that the superstructure will be a reinforced concrete frame with flat slab solutions.
- As described above the construction of the RC cores will be progressed up the building and will use proprietary formwork solutions e.g. 'Peri' or 'Doka' which can be continually re-used as the core progresses upwards and with the cores being self-supporting no temporary works will be required other than some internal bracing. The staircases will be installed into the core as it progresses upwards to provide early vertical access.
- When the ground floor slab has been constructed the ground floor to first floor columns can be constructed using the formwork as described for the basement.
- With the columns in position and the cores sufficiently advanced the first floor slab can be constructed. This will be done similar to the ground floor slab using traditional table formwork methods. Back propping at basement level will be introduced as required.
- The superstructure construction will be progressed up the building to roof level as described above. The buildings set back at different levels and this will form part of the sequence of works.
- We have described above a traditional in-situ approach to the core and superstructure construction, however there are alternative solutions that include precast concrete elements. The cores could be constructed using precast twin wall concrete sections, precast columns could be utilised and floors could be precast slabs. The Principal Contractor will propose his preferred solutions and advise all relevant parties for their comment. The light

well extends from Level 01 to basement slab and this will be left open as part of the construction process.

3.6 External Envelope

- The envelope works for the building will commence as soon as the superstructure has progressed sufficiently to enable a safe and effective start for the envelope contractor.
- The external facades indicate a high level of glazing incorporated into a panellised skin which could be stone, terracotta or brick or a combination of solutions. Apartment doors will be required at each terrace area.
- Terracing, as part of the concrete structure is provided to the apartment levels and will have drainage, roof finishes and balustrading as part of the external solutions.
- The final design solutions for the individual elements will be dictating the final erection methods of the individual elements.
- The solutions that may be adopted for the erection process are:
 - External full height scaffold.
 - Mast climbing solutions.
 - Tower crane or gantry crane arrangements.
 - On-floor Mechanical Elevated Working Platforms (MEWPs)
 - The specialist contractor for these works will advise his most appropriate solution and submit full details including any temporary works calculations.

3.7 Roof and Terrace Works

The roof and terrace works include:

- A green (sedum)/wild flower roof area on Levels 05 and 06.
- Paved roof areas at higher levels.
- A MEP plant room on the higher level roof are anticipated.
- Terraced areas to the roof of Level 1 and to apartments at each level.
- Balustrading and/or latch way systems to the roof perimeters.
- Roof lighting.
- Roof waterproofing systems will be applied once the roof slab has been poured and cured in order to achieve a watertight environment at the earliest. Rainwater outlets will be positioned by the roofing contractor for connection to the rainwater system by the plumbing contractor.
- General roof finishes e.g. paving and/or shingle and insulation will be applied at the appropriate time.

- The green roof systems will be laid at the appropriate time towards the end of the project.
- The roof plant room will be formed and bases provided for the positioning of the chiller plant and equipment.
- Balustrading and/or latch way systems will be installed at the appropriate time to ensure safety of operatives working on the roof areas.
- Lighting to the open roof areas and terracing will be installed by the electrical contractor.

3.8 Internal Fit Out

- When the floor slabs become available the initial fit out activities can commence with those works not weather dependent e.g. blockwork, pipework, cable trays etc. As the building becomes watertight the other fit out activities will commence including dry lining, ceilings, joinery and ironmongery, floor finishes, MEP installations and decorations.
- These works will be sequenced to achieve an optimum programme, efficient flow of the works and progress up the building.
- The lift installation will commence once the lift shafts are completed and waterproof.
- Within building D; the retail units at ground floor will be completed to a 'shell' state with incoming services terminated at the boundary. The operators will be given access at the appropriate time to undertake fit-out works.
- The employment usage spaces will be fitted-out to the appropriate level agreed with incoming tenants or as a speculative area.

3.9 Basement

The basement is identified as accommodating:

- Employment Space.
- Cycle parking, shower and toilet areas.
- MEP plant rooms.
- Waterproofing membranes will be applied to the contiguous piled walls and it is anticipated that a block work skin wall will be erected to provide a drained cavity wall solution for the basement.
- Blockwork walls will be constructed to provide the demarcation of the main spaces.
- Glazing to the light well will be constructed at the appropriate time.
- The additional means of escape stairway will be constructed in the south east corner with a blockwork wall and steel/in-situ staircase.
- Doors, ironmongery, fit out of designated spaces and decorations will follow as the areas become available.

3.10 Mechanical, Electrical and Plumbing Services

It is anticipated that with a development of this nature the building will be fully serviced including:

- Boilers and LTHW distribution system.
 - CHP subject to Local Authority requirements.
 - Chillers and chilled water distribution system.
 - Air systems and smoke control requirements.
 - Air conditioning for individual apartments.
 - Domestic Cold tanks and water installation system.
 - Hot water system generated in each individual apartment.
 - Rainwater system.
 - Foul drainage system.
 - LV electrical incoming service and LV small power and lighting distribution system.
 - Emergency lighting system.
 - Fire Alarm system.
 - CCTV and security installation system.
 - Access control system.
 - Data installations and high connectivity provision.
- The installations will commence as spaces become available and works not requiring a waterproof environment will start including bracketry, soil and vent pipework, rainwater pipework, LTHW and chilled water pipework, ductwork and cable trays.
 - Central plant will be delivered and positioned as the rooms/spaces become available. Chillers will likely to be located on the roof and tower cranes will be used for off-loading and positioning.
 - As the building becomes waterproof and other fit out works progress the weather dependent installations will progress throughout the building.
 - The new incoming utility supplies will be planned to be made available for the various commissioning requirements.
 - If a UKPN substation is to be located on the development these works need to be progressed from an early stage to ensure the power is available at the appropriate time.

3.11 Testing, Commissioning and Handover

- The individual mechanical and electrical systems will be progressively tested as sections of the installation become completed.

- When individual systems become completed then mechanical water systems can be flushed, cleaned and balanced and air systems can be blown through and balanced.
- Electrical system point to point integrity testing can be undertaken.
- With the completion of the individual system testing and balancing and the central plant being commissioned then the integrated building commissioning can be progressed to provide a dynamic conditioned building and all Building Control requirements fulfilled.
- We include in our programme a period of building running under automatic control when the systems can be presented for witnessing by the professional team and demonstrations can be undertaken to the local authority for their sign-off.
- The Health and Safety File including the Operation and Maintenance manuals will be provided and utilised as part of the Client Training requirements.
- Completion will not be deemed to have been met without these documents being in place.
- Building inspections will be undertaken by the Client's team as part of the handover process and the contractors required to undertake remedial works to an extent that enables handover to be granted.
- Building Control are fundamental to occupation and they will be required to undertake their inspections and witnessing as part of the completion process.

3.12 External Works

- The external works will be progressed towards the end of the project and will include:
 - Modifications to the access staircase from Kentish Town Road to the Regents Canal towpath.
 - Realigning and remediation to the interface of the towpath with the site.
 - General external finishes to the site.
 - External finishes and realignment with the footpath on Kentish Town Road.

3.13 Working Hours

The working hours for the construction activities will be in line with the requirements of the control of pollution act 1974, Part III, section 60, namely;

- | | |
|-----------------------------------|------------------------------|
| • Monday to Friday | 8.00 am to 6.00 pm |
| • Saturday | 8.00 am to 1.00pm |
| • Sunday and Bank Holidays | (normally) No working |

- Consideration should be given to early and late deliveries and collections to reduce any traffic congestion during the peak periods, subject to agreement with TfL and / or London Borough of Camden.
- Where working is required outside of the above hours due to unforeseen circumstances or planned work that can only occur outside of the core hours e.g. road closure requirements, then these will be undertaken following communication with the Local Authority and local residents /businesses advising the reasons for the work, likely impact, if any, and estimated time to start and complete the work.
- All vehicles must be registered and operated in line with the requirements of the TfL FORS scheme.

4 Construction logistics

4.1 Considerations and Constraints

In establishing a logistics strategy have considered the following local conditions:

- Local adjacent occupants including offices, hotels, residential, retail and other amenities.
- Party wall considerations.
- Regents Canal towpath and waterways authority.
- Major thoroughfare to the east of the project.
- HV cable network below Regents Canal towpath.
- Requirements of London Borough of Camden.
- Other construction projects.
- Local traffic conditions.

4.2 Construction Traffic Routes

The only vehicle access into the site will be from Kentish Town Road. The initial site access (from start of works until commencement of superstructures) should be into the centre of the site through the existing drop kerb facility / out of use access gates. This access is sufficiently far south not to impact the current bus Stop sited below the railway bridge. As the works progress and the new buildings commence, it will be necessary to relocate the site access to a new point. There is a current access into the site which is adjacent to the railway bridge. It is proposed that the later site access would be relocated here. In order for this to operate successfully it would be necessary that the current bus stop below the railway bridge is temporarily relocated and propose it is positioned north of the traffic lights. Discussions and agreements will need to take place with TfL and LBC at the appropriate time.

There may be an opportunity to re-open the central access point during the middle phases of the works subject to Ground to 1st floor slab to slab heights and loading of the ground floor slab. This will be investigated as the design develops.

Kentish Town Road is two-way at the entry/exit points of the site and vehicles accessing the site will approach from both ways.

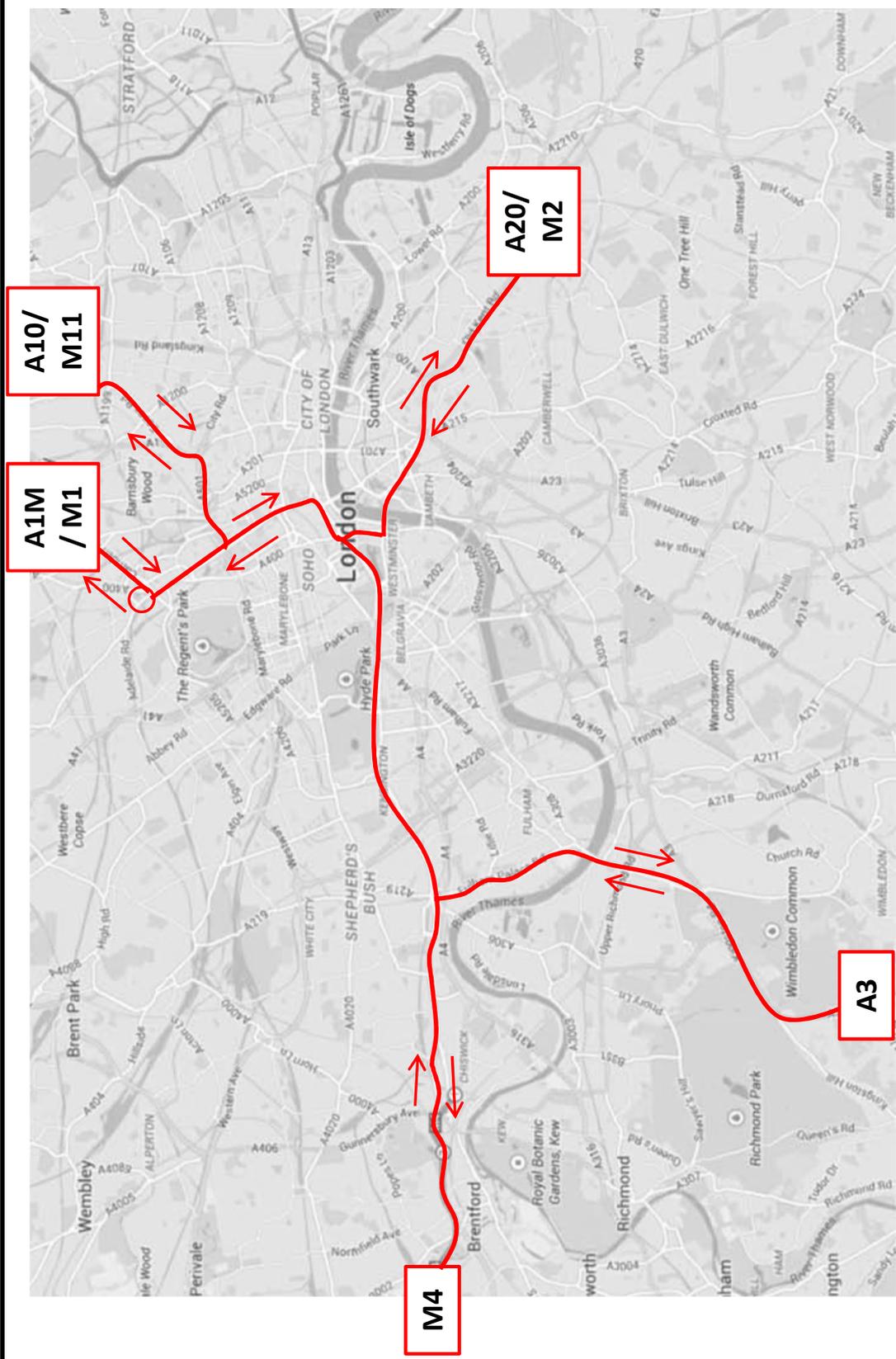
It is proposed that all vehicles that require access to the site from the south, west and east will do so via the Marylebone Road (A501), they will turn from the Marylebone Road at the junction of Hampstead Road (A400) and Tottenham Court Road onto Hampstead Road. This road is north bound and vehicles will travel up Hampstead Road and join on to Camden High Street (A400) and at the junction with Camden Town Underground Station vehicles will take the right hand fork on to Kentish Town Road and on to the site on the left hand side.

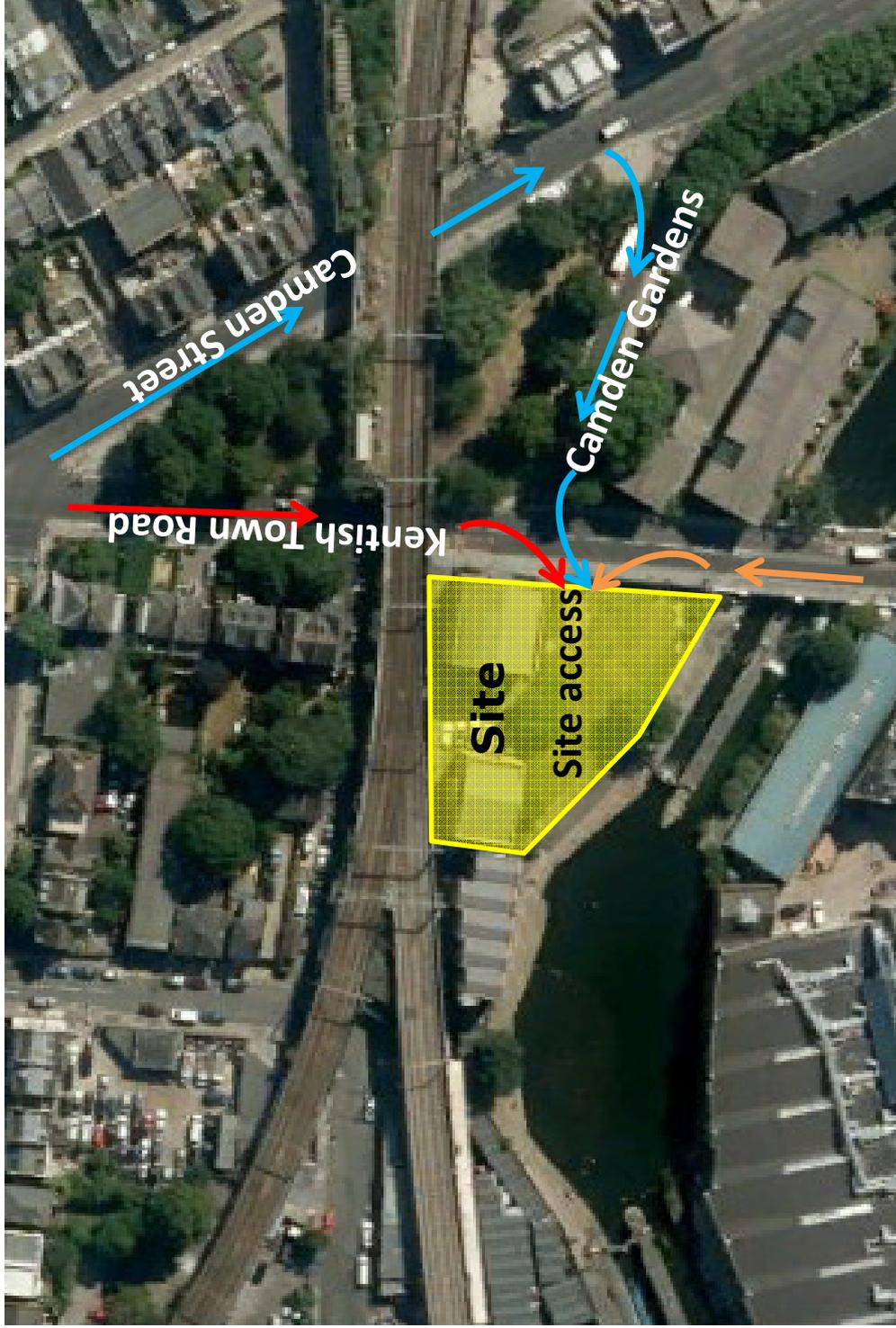
Vehicles leaving the site will turn right and head south and at the traffic lights turn right into Hawley Crescent. At the junction with Camden High Street vehicles will turn right and head north, at the junction below the railway bridge vehicles will turn right onto Hawley Road. This will lead to the junction with Kentish Town Road where vehicles can travel straight over onto Camden Street and head south. Vehicles will cross Crowndale Road and onto Oakley Square, cross Eversholt Street and onto Lidlington Place which leads into Hampstead Road going south. This leads back to the junction with the Marylebone Road enabling vehicles to travel east, south or west for their destinations.

Vehicles accessing the site from the north will do so via Archway Road (A1) and is linked to the North Circular, M1 and A1 and all routes north.

At the Archway Road major junction at Archway underground station vehicles will leave Archway and enter Junction Road (A400), this leads directly south and onto Kentish Town Road where the site is on the right hand side. Kentish Town Road and Junction Road is two-way and so the return journey north is back along these roads to the Archway junction and back onto Archway Road enabling vehicles to return north.

See sketches SK001 (Macro site access routes) & SK002 (Local site access routes) overleaf.





Camden Lock Village – Buildings D & E

Date: 30-03-15

Drawn: AJB

Title: Local site access routes

Ref: PL/SK002 Rev 00

ARUP

4.3 Operative Access

The number of construction workers on-site at any one time will depend on the different phases of the development. It is estimated that during the peak period of construction activity there will be around **100 operatives** on site. There will be no on-site parking provided for construction worker vehicles.

A large proportion of roads in London Borough of Camden in this vicinity are within controlled parking zones and the only legal on-street parking is for permit holders or in pay and display bays. Strict parking controls and enforcement will ensure on-street parking by construction workers is prevented.

As a result it is anticipated that the majority of construction workers will travel to the site by public transport i.e. underground at Camden Town on the Northern line or local buses and personnel will be given detailed information on travel options.

Construction activities and access by construction workers will be included in a Construction Management Plan submitted for approval as part of the planning condition.

4.4 Construction Vehicle Trips

The peak period for construction deliveries will be during the envelope, basement and fit-out periods where we would anticipate that a daily delivery level of the following would apply;

- **Small vehicles (Vans, cars etc.)** - **15 No. per day**
- **Large axled vehicles** - **40 No. per day**
- **Large articulated wagons** - **6 No. per day**

The peak period of vehicles will be during the basement excavation when at peak approximately **55 vehicles** could be using the site.

4.5 Deliveries & Collections

As identified earlier there are two points of entry onto the site one used in the early phases of the works (and possibly during the middle phases) towards the centre of the site on Kentish Town Road and the other at the latter stages towards the north of the site and adjacent to the railway arches.

Kentish Town Road whilst two way is not wide and so opportunities for off-loading on the kerb side are limited and wherever possible vehicles will be brought into the site boundary for off-loading or collections.

The northern access is particularly constrained and vehicles are likely to require to be reversed into site from this loading point. Strict control will therefore be implemented with Marshalls positioned on the road to manage the traffic and assist in manoeuvring the vehicles in and out of the site.

In addition, it will be necessary to prevent any build-up of vehicles trying to access or egress the site at any one time. The Logistics organisation will be required to implement a strict web based system of vehicle control with all

vehicles provided with a dedicated time slot for accessing the site. Ad-hoc arrivals will be turned away.

A location(s) where vehicles can park up for short periods will be identified in assisting the flow of vehicles to the site.

Major deliveries to site e.g. tower cranes, site accommodation, MEP plant and equipment will require special measures including possible road closures. These will be undertaken by discussion with London Borough of Camden and all procedures followed with notices issued within agreed timescales.

Wheel wash facilities will be positioned at the exit points to prevent site mud and dust being trafficked onto the highway. Additionally, and as a matter of standard practice all dust generating activities will be hosed / watered down at source to ensure the effects are properly controlled.

4.6 Waste & Site Cleanliness

The demolition contractor will be fully responsible for removal of his demolition material and general waste from the site during the duration of his works.

The materials will be removed via the vacant space of Building E.

Similarly the excavation materials from the basement will be removed from the site by the excavation contractor and likewise materials from the piling operations will be removed by these contractors.

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

As the construction develops the Principal Contractor will organise a central position for skips these initially will be on the Building E site but as the project develops a position towards the west end of the access road will be used. This will enable them to stay in this position during the daytime allowing access for other vehicles and for the skip wagons to change over the skips at the start of the working day.

A logistics organisation will be engaged to manage the overall waste removal requirements.

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

Larger items of waste will be deposited directly into the skips.

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

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

The Principal Contractor will be encouraged to adopt systems and procedures that minimise waste on site, this will include combining deliveries to reduce packaging, delivery vehicles taking away their own packaging etc.

A Waste Management Plan will be provided by the Principal Contractor for comment and approval by all relevant parties.

4.7 Site Set-Up & Temporary Accommodation

It is proposed to locate the site accommodation initially on the gantry over the Regents Canal towpath. A scaffold gantry will be erected over the towpath with a secure walkway maintained below. This will have lighting and regular escape positions along its length.

The current access stairs from Kentish Town Road to the towpath is proposed to be closed for the duration of the works which includes the redevelopment of this staircase and the addition of a cycle gully. Signage will be provided advising users of alternative access arrangements.

Discussions will be held with the appropriate Waterways Authority to formalise this proposal.

The accommodation will cater for the following:

- Principal Contractor management offices
- Meeting rooms
- Client and design team office space, if required.
- Welfare facilities including canteen and kitchen, changing and drying rooms, toilets and showers.
- Sub-contractor office space. (These will be located elsewhere within the building as the project develops)

Towards the latter stages of the project when the external works are to be progressed the accommodation will relocate into the ground floor area of the site.

4.8 Hoardings and Gates

The site will be fully hoarded to 3 sides of the site, the east, south and west with the railway arches creating the security to the north side.

The hoarding to the south adjacent to the Regents Canal towpath will be integrated with the temporary accommodation gantry to endeavour to maintain access to the gantry from within the site.

Vehicle gates will be provided on Kentish Town Road for both of the site access positions identified.

A personnel access gate will be provided from the towpath for operative and management use.

All gates will be permanently manned during periods of use.

4.9 Site Security

The site security for the project will be in operation from the outset. Initially it will be manned during the working hours and extend either side of the working

day by approximately 1 hour. As the project develops and the work extends the security will increase to a 24 hour/7 day operation.

We would anticipate that the security function would provide;

- Security control on the site for all operatives accessing and egressing the works. A specific controlled entrance will be incorporated in the hoarding to enable all personnel entering and leaving the site to be monitored.
- Control of vehicles accessing and egressing the site. A security point will be established at entry/exit point to check all vehicles.
- Implement and operate an electronic system of booking in vehicle deliveries to the site and refusing access to the site those vehicles not booked in.
- Site induction courses, under the control of the Principal Contractor, and issuing of security passes.
- Controlling visitor access to the site.
- Site patrols including inspection of hot works permit areas.
- Issuing permits, as directed by the Principal Contractor.
- Monitoring CCTV installations as progressively installed.
- Manage the temporary fire alarm system when installed and assist the Principal Contractor in keeping the system up to date and undertaking fire drills.
- Maintain fire signage throughout the work areas and details of site muster points in the case of evacuation.
- First line of communication for the general public and emergency services.

4.10 Good Neighbour Policy

The Principal Contractor will be required to implement a Good Neighbour Policy and provide his proposals with his tender.

The Principal Contractor will be required to nominate a senior member of his team as a point of contact for all communications from the local community and adjacent construction projects. His name and contact number will be clearly displayed on the project sign board.

News letters will be regularly produced and distributed to the local community notifying them of progress of the works and key activities to be undertaken during the next period.

Opportunities for community meetings will be offered to the local residents if and when the need arises.

The Principal Contractor will be required to participate in any London Borough of Camden initiatives with regards to construction vehicles travelling into and out of the borough and to ensure all of his sub-contractors are enrolled into the scheme.

5 Plant and Equipment

5.1 Access Scaffolding

Scaffolding and debris netting will initially be required for the demolition phase and the elevations will be suitably covered to minimise dust, noise and general nuisance during this activity.

The scaffolding will be removed for the construction of the concrete frame.

The requirements for the erection of the external envelope will depend on the final design solutions which could include scaffold however it is anticipated that other arrangements including the use of tower cranes, mast climbers or specialised on-floor equipment will be considered.

5.2 Tower Crane

Tower cranes will be required throughout the course of the works.

1 No. crane is anticipated during the demolition phase of the project.

During the construction phases 2 tower cranes are anticipated. Vertical Access and Hoisting

Vertical access will be required to both supplement the tower crane and be the main point of distribution during the later phases of the works.

Towards the end of the project there will be the opportunity to bring the permanent lifts into early beneficial use with suitable in-car protection.

5.3 Plant & equipment

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

Table 1: SUMMARY OF VEHICLE TYPE, USE AND DISTRIBUTION		
Vehicle Type	Use	Distribution
Rigid Heavy Goods Vehicle	Excavated material Removal	Strategic road network to motorway
Small Articulated Vehicle	Plant, steel bar, bricks and cladding panels	Strategic road network to motorway
Specialised Articulated HGV	Tower crane erection & dismantle, Mechanical & electrical Plant, Cladding panels. Roofing materials	Strategic road network to motorway

Specialised Equipment Low loader	Occasional Delivery of Plant	Strategic road network to motorway
Vans	Plant service, materials, other Suppliers. Existing tenants deliveries	Distributed to local and strategic network
Cars	Occasional deliveries, Couriers etc.	Distributed to local and strategic road network

Table 2: ESTIMATED TYPES OF PLANT AND EQUIPMENT FOR DEMOLITION & CONSTRUCTION

Plant	Demolition	Substructure	Superstructure	Fit out
Excavators / with hydraulic cutting shears	√	√		
Rotary Bored piling rigs		√		
Excavators	√	√		
Compressors	√	√	√	√
Muck away lorries	√	√		
Goods hoist	√	√	√	√
Tower crane	√	√	√	
Mobile concrete pump		√	√	
General waste skips	√	√	√	√
Power tools	√	√	√	√
Delivery vehicles	√	√	√	√
Forklifts	√	√	√	√
Scaffold access platforms	√	√	√	
Mobile towers	√	√	√	√

5.4 Potential Impacts During Construction

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

Table 3: POTENTIAL IMPACTS AND HEADLINE MITIGATION MEASURES DURING DEMOLITION AND CONSTRUCTION		
Issue	Potential Impacts	Mitigation
Noise	Increased road noise levels from vehicles. Increased noise levels from plant during excavation, piling and general construction works (e.g. from the use of air compressors and diamond cutters).	Defined working hours, baffles to certain plant, local acoustic screening. Vehicle routing. Beepers, radios etc. to be silenced. Engines turned off and all measures outlined in the considerate constructors scheme.
Vibration	Increased vibration levels from vehicles. Increased vibration levels from plant during demolition, piling and general construction works. Defined working hours. Selection of appropriate plant and work procedures.	Phased deliveries to minimise numbers of vehicles attending site, Vehicle routing. Engines to be switched off when vehicles are idle or on site
Dust / Air Quality	Windblown dust from ground surfaces, stockpiles, vehicles, work faces and cutting and grinding of materials. Exhaust emissions from lorries and plant delivering and removing materials including dust and particulates.	Cover all open backed vehicles, ‘water down’ demolition activities; switch off vehicle engines when parked.
Waste	Waste generation and its disposal.	Instigate Site Waste Management Plan and recycling programme
Water	Increased sediment loadings to storm water system. Potentially contaminated storm-water runoff.	Do not allow direct discharge of water into sewerage collection system.
Traffic	Traffic congestion caused by site traffic. Local traffic diversions will be required for tower crane erection and dismantle and mobile crane lifts.	Phased deliveries to minimise numbers of vehicles attending site, switch off vehicle engines

	<p>Increased vehicle movements mainly consisting of Heavy Goods Vehicles (HGVs).</p> <p>Nominal levels of transfer of mud and material from vehicles onto the public highway.</p> <p>Disruption from abnormal or hazardous loads.</p> <p>Exhaust emissions.</p>	<p>when parked, minimise abnormal loads.</p> <p>Vehicle routing.</p>
Storage of fuels and construction materials	<p>Accidental spills, discharges to drains/storm-water systems.</p> <p>Contamination to ground.</p>	<p>All fuel tanks etc. to be bunded, no discharge allowed into the sewerage collection system.</p>
Pedestrian access	<p>Restrictions on pedestrian access to walkways, footpaths and roads.</p>	<p>Erect protective gantries / pedestrian tunnels over footways.</p>
Hazardous and contaminated materials	<p>Exposure of the workforce to deleterious / hazardous materials and contaminated land, mobilisation of any source contaminants and creation of pathway from source to groundwater receptor.</p>	<p>Site investigation reports to indicate if any contaminated fill is present.</p> <p>COSHH assessments and careful implementation of associated working method statements to ensure that no hazardous materials find a path to groundwater source.</p>
Ecology	<p>Water / mud run off into the drains.</p>	<p>Do not allow direct discharge of water into sewerage collection system, utilise interceptors where necessary.</p>
Energy usage	<p>Indirect impacts associated with energy consumption such as CO2 emissions, depletion of natural resources, air pollution etc.</p>	<p>Site environmental plan to implement.</p>
Views	<p>Views impacted and/ or impeded from construction equipment, particularly cranes.</p>	<p>Tower crane to be positioned to have minimal impact upon adjacent views</p>

6 Noise & dust control / mitigation measures

Control of noise & dust generation will be of paramount importance to the contractor and the local residents whilst carrying out the works.

The contractor will adopt industry accepted practical means of preventing, reducing and minimising noise generation and these will be adopted in agreement with the London Borough of Camden.

Management of Noise, Vibration and Dust

- The potential for construction related noise, vibration and dust effects have been duly taken into consideration as detailed within Chapter 12: Air Quality and Chapter 13: Noise and Vibration of this ES. A full assessment of activities with the potential to generate high levels of noise, vibration or dust has been undertaken and mitigation measures proposed.
- It is likely that some receptors would be particularly vulnerable to noise during the demolition and construction phases. Consequently, further and more detailed information on the likely noise levels would be provided in the EMP or Section 61 application, which would include the following information:
 - Noise predictions during the demolition and construction phase;
 - Noise and vibration control measures;
 - Complaints response procedure; and
 - Community liaison processes.
- The document would also outline the different procedures to be undertaken in order to complete the various works. Individual trade contracts will incorporate requirements for environmental control, based on good working practice, such as careful programming, resource, adhering to health and safety legislation and quality management procedures. In this way, all those involved with the demolition and construction phase will be committed to adopt the agreed best practice and environmentally sound methods.
- All contractors would at all times apply the principle of Best Practicable Means (BPM) as defined in Section 72 of the Control of Pollution Act 1974.
- A contact number which the public may use would be displayed prominently on the Site board and any noise complaints will be logged and immediately investigated.
- Control measures would be implemented and monitored via the EMP or Section 61, if the Applicant pursues this latter route. However, the above measures would be revisited as information becomes available regarding the demolition and construction processes and plant details. Where necessary and practicable, mitigation measures would be recommended and agreed with LBH to ensure the effects of demolition and construction noise and vibration are minimised.
- In terms of air quality and potential effects of dust, a number of mitigation methods following the London Council Best Practice Guidance (Ref. 5-2)

should be implemented, as appropriate including avoiding locating machinery, fuel and chemical storage and dust generating activities close to boundaries and sensitive receptors where possible, erecting solid barriers around the site boundary, vehicles carrying dusty materials being securely covered before leaving the site, all dusty activities should be dampened down, especially during dry weather and a policy for no burning of any material anywhere on-site.

- If at any time during the demolition and construction phases an incident leads to excessive levels of dust deposition at residential locations then this should be reported to the Environmental Health Department at

6.1 Environmental Management Plan

The commitments made within the ES would be incorporated into an Environmental Management Plan (EMP), which would include roles and responsibilities, detail on control measures and activities to be undertaken to minimise environmental impact, and monitoring and record-keeping requirements. A commitment would be made to periodically review the EMP and undertake regular environmental audits of its implementation during the construction phase of the Proposed Development.

Each EMP should include the following information:

Site information:

- Location of the works, including a site plan, showing construction site boundaries, position of plant and any sensitive receptors e.g. retained trees, water courses, local residents etc.
- Detailed management structure and key contacts (such as the appointed Site Environmental Manager, the Environmental Health Officer at the LBC and contacts at the Environment Agency and Highways Agency in the event of an emergency)
- Procedures for environmental training of all permanent site staff, temporary staff will be covered within the 'Toolbox Talks', a series of training sessions relating to specific health and safety issues relating to the construction industry

Construction information:

- A description of the works to be undertaken and a detailed programme of the construction activities
- Proposed working hours during construction, including any abnormal hours;
- Details of the main haulage routes and site access points
- Road closure requirements

- Proposed dates and sequence of the works
- Equipment and plant to be used (including type, make and expected number)
- Method of delivery/removal of materials and plant

Environmental Management:

- An internal environmental audit programme, e.g. ISO 14001 or details of policies specific to the applicants
- An Environmental Risk Register and associated procedures, which show how environmental risks will be addressed for each activity
- Schedule of potential significant environmental effects relating to each activity (based on the significant effects identified in the ES)
- Procedure for neighbourhood liaison and dealing with complaints
- Measures to exclude the public from the vicinity of the site during construction and ensure maintenance of public safety
- Measures to reduce visual impact and maintain a tidy construction site
- Arrangements for the removal of contaminated material, where appropriate
- Arrangements for the storage of raw materials on-site (including potentially contaminative material such as fuels)
- Waste segregation, storage and removal arrangements (reference to be made to the Site Waste Management Plan)
- Measures to be followed to minimise noise, dust and vibration levels during demolition and construction, including limited to be complied with for certain activities (such as piling), as appropriate
- Any specific management plan relating to archaeology, ecology, landscape, lighting and noise
- Measures to deal with waste water generated during construction activities, including dewatering, to minimise the risk of potentially contaminative material entering the local drainage network
- Emergency procedures to be followed in the event of an environmental incident (e.g. spillage)

Monitoring:

- Monitoring requirements and procedures for recording and reporting the results and for taking remedial action in the event of a non-compliance with specified limits (if appropriate)
- Monitoring proposals, which should include details on the receptors for which monitoring will be undertaken; frequency of monitoring; factors against which the monitoring results will be analysed; threshold levels; speed at which results will be analysed; list of organisations/individuals to whom results will be distributed; and actions to be taken in the event that thresholds are breached

- Procedures for monitoring construction processes against the project environmental objectives and for the appropriate action if thresholds have been breached
- Procedures for co-ordinating the monitoring results to ensure that the combined effect of the works in different locations does not trigger threshold levels

Legal requirements:

- Schedule of appropriate environmental legislation and good practice that will be adhered to, which is both current at the time of contract and which may come into force during the course of the contract
- A list of specific objectives and targets that have been imposed by planning conditions and agreed in consultation with third parties
- A register of permissions and consents required, with responsibilities allocated and a programme for obtaining them
- The EMP will be regularly monitored during the construction works and revised to reflect any changes to programme or events and activities on-site

Neighbour and Public Relations

- A key aspect of the successful management of the project would be the maintenance of good relations with Site neighbours and the general public, as well as future occupiers of the Site (who occupy completed earlier phases of the Proposed Development, whilst other later phases are still being finalised). The project team is already engaged in consultation with a broad range of stakeholders and this will continue through the various phases of the project.

Local residents and business owners and would be invited to liaison meetings prior to commencement of works on-site. In order to keep the general public informed about the development, appropriate signage and information boards would be displayed on Site hoardings. This would include contact details for the Site and general construction information. A clear point of contact would be provided to deal with any queries and provide immediate response to any issues raised. It is also proposed that periodic meetings would be held on Site to explain the works anticipated for the forthcoming month and how these will impact upon our neighbours.

Management of Trade Contractors

- Individual contractor contracts would incorporate relevant requirements in respect of environmental control, based largely on the standard of 'good working practice' as outlined within the EMP, as well as statutory requirements. All trade contractors would be required to demonstrate how

they will adhere to procedures set out within the EMP satisfying regulations and best practices regarding environmental control

7 Considerate Constructors Scheme

The principal Contractor will be required to register with the scheme and comply with all of its requirements in full.

8 Site Layout

Attached on the following page

