

**STAMFORD
BRIDGE
GROUNDS**



**DETAILED
PLANNING
APPLICATION**

LBHF JULY 2016

REVISED OUTLINE CONSTRUCTION AND LOGISTICS PLAN

VERSION CONTROL

Version	Date	Author	Changes
D1	22th July 2015	MJJ	-
D2	23 rd July 2015	MJJ	-
D3	8 th September 2015	MJJ	EIA team comments addressed
D4	18 th September 2015	MJJ	HdM comments addressed
D5	29 th September 2015	MJJ	-
D6	22 nd October 2015	MJJ	AECOM/MHC comments addressed
Final	27 th October 2015	MJJ	AECOM comments and histogram addressed
Final 2	27 th June 2016	AH	LBHF/TFL/RBKC comments addressed

CONTENTS

1.0 Introduction

2.0 Response using the LBHF proforma questions

1.0 Introduction

The Outline Construction Logistics Plan (OCLP) has been prepared by Arcadis LLP (formerly EC Harris LLP) on behalf of Fordstam Limited and concerns the proposed redevelopment of the Stamford Bridge Stadium and surrounding land. It gives the Planning Authority an overview of the logistics activity during the construction project. A detailed Construction and Logistics Plan (CLP) will be prepared at the post planning permission stage which will develop the principles of this proposal in to a detailed operational plan, providing specific information about how the construction logistics will be managed and organised.

The OCLP identifies the following key issues in terms of constructing the works and includes outline measures which look to resolve any associated effects:-

- Undertaking demolition of ancillary buildings adjacent the stadium during the last season of use
- Decking platform over the rail and underground lines adjacent to the site
- Disposing of a large volume of excavated material off site
- Co-ordinating the impact of deliveries and removal of waste material on the road network.

These issues will be developed further by Fordstam Ltd with the appointed main contractor for the project in due course, and the solutions to be adopted will be incorporated into the CLP.

For a project of this size and complexity with several distinct phases of work it will be a project requirement that the appointed main contractor will have a proven and dedicated logistics team that will complement the construction team for the project. The logistics team will be led by an experienced manager who is conversant with the challenges associated with construction material delivery management in and around the city of London and with experience and knowledge of the requirements of London Underground and Network Rail. The developed CLP and the exact implementation of the plan will become the responsibility of the appointed logistics manager.

The OCLP has been further developed to respond to the commentary provided by both LBHF and TFL, and other requests for information received during the consultation process, following the planning application submission dated 19th November 2015. This document replaces the previous OCLP submitted with the original planning application.

The document has been structured to respond to the questions within the London Borough of Hammersmith and Fulham's Construction Logistics Plan proforma and is cognisant of the Transport for London Construction Logistics Plan guidance (For Developers).

2.0 Outline Construction Logistics Plan – questions from the LBHF proforma

Construction logistic plan period;

Construction period July 2017 to July 2021.

Site Address

Q1. What is the full postal address?

Stamford Bridge Grounds,
Fulham Road,
London
SW6 1HS

Q2. Please provide contact details for the person responsible for submitting the Outline Construction Logistics Plan?

Martin Jennings
Partner
Arcadis LLP
martin.jennings@arcadis.com

Other contacts;
Ellen Freegard, Arcadis
ellen.freegard@arcadis.com

STAMFORD BRIDGE
A New Stadium For Chelsea Football Club

LEGEND

1. Stadium Bowl	2. Seating Bowl	3. Existing Buildings	4. Existing Roads	5. Existing Parking	6. Existing Landscaping
7. New Buildings	8. New Roads	9. New Parking	10. New Landscaping	11. New Fencing	12. New Gates

NOTES

1. The stadium bowl is shown in red. The seating bowl is shown in blue. The existing buildings are shown in grey. The existing roads are shown in black. The existing parking is shown in white. The existing landscaping is shown in green. The new buildings are shown in red. The new roads are shown in red. The new parking is shown in red. The new landscaping is shown in green. The new fencing is shown in red. The new gates are shown in red.

SCALE

1:1000

DATE

10/10/01

PROJECT NAME

Stamford Bridge Stadium Redevelopment

DESIGNED BY

Site Location Plan - Existing Situation

DATE

10/10/01

The works comprise the demolition of the existing stadium along with the Chelsea Village buildings and the construction of a new 60,000 capacity football stadium including construction of structures in the form of a decking platform over sections of the District Line railway to the north and the West London Line railway to the east to provide an enlarged concourse area, and associated infrastructure on the site of the existing Stamford Bridge stadium. Disruption to the operation of each rail line will be mitigated by utilising planned NR and LUL possessions and engineering hours. The rail decking platform construction programme requires 8 nr possessions for each rail deck. These possessions will take place over a series of weekends and will commence at midnight on a Friday evening and complete at 4am on a Monday morning. Additionally, engineering hours (used by NR and LUL for routine maintenance) will be utilised for the loading of plant, equipment and materials and these activities will take place between midnight and 5am across the duration of the works.

To minimise the increase in height of the new stadium, the stadium will incorporate basement levels. This will result in the removal of circa (320,000m³) of excavated material from site.

3

REDEVELOPMENT OF STAMFORD BRIDGE GROUNDS
 OUTLINE CONSTRUCTION LOGISTICS PLAN – Final 2 (27th June 2016)

the design and approval process with Network Rail and LUL. During these works it will be necessary to secure a stadium safety licence for each and every event. The appropriate phasing plans, hoarding plans, crowd loading requirements and static calculations for egress will be provided to the Licensing Officer for approval. Inspections prior to each event will be undertaken between the Licensing Officer, Chelsea Stadium Safety Officer and the contractors' representative to confirm that an event licence can be issued and the construction works will not affect supporter safety.

Once the Club vacates Stamford Bridge the existing stands will be demolished and the site will be reduced in level with a new piled basement being created. These works will run from June 2018 to December 2019.

The stadium structure is a combination of in-situ and precast concrete. The roof structure is predominately structural steelwork with perimeter concrete piers which are clad with brickwork. The superstructure will largely be completed by October 2020.

Fitting out, external works and final installation and commissioning of services occupy the final months of the construction period, along with laying the football pitch. The completion date for the stadium is planned for 20th July 2021.

Programme/Key dates

Q4. Please supply a broad brush programme and total timescale for the project giving the duration of each major phase of the construction and the anticipated start date if known?

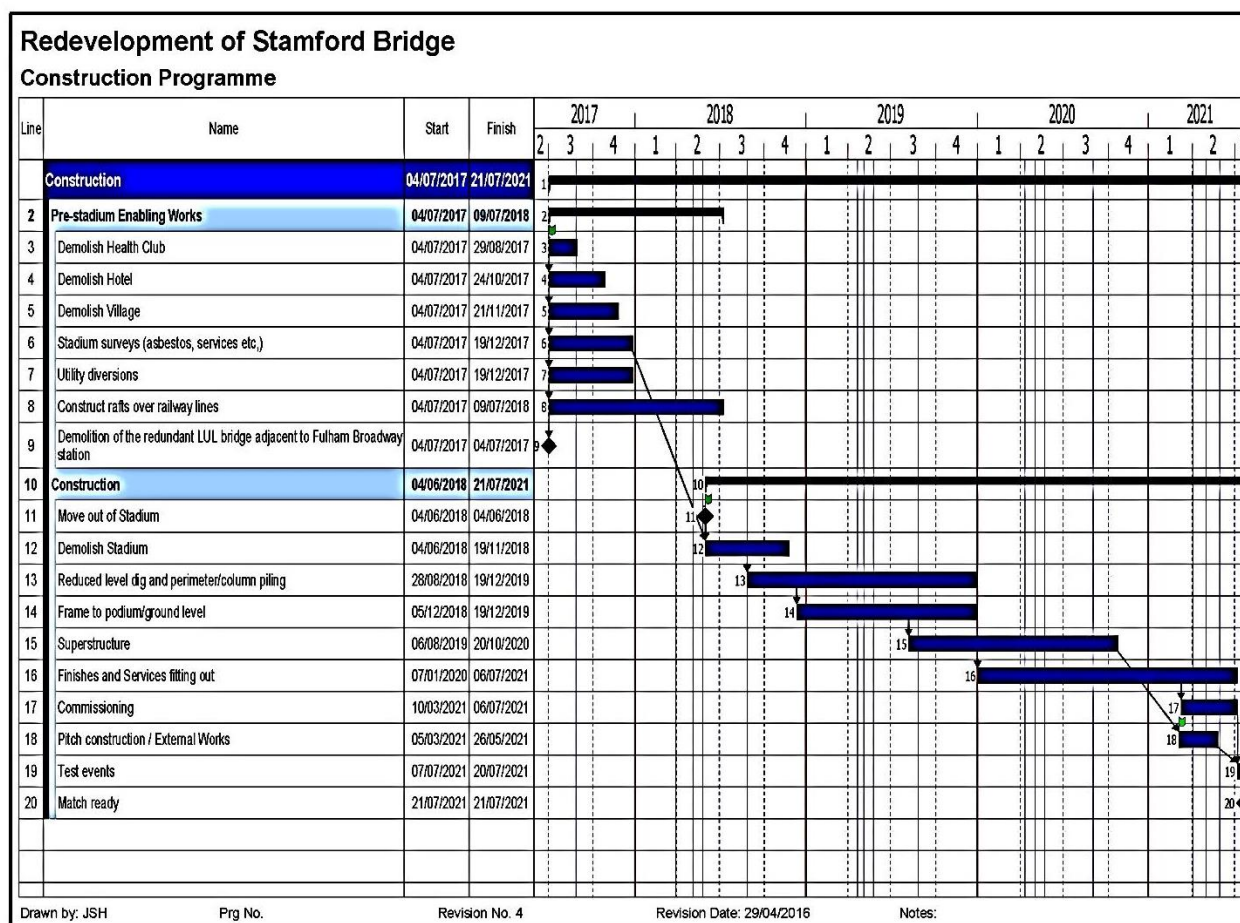


Figure 2 – Redevelopment of Stamford Bridge summary construction programme

The construction works are anticipated to be carried out between July 2017 and July 2021 (as shown in figure 2) in four construction stages consisting of:-

- Enabling works – July 2017 to July 2018:
 - Demolition of health club, hotel and village
 - Survey works for services and building contaminants
 - Utility diversion works
 - Works to construct decking over the adjacent railway lines including the demolition of the redundant bridge over the District line adjacent to Sir Oswald Stoll Mansions and Fulham Broadway station

- Stadium Demolition and Reduce Level Excavation – June 2018 to December 2019
 - Decant to alternative stadium
 - Demolition of the existing stadium
 - Reduced level excavation and sub-structure works

- Stadium Superstructure and Roof Structure – Aug 2019 to October 2020
 - Concrete frame commencing from podium level
 - Superstructure and envelope

- Fitting Out, Commissioning and External Works – January 2020 to July 2021
 - Services and fitting out
 - Commissioning
 - Pitch construction/external works
 - Test events and match ready

We have scheduled below the main construction activities and associated quantities.

Construction stage	Construction activity	Assessed major quantities	
		Materials disposed of off site	Materials Delivered to site
Stage 1	Demolition of health club, Millennium hotel and Chelsea Village	20,880m ³ * crushed material disposed off site for re-use 5220 tonnes of structural steel recycled off site	
Stage 1	Piling for rail decks		Steel sheet piles = 3,948 tonnes Bored concrete piles = 12,576m ³ concrete
Stage 1	Reinforced concrete to form rail decks		14,615m ³ concrete
Stage 2	Demolition of the existing stadium	14,400 tonnes of structural steelwork recycled off site 57,600m ³ * crushed material partly re-used on site	
Stage 2	Reduced level excavation to form stadium basement	320,000m ³ * excavated material disposed off site	
Stage 2	Piling to stadium foundations		Bored concrete piles = 29,747m ³ concrete
Stage 2	Reinforced concrete to form basement structure		55,658m ³ concrete
Stage 3	Reinforced concrete to form stadium superstructure		27,149m ³ concrete 26,880m ² precast terrace units
Stage 3	Structural steel roof structure		6,308 tonnes
Stage 3	Facade cladding		52,572m ² roof cladding 18,819m ² curtain walling
Stage 4	External works		7,268m ³ concrete deck slabs 28,182m ² hard landscaping paving

Figure 3 – Summary of main construction activities and associated quantities

The quantities identified with an asterisk are net quantities and a bulking factor has been calculated in order to determine the number of construction vehicles required.

Construction stage 1

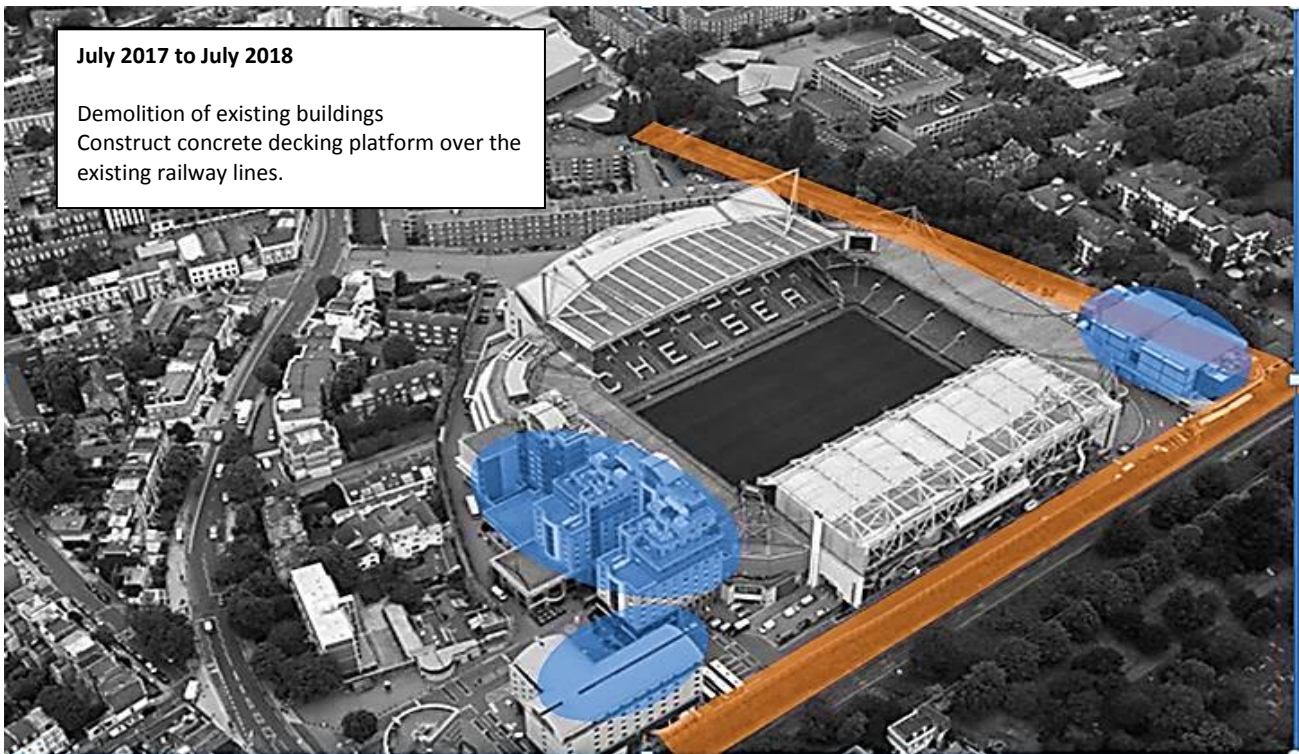


Figure 4 – Construction stage 1 enabling works

Construction stage 2



Figure 5 – Construction stage 2 demolition of the existing stadium and reduced level excavation

Construction stage 3

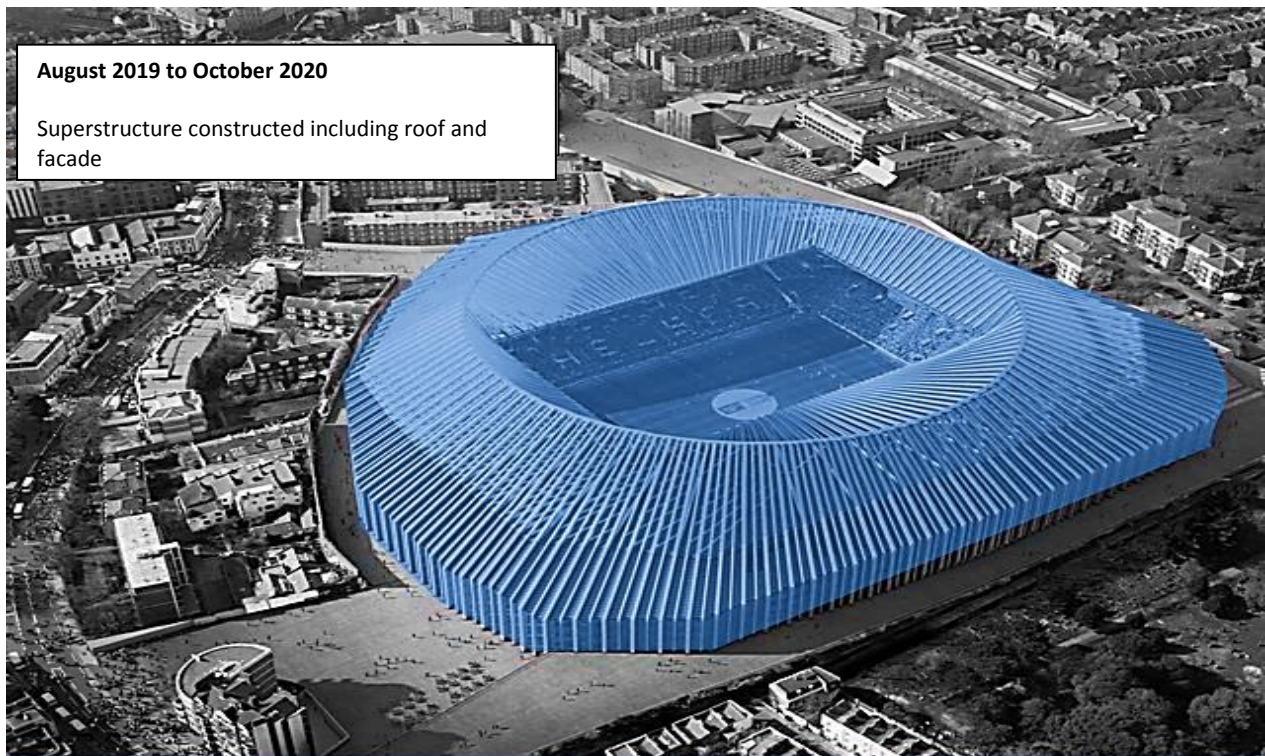


Figure 6 – Construction stage 3 stadium superstructure and roof structure

Construction stage 4

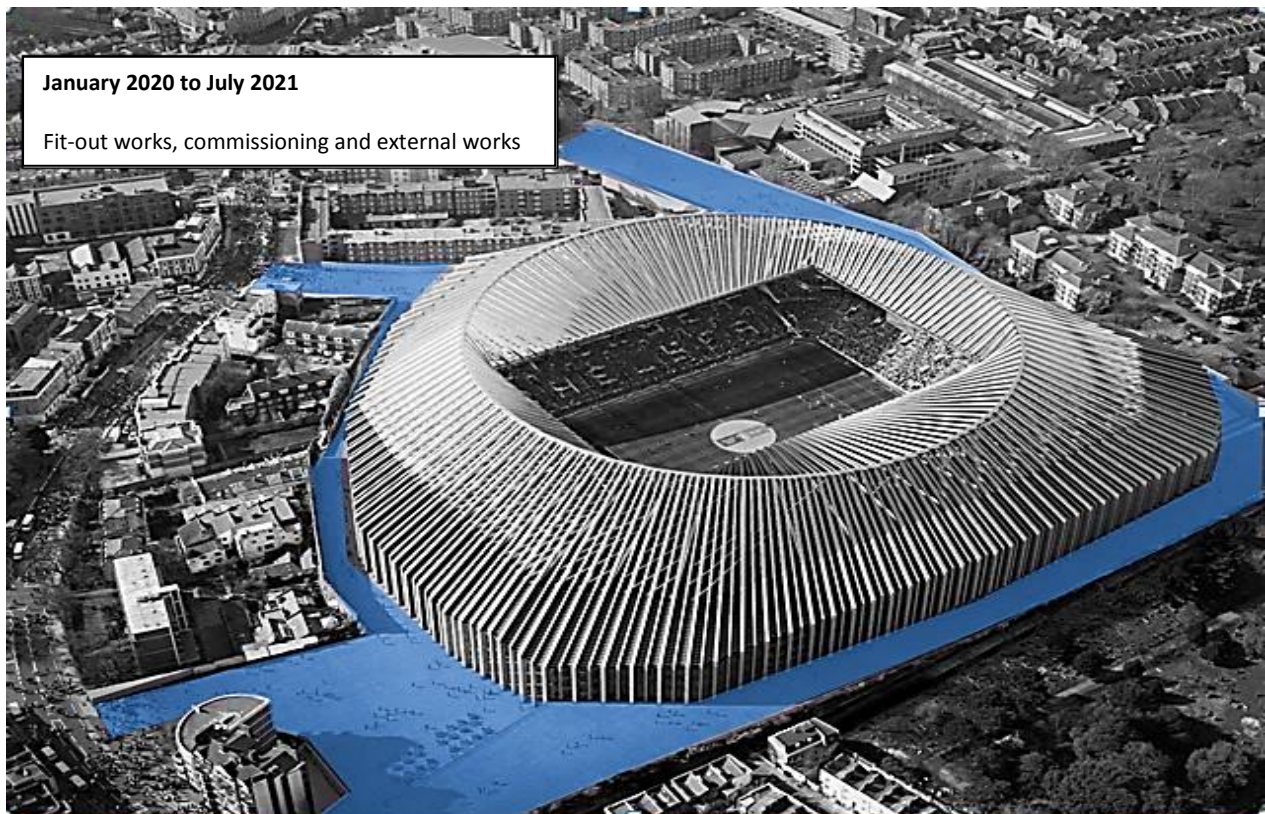


Figure 7 – Construction stage 4 fitting-out works, commissioning and external works

Q5. What are the days and hours of site operation?

The site will be working during the following hours;

Monday to Friday – 08.00 to 18.00 hours

Saturday – 08.00 to 13.00 hours

(Subject to half an hour both before and after the stated times for opening and closing the site)

Routeing of demolition, excavation and construction vehicles

Q6. Please describe the proposed supply route to and from the site, showing details of links to the strategic road network (A and B roads)? Alternatively, a plan may be submitted.

The OCLP proposes four main delivery routes, with two to the north of the site and two to the south of the site. The routes selected have been reviewed to confirm that there are no height/weight restrictions that prohibit them and swept path analysis has been undertaken at key junctions and is enclosed for information.

The A4 and A3 are main trunk roads that serve the area from the north and south respectively.

The first route from the north is from the A4 which then connects with the A219 Fulham Palace Road, and then this links with the A304 Fulham Road. The A304 Fulham Road passes adjacent to the site immediately to the south where the two existing access/egress points are located.

The second route from the north is again from the A4 and this time it joins the A3220 which then connects with the A304 Fulham Road crossing Stamford Bridge to the south east of the site.

From the south the A3 connects with the A214 Wandsworth Bridge Road, and then joins with the B318 which merges with the A304 Fulham Road to the south west of the site.

The second route from the south from the A3 uses the A219 Putney High St and crosses Putney Bridge before joining with the A304 Fulham Road which again approaches the site from the south west.

Utilising the above four routes will enable the appointed contractor to manage all delivery vehicles in an effective way such that the impact on the local network is minimised as far as is practicable.

Construction traffic to/from the north and west (A4) has been routed via Fulham Palace Road and Fulham Road. This avoids use of North End Road which hosts a street market six days a week and which consequently experiences congestion and narrow lanes during construction hours. Fulham Palace Road has multiple lanes for much of its length, and the intersection with Fulham Road by means of a mini roundabout can be negotiated by large vehicles. Both roads carry large volumes of buses and so are of sufficient width.

As an alternative approach from the north and west the A3220 / A4 has been identified. The A3220 provides high-capacity access from the A40 Westway and thus represents a suitable route while also minimising interaction with pedestrians and local traffic. However, it is noted that this route would require use of Stamford Bridge, immediately east of the stadium. Network Rail has now confirmed that the weight restriction of 7.5T is no longer in existence.

From the south and south-west, approaches via both Putney Bridge and Wandsworth Bridge have been identified. Traffic from the south (A214) can avoid built-up areas via this route, and traffic from the south-west (A3) can also avoid the centre of Putney by proceeding as far as Wandsworth gyratory and then north. A bypass to the 4.3m height restriction is also provided. The LBHF-RBKC Bi-borough Network Management Team have confirmed that there are number of committed construction projects in the area of Wandsworth Bridge; as such vehicles may travel via Putney High Street and then follow the route along Fulham Road as an alternative.

REDEVELOPMENT OF STAMFORD BRIDGE GROUNDS
OUTLINE CONSTRUCTION LOGISTICS PLAN – Final 2 (27th June 2016)

The viability of utilising alternative modes of transport to support the construction of the stadium and minimise the effect on the local highway network have also been considered as follows;

Rail freight - A similar exercise was prepared for the Earl's Court project by Fordstam's traffic consultant WSP and this demonstrated that rail was not viable for that project. Similar constraints exist on the Stamford Bridge site and in addition a suitable siding adjacent to the site would be required to effectively reduce construction vehicles entering the local highway network as a rail head that is not on the site would require materials to be transferred in vehicles using the local highway network. The space necessary to construct an operational siding is not available adjacent to the stadium. Furthermore, the design of the stadium incorporates a deck slab over the West London Line.

River freight - The nearest loading dock is situated south of the river by Wandsworth Bridge. Road vehicles would then be required to transport materials and goods from the loading dock to and from the site and as a consequence the impact of vehicles on the local highway network would remain unaffected.

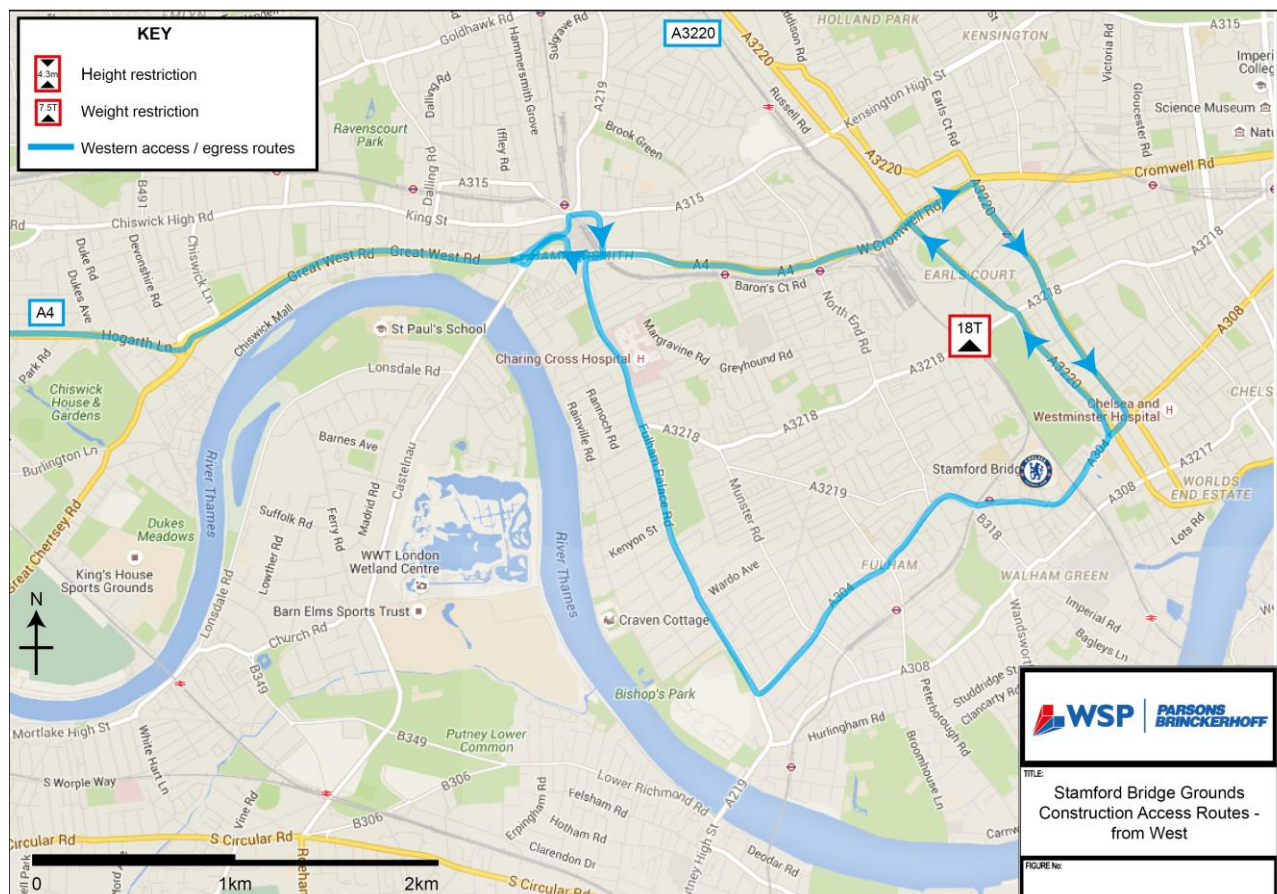


Figure 8 – Access routes from the north and west

REDEVELOPMENT OF STAMFORD BRIDGE GROUNDS
OUTLINE CONSTRUCTION LOGISTICS PLAN – Final 2 (27th June 2016)

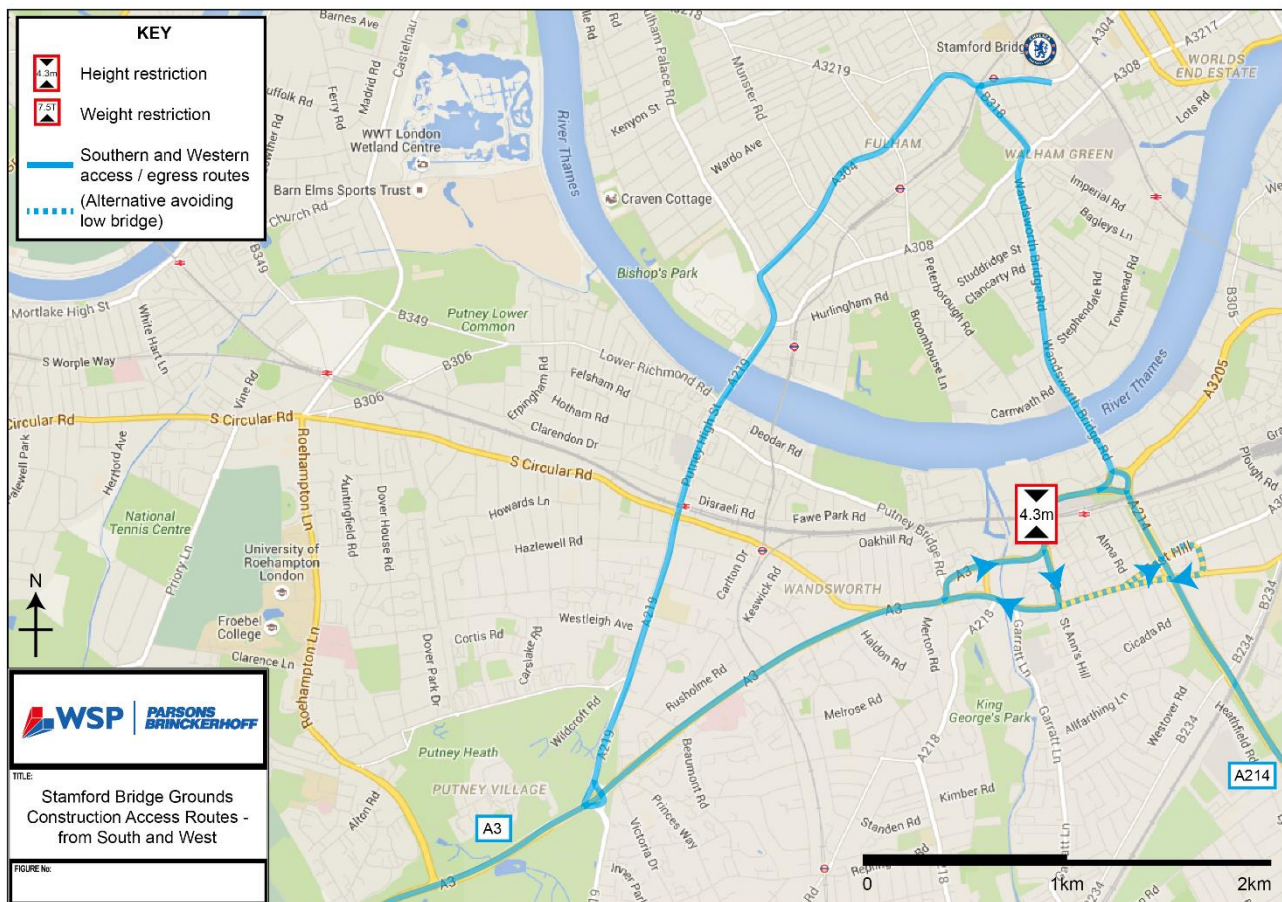


Figure 9 – Access routes from the south and west

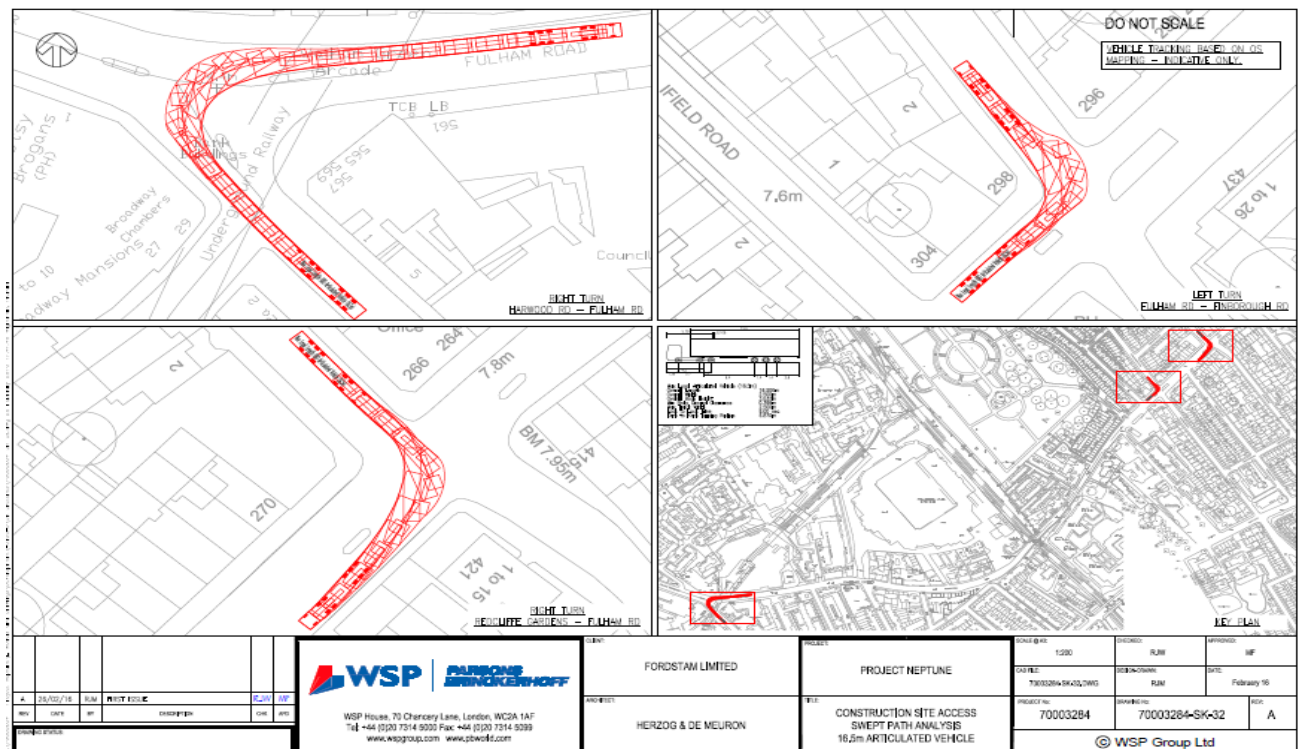


Figure 10 – Swept path analysis of main road junctions to Fulham Road

Q7. How will contractors, delivery companies and visitors be made aware of the route (to and from the site) and of on-site restrictions, prior to undertaking the journey?

All pertinent information relating to the approved routes to and from the site along with site restrictions will form part of the tender documents that are issued to the main contractor and subsequently will form part of the main contract documentation. Similarly, this information will be incorporated in to the tender documents for all sub-contractors and will form part of the sub-contract agreements.

The main contractor will ensure that these requirements will be reviewed again with all appointed sub-contractors as part of the pre-start meetings.

In addition, the main contractor will be instructed to utilise a web based material delivery system and the specified delivery routes will be available to download by each supplier.

Site Access

Q8. Please supply an accurate (to scale) site plan showing all points of access and where materials, skips and plant will be stored, and how vehicles will access the site?

The sketch and photographic image below defines the two main access and egress points from Fulham Road. During the demolition and rail deck phase these entrances will provide level access to the site. During the stadium construction works following completion of the bulk excavation work to form the basement, ramped access will be constructed to gain access to the site at the two entrances from Fulham Road. The new rail deck constructed over the District Line at the north corner of the site will become an emergency access point once it has been constructed. The pitch area which is circa 5m below the current pitch level will be used as the main turning area for delivery vehicles and main storage area for materials. It is anticipated that all materials will delivered to site on a just in time basis and there will be no materials stored off site within the local area.

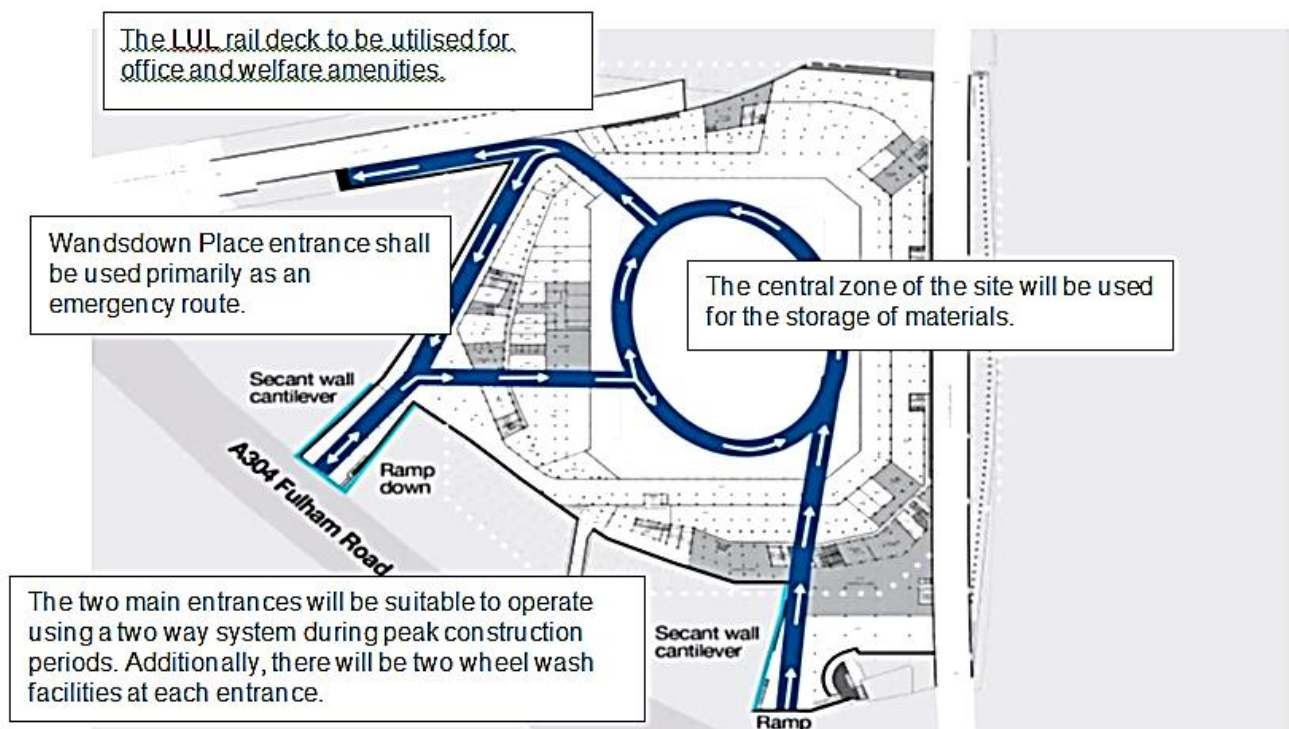


Figure 11 – Site access locations, office and welfare and material storage site



Figure 12 – Proposed site access/egress from Fulham Road

Q9. How will vehicles enter and leave site?

During each stage of the works there will be two main access/egress points to the site. The first entrance is from Fulham Road and is located at the south west zone of the site adjacent to the Stoll Building. The second entrance is also from Fulham Road and is located on the south east zone of the site between the Stamford Gate House and the Village Court Apartments.

During each stage of the works a one-way system will be operated on the site so that vehicles will not be required to reverse off the site and on to the adjacent highway.

The two main entrances will be able to operate as a two way traffic system during peak construction periods. Additionally, there will be two wheel wash facilities at each entrance to manage vehicle numbers during peak construction periods. Both entrance points will be gated and numbered, and will be manned. This will ensure that all vehicles arriving at the site pull off the road to prevent disruption to the highway. The web based delivery system will be operated to prevent multiple vehicles arriving at the site simultaneously. In the event that numerous vehicles will be required to wait for delivery/collection the one way access route on the site itself will be used to stack vehicles safely and hence minimise disruption to the highway.

Gates will be numbered to ensure that vehicle drivers are aware of their entry point. Traffic marshals on the gates will manage pedestrians at crossing points and direct vehicles on and off site. For vehicles leaving the site, traffic marshals will access the traffic flow and release construction vehicles on to the highway at a suitable time to minimise disruption to other road users.

It will be a project requirement that all delivery companies shall adhere to the Construction Logistic and Cyclist Safety (CLOCS) vehicle standard. This is a significant initiative in an endeavour to reduce the risk to cyclists using the highway network.

WSP have prepared the following swept path analysis to confirm the suitability of the two access/egress points to the site.

REDEVELOPMENT OF STAMFORD BRIDGE GROUNDS
OUTLINE CONSTRUCTION LOGISTICS PLAN – Final 2 (27th June 2016)

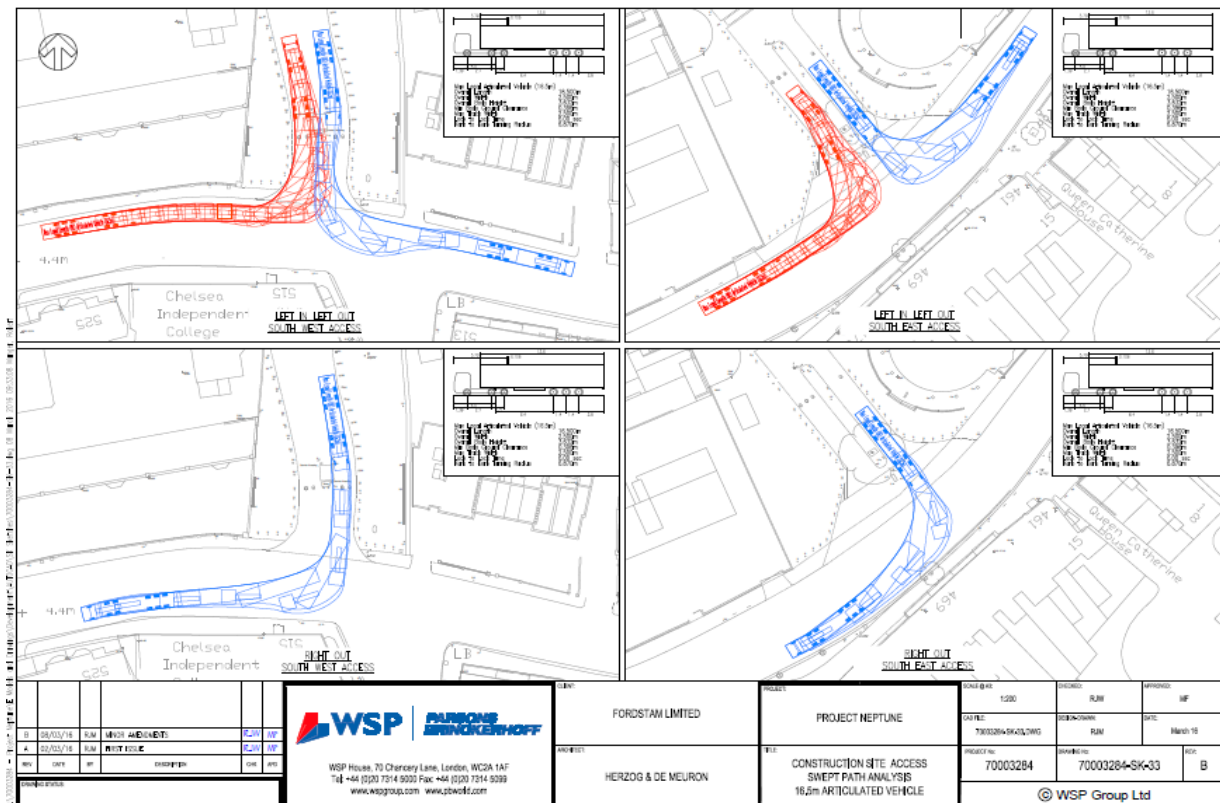


Figure 13 – Swept path analysis access/egress of vehicles from the site to Fulham Road

Demolition/rail decking platform works

- During this phase of works the stadium will remain operational. The main contractor will control access on to the site as described above. The main contractor will liaise with the football club to integrate stadium operation deliveries with construction deliveries. The gate system will be decommissioned prior to a football event and then reinstated after the football event has finished.

Stadium construction

- The access and egress to the stadium will be provided through the construction of two ramps at the south west and south east zones of the site in the location defined within figures 11 and 12 above. Vehicles will utilise the area designated as the playing surface for unloading and as a turning area to drive back out of the stadium. Again, a one way system will be operated.

Q10. If delivery vehicles cannot access the site where will they wait to load/unload?

All deliveries will be managed through the web-based delivery system which will prescribe each delivery vehicle with a specified time of arrival thus preventing several vehicles arriving at the site simultaneously.

The main contractor will have a dedicated logistic manager responsible for the effective management of deliveries. In the event of an unplanned situation occurring the logistics manager and team will have an agreed contingency plan to implement and these will include;

The system will manage circumstances such as vehicles delayed on route and arriving after the allotted time by either stacking vehicles on site using the haul road, or delaying the arrival of a delivery by using the off-site designated temporary parking facility or ultimately cancelling a number of deliveries and rescheduling them.

All vehicles will be loaded and unloaded within the site confines and there is no requirement to unload vehicles parked on Fulham Road.

Figure 14 below identifies potential locations for temporary off-site parking as part of the contingency planning;



Figure 14 – Temporary off-site parking locations

Vehicles accessing the site per day/week

Q11. Provide a breakdown of the number, type, size and weight of vehicles accessing site?

The largest vehicles accessing site on a regular basis will be 40ft (12m) articulated lorry, however, there may be the necessity on occasion that abnormal load vehicles will be used. The CLP will identify when abnormal vehicle loads are required and the appropriate applications will be made to the local authority. For the purpose of this OCLP advice from specialist contractors' has been provided regarding the number and type of construction vehicles expected to be used during the construction of the works. The CLP will determine the specific number, size, type and weight of all vehicles that will be used during the construction of the project.

Figure 15 below quantifies the anticipated number of vehicles per month for the period of the construction works;

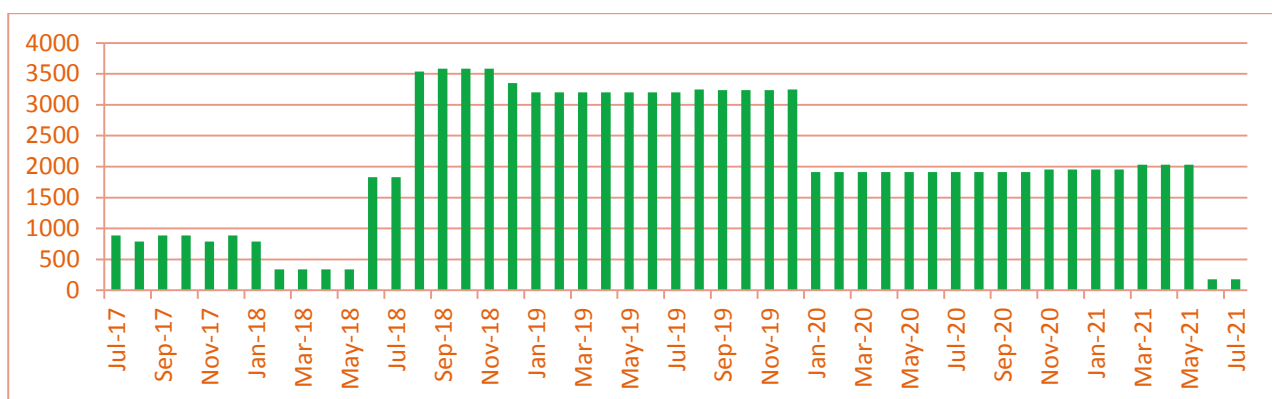


Figure 15 – Construction vehicles per month

The daily vehicle numbers are calculated by using the following factors: 4.33 weeks per month and 5.5 working days per week. The peak vehicle numbers during September 2018 are 150nr vehicles per day. The average vehicle numbers for the entire construction programme is 86nr vehicles per day.

Figure 16 below identifies the type and number of vehicles during each construction stage;

Vehicle type	Stage 1 Rail decking platforms & associated demolition (July 2017 to July 2018)	Stage 2 Main demolition & reduced level excavation (June 2018 to December 2019)	Stage 3 Superstructure works (August 2019 to October 2020)	Stage 4 Fit-out works, external works and commissioning (January 2020 to July 2021)
Excavation wagon (10m3)	1,978	14,092		
Stone wagon (10M3)	1,978	14,092		9,585
Concrete wagon (8m3)	1,978	14,092	3,370	9,585
Articulated wagon (20T)	1,978	14,093	3,370	9,586
Total	7,912	56,369	6,740	28,756

Figure 16 – Construction vehicles during each construction stage (The table is a working table and at this stage provides a provisional allocation of vehicles. The vehicle numbers above includes an allocation for smaller vehicles)

The construction programme has four distinct stages of work. The major plant and equipment that will be used during each construction stage is shown in figure 17 below;

Major plant & equipment	Stage 1 - Rail decks & associated demolition	Stage 2 - main demolition and reduced level excavation	Stage 3 - superstructure works	Stage 4 – Fit-out, external works and commissioning
Concrete crusher	√	√		
Excavator with munching attachment	√	√		
Excavator with breaker attachment	√	√		
Dumper trucks	√	√	√	√
Excavator	√	√	√	√
Piling rig	√	√		
Tower crane		√	√	
Crawler crane	√	√	√	
Mobile crane			√	√
MEWPS	√	√	√	√
Cherry picker	√	√	√	√
Material hoist			√	√
Concrete pump	√	√	√	
Roller	√	√		√
Welding plant	√	√	√	√
Generators	√	√	√	
Breaker	√	√		
Tele-handler	√		√	√
Forklift			√	√
Small tools	√	√	√	√

Figure 17 – Major plant and equipment during each construction stage

Q12. Deliveries and collections should generally be restricted to between 9.30am and 4.30pm. Please confirm your acceptance to this condition and describe how it will be enforced?

It is our intention to adhere to this restriction as far as is practicable. In order to enforce this condition we will prescribe this requirement under the main contract. Each sub-contractor will have this condition as part of their sub-contract and the web-based delivery system will stipulate delivery times within the time frame outlined of 9.30am to 4.30pm.

There may be circumstances that mean this situation cannot be fully observed. Where an exceptional circumstance exists the main contractor will seek permission from LBHF. During peak construction periods and with prior agreement with LBHF we would seek to deliver materials prior to the peak travel time in the morning and after the peak travel time in the evening.

The delivery system will record the actual times of each delivery and it would be the intention to use the system to undertake audits to ensure the stated requirement is being adhered to. This information could be shared with LBHF or local resident groups on request.

Q13. Will vehicle wheel wash facilities be provided?

Wheel wash and jet wash facilities will be utilised throughout the various stages of the project. These facilities will be set up local to the two access points on to the site. Suitable silt tanks will be installed to prevent silt and debris entering the drainage system. For certain activities such as during excavation works a road brush will be used to ensure that the local highway is maintained to the agreed standard.

Examples of typical wheel wash and concrete wash down stations are shown below;



Figure 18 – Typical wheel wash and concrete wash-down stations

Noise, dust and vibration monitoring during the construction works

In addition to the protection measures anticipated for the highway there will be a project requirement to implement extensive measures to manage noise pollution, dust and vibration levels during the construction works and in particular during construction stages 1 and 2 when the demolition, rail deck, and basement excavation works are carried out.

Examples of the measures that will be adopted to minimise the impact on the local residents and ensure that local businesses are unaffected by the construction works are provided below.

Pre-construction stage 1 & 2 works

Prior to any works commencing on site a full baseline environmental survey will be undertaken. This survey will involve carrying out monitoring in order to determine ambient levels of noise, dust and vibration. After monitoring has taken place, predicted noise levels for specifically the demolition works, piling works and excavation works will be determined using noise predictive software to develop a 3D model of the site and

surrounding areas. A baseline environmental report will be generated and a monitoring strategy for the site will be developed in conjunction with LBHF.

Prior to any piling work commencing vibration monitoring stations will be established which will measure the frequency range and accuracy in accordance with DIN 45669:1995. Monitoring will be provided using data analysis software, which will allow real time measurement and intervention if trigger levels are exceeded.

Similarly, dust levels will be monitored using the guidelines set out by the Institute of Air Quality Management (IAQM). A system of real-time monitoring will be installed. It is typical that both handheld and permanent particulate matter monitors which give details of the PM2.5, PM10 and respiratory levels during the works. Again, trigger levels will be established that will ensure immediate intervention.

Consultation with LBHF

A Noise, Dust and Vibration Monitoring Plan will be developed in conjunction with LBHF. This will ensure that the best possible means are being used to monitor the noise, dust and vibration levels during the construction works. Trigger action levels will be agreed and adhered to throughout, and the plan will define the various measurement procedures and the locations of monitoring stations.

Reporting

Reports on all aspects of noise, dust and vibration monitoring will be provided on a weekly/monthly basis. These reports will verify compliance with the requirements of the noise, dust and vibration monitoring plan.

Examples of the types of technology that will be used to monitor noise, dust and vibration are provided below;





Figure 19 – Noise, dust and vibration monitoring technology

Q14. Please describe how you will protect the public highway from damage arising from construction related activity and prevent concrete and other detritus from being washed into the public highway drainage system?

There are no planned construction works that will be carried out from the public highway. All works will be carried out from within the site with the exception of tying in at the perimeter of the site with external landscape finishing works. A pre and post work dilapidation report using both photographic and video evidence to record the condition of the highway local to the site and any damage caused as a consequence of the construction works will be undertaken with LBHF highways department.

As noted in question 13 above at all the various stages of the project wheel wash and jet wash facilities supplemented by the use of road brushes during certain activities will prevent the highway from becoming contaminated.

Similarly, wash down areas to clean excavation vehicles, delivery vehicles and concrete vehicles before entering the public highway. Silt tanks will be installed in these areas to prevent silt and debris entering the public drainage system.

Examples of the type and standard of silt tanks that will be provided are shown below;



Figure 20 – Typical silt tanks example

Vehicle call up procedure

Q15. What are the arrangements for co-ordinating and controlling delivery vehicles?

Within the construction industry and for inner city projects, it is best practice to use, a web-based delivery management system to coordinate materials on a just in time basis to avoid disruption to the highway network and nuisance to local residents.

A standard operating procedure for a typical system includes, but is not limited to, the following;

- The system will be managed and operated by the main contractors' logistics manager.
- All sub-contractors/suppliers will be issued with entry passwords to use the system, and they will need to raise requests for each required delivery slot.
- The sub-contractor/ supplier will need to complete a web-form which will include load details, vehicle type, and crane/hoist requirements, etc.
- Comprehensive information will be provided on the web-site showing site plans, crane locations, radius and lifting specifications, and a schedule of unloading plant/equipment all of which will be regularly updated.
- For efficient operation, the requests will need to be submitted a week in advance, however, the system is also capable of handling last-minute requests which will be at the discretion of the logistics manager.
- The logistics manager will review a spreadsheet- like display onto which he can map and confirm the individual requests.
- The intelligence in the system prevents time and equipment clashes, and also understands relationships between loading bays, plant, and the entry/exit gates, but does not attempt to automatically carry out the allocations.
- The output from the system will be a detailed timetable, which will be viewable by the sub-contractors/suppliers as well as the logistics manager.
- At the time of delivery, the logistics team will use mobile devices (a PDA) to note the times when the delivery enters and exits the site.
- In addition to the detailed timetable described above the system will produce additional reports such as plant utilization, and delivery vehicle emissions. The latter will estimate the CO₂ produced based on journey data, vehicle type, load, distance travelled, and journey time, etc.

In the event of traffic congestion and or delays, the logistics manager will be responsible for determining whether it is necessary to reschedule deliveries to avoid a back log of deliveries on any given day.

The logistics team will manage all vehicle deliveries from the entrance to the site to the designated unloading or collection zone using radio communication.

The logistic team will also be responsible for selecting the correct plant and equipment to safely unload the vehicle, through to the timely exit of the vehicle from the site back on to the public highway.

Q16. Who has responsibility for supervising, controlling and monitoring vehicle movements to/from the site?

The logistics manager will be responsible for the day to day management of site logistics which will include the use of the web-based delivery system and a logistics team to marshal and unload/load vehicles in a safe and efficient manner. Full details of the logistics manager and the logistics team will be provided within the Construction Logistic Plan following the appointment of the main contractor. The plan will also identify the main contractors' project director who will be accountable for all aspects of project delivery.

Q17. What are the arrangements to ensure that the loading/collection area is clear of vehicles and materials before the next lorry arrives?

All deliveries to site will be pre-planned using the web-based delivery system. The logistics manager will coordinate on a weekly and then daily basis with the construction team leaders to communicate the delivery plan including the plant and equipment required to safely unload/load the vehicle. As part of the

REDEVELOPMENT OF STAMFORD BRIDGE GROUNDS
OUTLINE CONSTRUCTION LOGISTICS PLAN – Final 2 (27th June 2016)

communication any conflict between the construction plan and the material delivery plan will be identified and appropriate action will be taken.

The logistics team will on a daily basis ensure that loading/collection areas are available to access when the vehicle arrives. In the event of an unplanned situation occurring on site the logistics manager and team will have an agreed contingency to implement, such as, using the haul road to temporary stack vehicles or delaying the arrival of a delivery by using the off-site designated temporary parking facility or ultimately cancelling a number of deliveries and rescheduling them.

The likely tower crane arrangement associated with the construction of the concrete frame is presented below in figure 21. The pitch area will be used as the main material storage area, concrete wagons will dispense at each tower crane position and the centre of the site will be used as a turning area for all delivery vehicles while maintaining a one way traffic system.

Tower crane layout

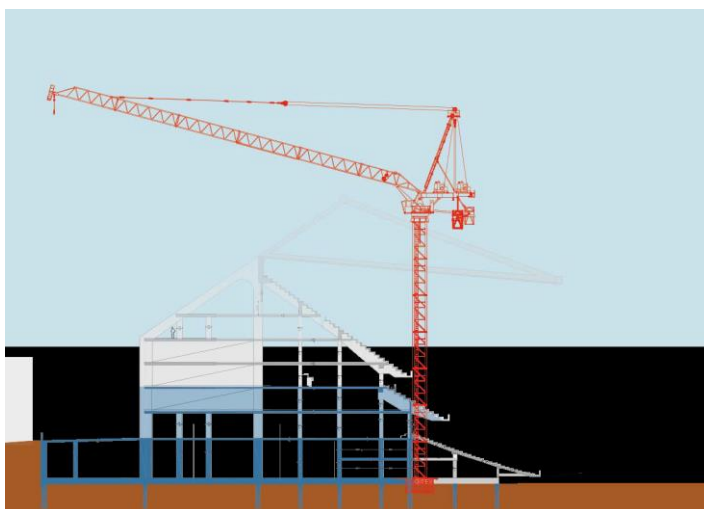
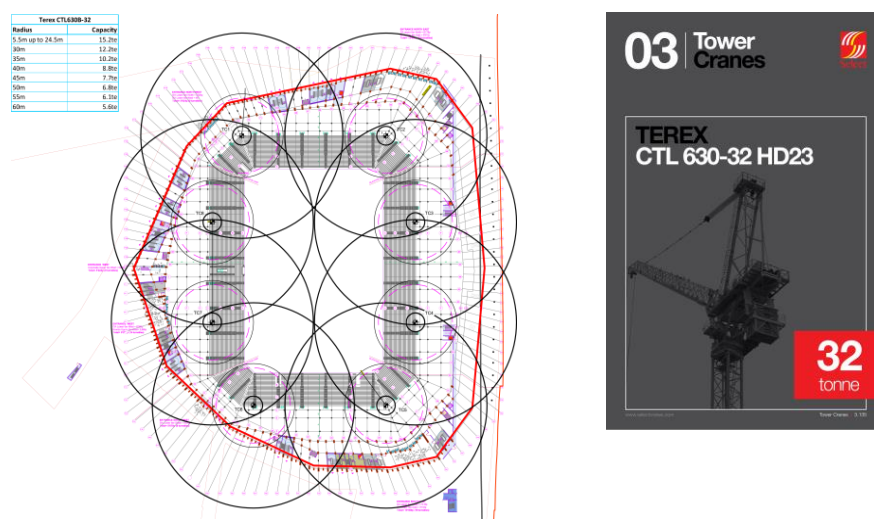


Figure 21 – Tower crane location and type during the concrete frame works

Q18. Where will the contractors' own vehicles park?

There will be no parking on site for staff or operatives and everyone will be encouraged to use public transport and or cycle and walk to work. The project welfare facilities will be located on the rail deck in the northern zone of the site adjacent to Fulham Broadway station (refer to figure 11 above) and will include lockers, showers and cycle racks with sufficient numbers to support this initiative based on the anticipated workforce to deliver the project as shown below.

OPERATIVES PER DAY (MONTHLY AVERAGE)

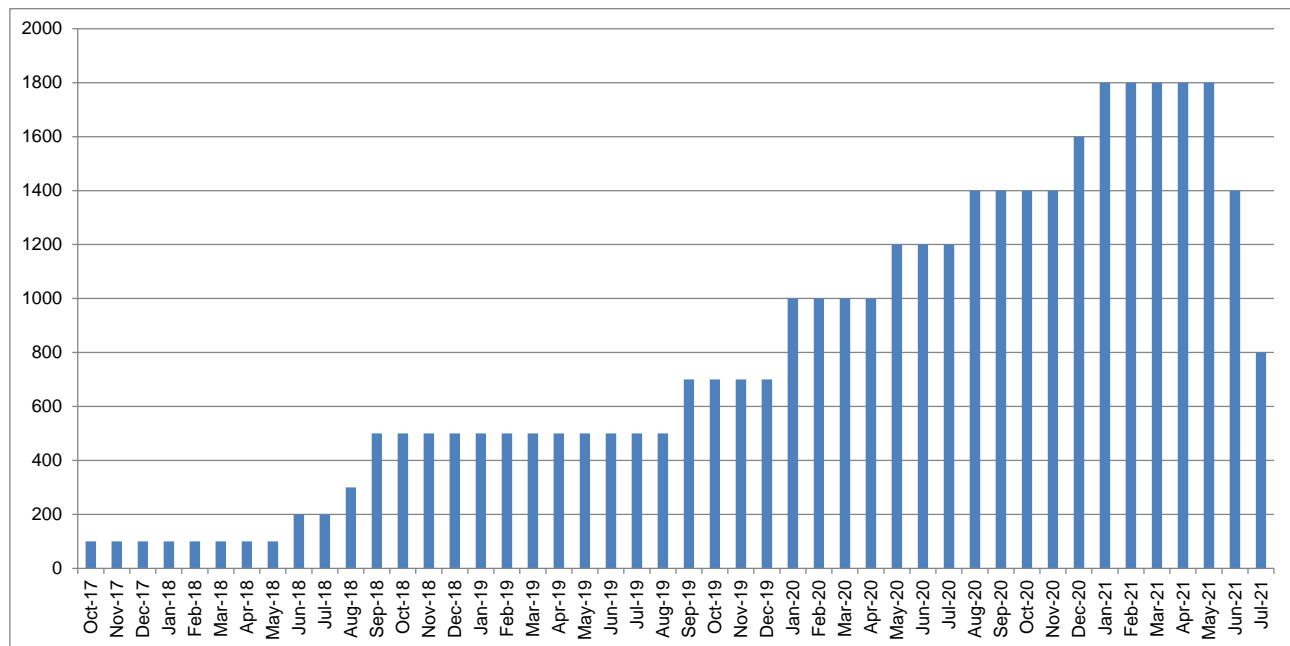


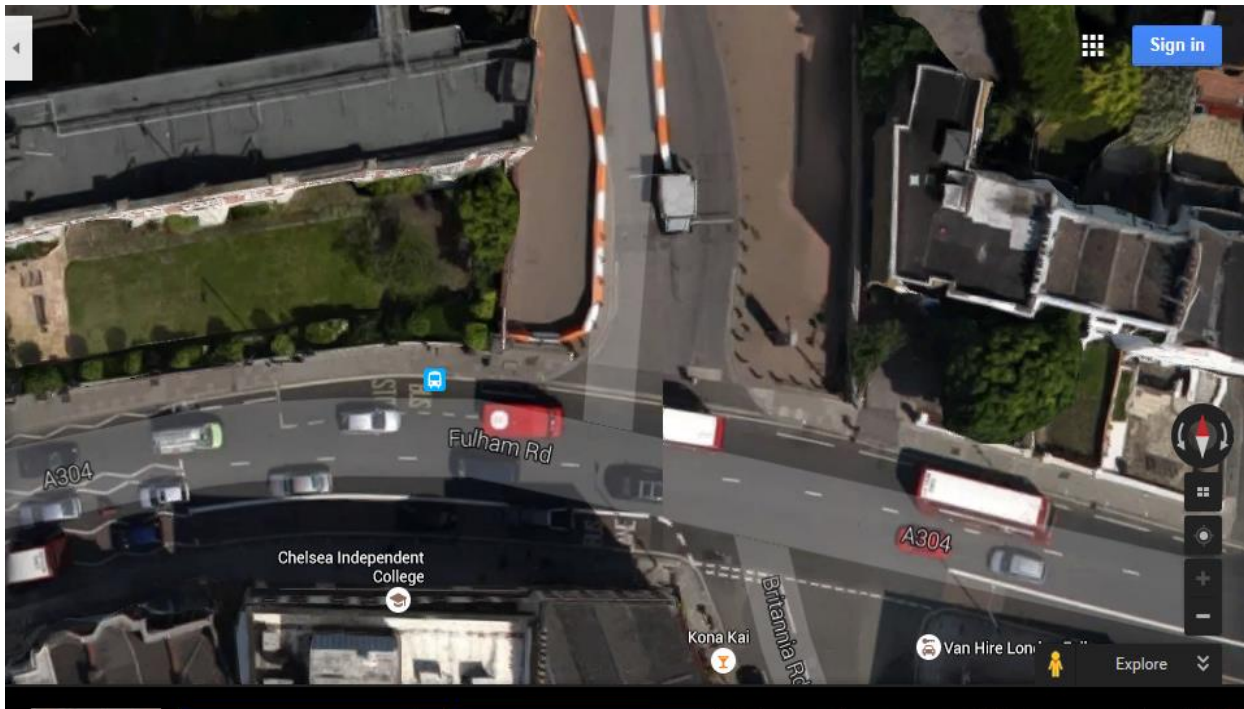
Figure 22 – Anticipated operative levels during the construction works

Existing waiting and loading restrictions

Q19. Please supply details of any waiting/loading restrictions or parking bays that you will apply to have suspended?

There are no parking bays close to the site access points that will affect safe access and egress from the site. However, there is a bus stop next to the main site entrance, adjacent to the Stoll Building, on Fulham Road which will need to be temporarily relocated for the full period of the construction works which we anticipate will be within a 100m of its current location. An application will be made to LBHF and Transport for London (TFL) to facilitate the relocation.

The image below in figure 23 identifies the bus stop that needs to be relocated.



**Figure 23 – Relocate the bus stop adjacent to the site access/egress point on Fulham Road
Impact on other highway users**

Q20. If site constraints mean that it is necessary to store plant and materials on an area of public highway other than immediately outside the proposed development site, you are required to provide evidence that you have liaised with affected frontages and must summarise the outcome below?

The planned construction works do not require the storing of plant or materials on the public highway. All plant and materials will be stored within the confines of the site.

Q21. How will you protect pedestrians from construction works, particularly vulnerable users?

A perimeter hoarding of 2.4m high will be installed to segregate the works from the adjacent public footpaths and highways. Safety notices will be erected on a frequent basis to notify pedestrians of the construction work. This signage will be both written and visual images to convey the dangers associated with construction sites. The signage will address different languages if deemed necessary.

The perimeter of the site will be monitored 24/7 by CCTV using a remote monitoring station with audio capability.

Both entrances to the site will be manned full time and the traffic marshals will control pedestrians affected by vehicles arriving and leaving the site. In addition all deliveries will be planned in advance and consequently will be expected at a given time for arrival at the site.

The planned construction works do not require working adjacent to or over the public footpath and highway.

The approved traffic routes to the project will be assessed and as far as practicable will avoid schools and cycle routes. In addition the Considerate Constructors Scheme will be operated for the project which promotes the significance of protecting the local residents from the hazards inherent from a construction site.

Q22. Do you intend to apply for a licence to use the public highway for construction activity or for the storage of materials and will this include the diversion of an existing footpath?

The construction works do not envisage the requirement for a licence to use the public highway for construction or the need to store materials on the public highway.

Q23. Do you propose to install a traffic diversion during the construction period?

The construction works do not envisage the requirement to install a traffic diversion during the construction period.

Q24. What is your proposed method of spoil removal (wait and load, conveyor, grab, skip swap, etc) and what is the anticipated dwell time of spoil removal vehicles?

The construction works do not envisage undertaking any of the above items outside the confines of the site and therefore will not disrupt the use of the public highway.

Q25. How will concrete be supplied to the site, where will the delivery lorries be located and for how long?

It is expected that concrete will be delivered to the site using concrete mixer wagons. All vehicles will be parked inside the confines of the site until the concrete can be discharged in to the works.

Q26. Do you intend to erect scaffolding on, over or adjacent to the public highway?

The construction works do not envisage erecting a scaffold on, over or adjacent to the public highway.

Utility works

Q27. Will you be applying to install new or modified utility services to the site that involve work to the public highway? If so, which companies are involved?

It is anticipated that the following utility services will need to be upgraded to meet the demands of the project. Based on our initial enquiries all the aforementioned services are currently accessing the site from Fulham Road and it is anticipated that upgrades to these services will also use Fulham Road. Detailed installation programmes will be provided by each of the statutory providers' once formal application notices have been submitted, which is anticipated during late 2016.

HV installation – UKPN

Gas – National Grid

Water- Thames Water

Telecoms- BT

Fibre optic network - BT

Foul and surface water drainage connections – Thames Water

General Management issues

Q28. The CLP should be periodically monitored and reviewed. Any significant changes to the CLP should be reported to the Department of Planning and Borough Development. Who will be responsible for this?

The main contractors' logistics manager will be responsible for reviewing and updating the CLP and notifying LBHF of any significant changes. The main contractors' project director will be accountable for ensuring a periodic review is undertaken and that the plan is updated and communicated to all relevant organisations.

Fordstam Ltd through a monthly project management meeting will request progress updates from the main contractor which will include as part of the agenda the CLP performance including complaints from local residents and businesses and disruption to the public highway along with mitigation measures to prevent reoccurrence.

Fordstam Ltd will hold regular meetings with the main contractor, firstly to develop the detailed CLP and obtain Local Authority approval, and secondly to monitor its implementation. Compliance with the CLP will be a contractual requirement for the main contractor with suitable recourse for Fordstam Ltd in the event that the CLP is not strictly adhered to.

Q29. You must coordinate traffic arrangements with other developments in the area. Who will be responsible for this?

WSP on behalf of Fordstam have undertaken an initial assessment of the construction vehicle impact for the project and a cumulative construction vehicle impact assessment based on publicly available data. These assessments are included as an appendix within this document.

During the construction works the appointed main contractor will represent Fordstam in a working group with other developers that the Council are promoting.

Q30. How will you ensure domestic and commercial waste collections are not disrupted?

It is not expected that the construction works will affect the collection of domestic and commercial waste. The OCLP key strategy is to prevent disruption to the local network by controlling the arrival and departure of all construction vehicles and minimising the impact on the local highway network. As described earlier within our response to questions 10 and 17 the site haul road will be used to stack vehicles temporarily in the event that deliveries are disrupted or delayed. As a final contingency if a situation occurs that has the potential to disrupt the local highway network the logistics manager will reschedule deliveries.

Q31. Who will deal with any complaints from local residents and businesses etc?

Fordstam Ltd will agree with the selected main contractor the process by which communications will be issued to local residents, schools and businesses and the local authority. A part of this communication process will be a complaints procedure process. The following initiatives as a minimum will be implemented on the project;

- A dedicated community liaison manager
- Complaints procedure process
- Public events to present the design of the stadium and the construction programme and construction methods to be used
- The project will participate in the Considerate Constructors Scheme and have a target of 40 points
- A monthly progress news letter will be distributed to neighbours, the local community, and the local business community
- A webcam to enable the real time progress of the scheme to be followed by all interested parties
- The project will be used as a platform for educating school children with respect to the construction industry

Q32. Please provide details of any construction related equipment, structures or activities on or over the public highway. These will require authorisation and/or a licence issued by the Council?

The planned construction works do not envisage undertaking any equipment, structures or activities on or over the public highway with the exception of utility works as outlined within question 27.

Appendices

Appendix 1 – Construction Impact Assessment

Appendix 2 – Cumulative Construction Impact Assessment

TECHNICAL NOTE
STAMFORD BRIDGE GROUNDS
CONSTRUCTION TRAFFIC ASSESSMENT
MAY 2016 (REV D)

1 INTRODUCTION

- 1.1.1 An assessment has been undertaken to forecast the impacts of construction traffic on the proposed construction routes for the redevelopment of Stamford Bridge Grounds.
- 1.1.2 The proposed construction traffic routes are set out in the Outline Construction Logistics Plan (OCLP) prepared by Arcadis. Following a review by Arcadis, it is anticipated that the majority of construction vehicles would travel using the A4 and M4, accessed from Fulham Palace Road to the west of the Site, or via A3220 to the east. The remaining construction vehicles would utilise the A3, accessed from either Wandsworth Bridge Road or the A219 to the south of the Site.
- 1.1.3 In order to inform the impact assessment, baseline traffic flows have been sought from DfT count points on links which could experience increases in traffic during construction, as illustrated by Figure 1-1 attached.
- 1.1.4 Construction vehicle numbers by month have been provided by Arcadis as presented in the OCLP. In order to calculate the daily construction vehicles, the following assumptions have been applied;
- *Construction vehicles based on 5.5 working days per week; and*
 - *Construction vehicles based on 4.33 weeks per month.*
- 1.1.5 Using the above assumptions, the daily number of vehicles by month has been calculated for the whole construction period as illustrated by Figure 1-2. As presented in Figure 1-2, key vehicle movements during the construction period may be summarized as follows;
- *Peak Construction Activity – 150 vehicles per day (September 2018); and*
 - *Average Construction Activity (over entire build period) – 86 vehicles per day*
- 1.1.6 The distribution of construction traffic using the A4/M4 to the north and A3 to the south has been determined from construction figures and likely vehicle destinations supplied by Arcadis.
- 1.1.7 Table 1-1 and Table 1-2 below summarise the forecast impact on the local road network at the peak of construction (September to November 2018) and for the average across the four year construction period respectively. In order to inform the percentage impact assessment, it has been assumed that vehicles travelling to the M4/A4 will be evenly distributed between Fulham Palace Road to the west and A3220 to the east of the Site; the remaining southbound routes have also been distributed evenly between Wandsworth Bridge Road and Putney High Street as set out below and as demonstrated by Figure 1-3;

- 33.3% of construction vehicles westbound via Fulham Palace Road and A4;
- 33.3% of construction vehicles westbound via A3220 and A4; and
- 33.3% of construction vehicles southbound via A3 (distributed evenly between Wandsworth Bridge Road and Putney High Street)

Table 1-1: Peak Construction Traffic Impact (assumed September 2018)

Link	Base Daily Vehicles	% HGVs (Base)	Daily Construction Vehicles	Daily Construction Trips	Base + Construction	% HGVs with construction	Increase in vehicles
Northbound (i.e. trips via M4/A4)							
A4 Great West Road (18496)	111657	3.43%	100	200	111857	3.60%	0.18%
Fulham Palace Road (26803)	17798	4.26%	50	100	17898	4.80%	0.56%
Fulham Road West (56849)	15176	4.05%	75	150	15326	4.99%	0.99%
Fulham Road East (36925)	17918	2.61%	50	100	18018	3.15%	0.56%
A4 West Cromwell Road (73567)	88566	3.29%	50	100	88666	3.41%	0.11%
Finborough Road (57668)	26470	4.85%	50	50	26520	5.04%	0.19%
Redcliffe Gardens (38165)	20592	2.23%	50	50	20642	2.47%	0.24%
Fulham Road (east of B318) (18494)	15777	2.70%	100	200	15977	3.92%	1.27%
Southbound (i.e. trips via A3)							
Wandsworth Bridge Road (46807)	40995	2.38%	25	50	41045	2.50%	0.12%
A217 Swandon Way (47659)	26934	3.37%	25	50	26984	3.55%	0.19%
A3 West Hill (6111)	38615	2.42%	25	50	38665	2.55%	0.13%
A219 Putney High Street (16764)	17519	2.55%	25	50	17569	0.29%	0.29%

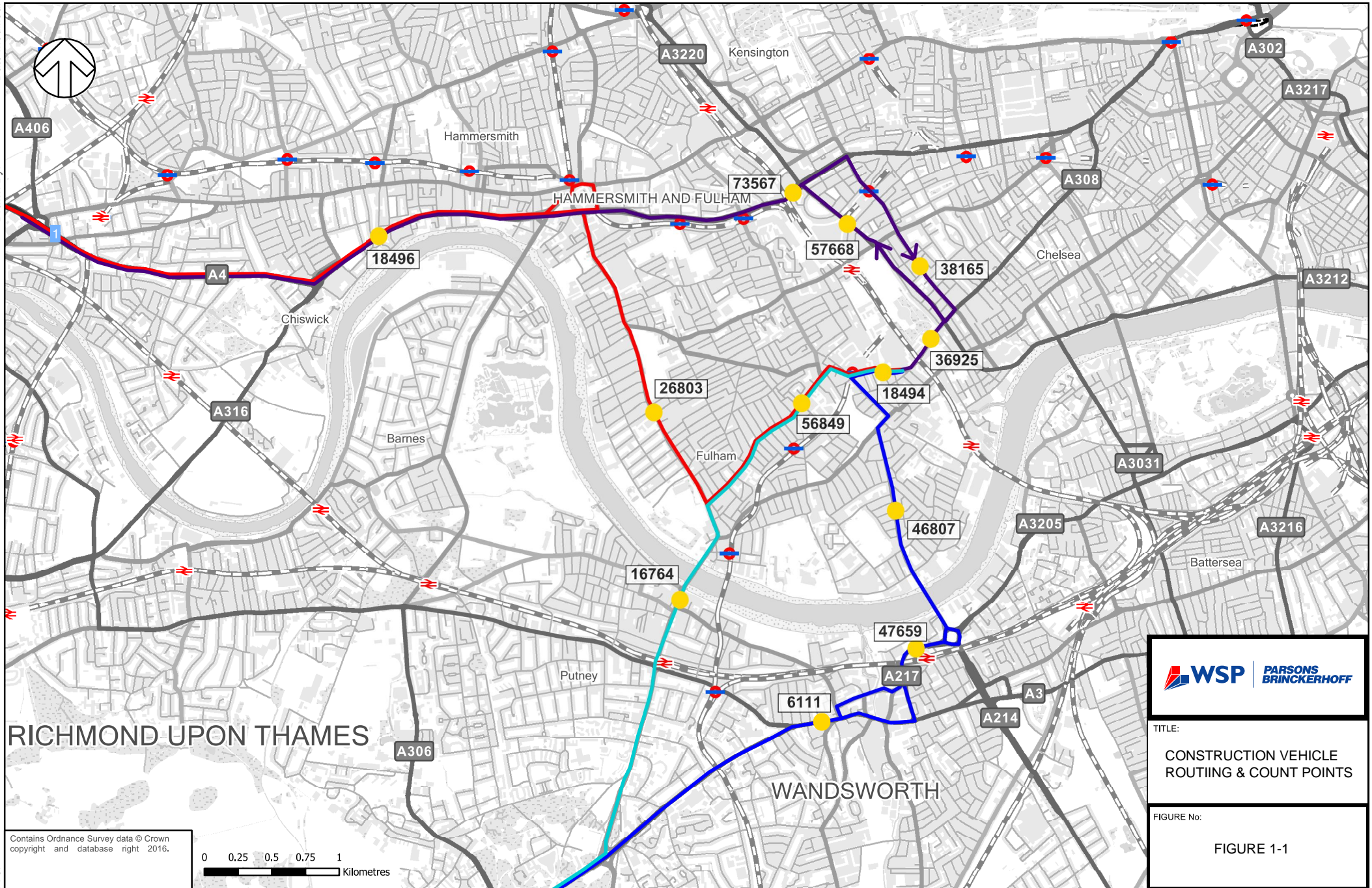
Table 1-2: Four Year Average Construction Traffic Impact

Link	Base Daily Vehicles	% HGVs (Base)	Daily Construction Vehicles	Daily Construction Trips	Base + Construction	% HGVs with construction	Increase in vehicles
Northbound (i.e. trips via M4/A4)							
A4 Great West Road (18496)	111657	3.43%	57	114	111771	3.53%	0.10%
Fulham Palace Road (26803)	17798	4.26%	29	57	17855	4.57%	0.32%
Fulham Road West (56849)	15176	4.05%	43	86	15262	4.58%	0.56%
Fulham Road East (36925)	17918	2.61%	29	57	17975	2.92%	0.32%
A4 West Cromwell Road (73567)	88566	3.29%	29	57	88623	3.36%	0.06%
Finborough Road (57668)	26470	4.85%	29	29	26499	4.96%	0.11%
Redcliffe Gardens (38165)	20592	2.23%	29	29	20621	2.36%	0.14%
Fulham Road (east of B318) (18494)	15777	2.70%	57	114	15891	3.40%	0.72%
Southbound (i.e. trips via A3)							
Wandsworth Bridge Road (46807)	40995	2.38%	14	29	41024	2.44%	0.07%
A217 Swandon Way (47659)	26934	3.37%	14	29	26963	3.48%	0.11%
A3 West Hill (6111)	38615	2.42%	14	29	38644	2.49%	0.07%
A219 Putney High Street (16764)	17519	2.55%	14	29	17548	0.16%	0.16%

- 1.1.8 As shown above, over the four year construction period, the average percentage increase on construction routes is less than 0.8%. During the month of peak vehicle activity, which is currently forecast during September 2018, the maximum percentage increase is forecast to occur on Fulham Road (west of the Site), with a daily increase of 1.27%.
- 1.1.9 Notwithstanding the above, it is recognised that there would be the potential for traffic effects to arise, particularly in the event that the demolition and construction programmes of some or all of other construction sites in the area overlap with those of the Development.
- 1.1.10 As such, the Club is committed to working with the key authorities to ensure effective coordination with other developments, together with comprehensive delivery and monitoring of construction activity. It is understood that a formal co-ordination group which oversees all construction activities in the area will be implemented and the applicant is committed to playing a full part in this.

Date Modified:
Drawn By:

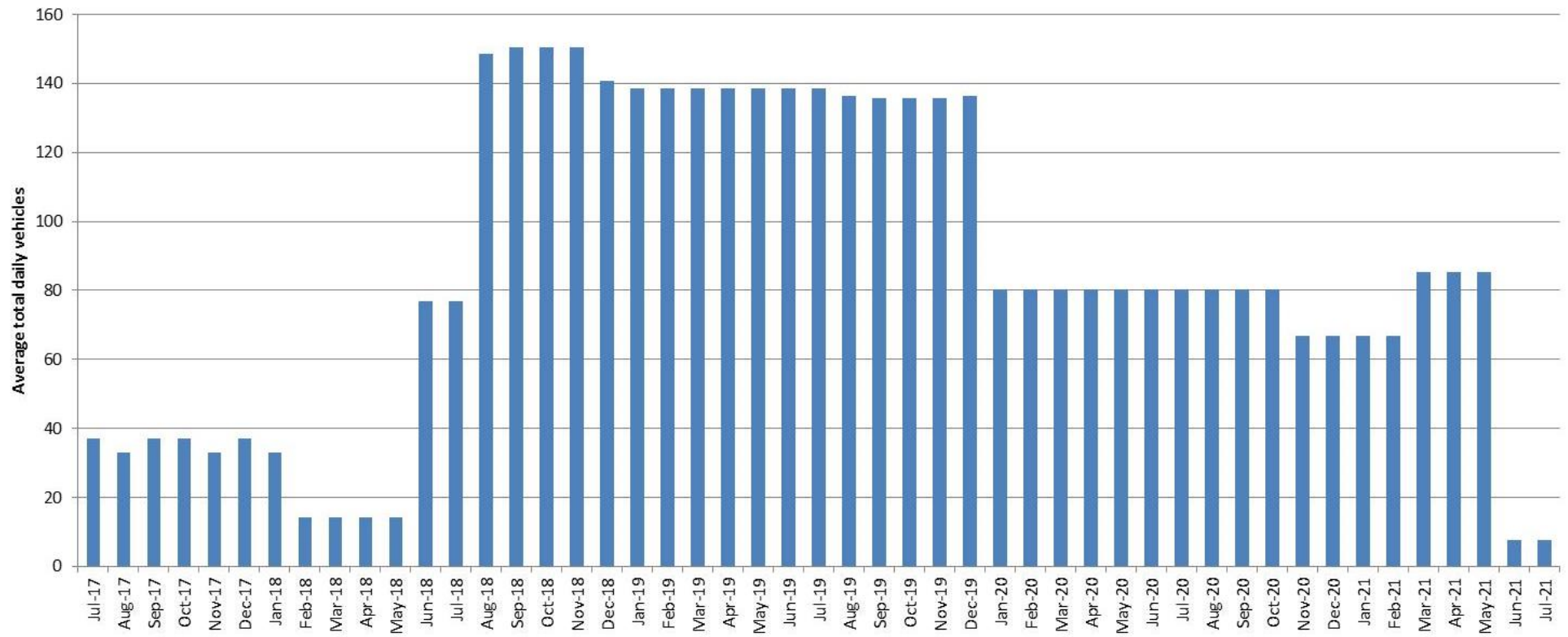
File:

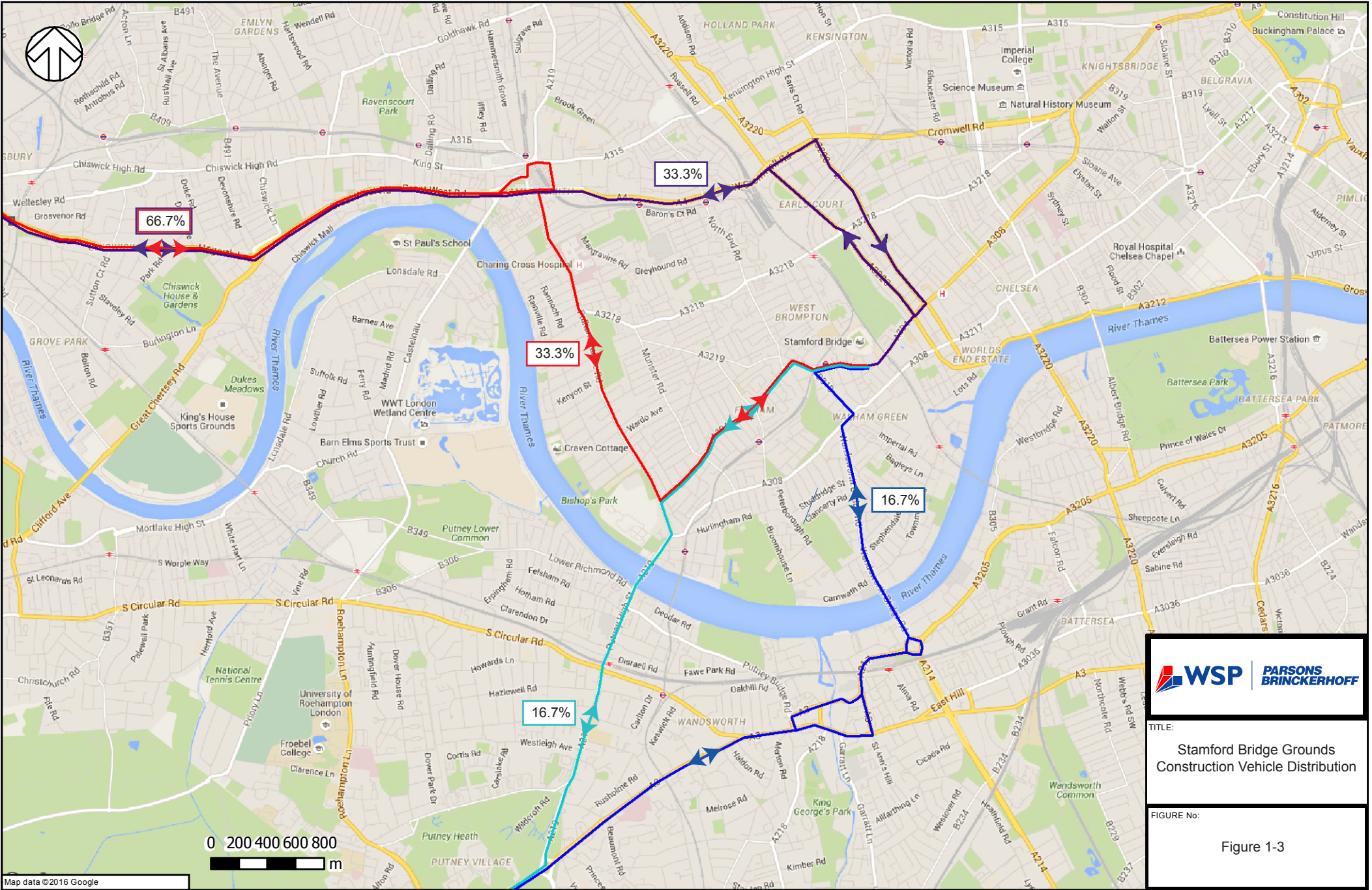




TITLE:
CONSTRUCTION VEHICLE
ROUTING & COUNT POINTS

FIGURE No:
FIGURE 1-1

Figure 1-2: Stamford Bridge Grounds – Daily Construction Vehicles





TITLE:

Stamford Bridge Grounds
Construction Vehicle Distribution

FIGURE No:

Figure 1-3

TECHNICAL NOTE
STAMFORD BRIDGE GROUNDS
CUMULATIVE CONSTRUCTION TRAFFIC
MAY 2016 (Rev A)

1 INTRODUCTION

- 1.1.1 This note has been prepared to understand the volume of traffic generated by construction sites in the area of the proposed Stamford Bridge Grounds development.

1.2 STAMFORD BRIDGE CONSTRUCTION

- 1.2.1 The monthly and daily construction vehicles associated with the Development are presented in the Outline Construction Logistics Plan (OCLP) prepared by Arcadis. The average daily vehicles by month for the Proposed Development are presented in Figure 1-1.
- 1.2.2 As shown by Figure 1-1, a peak daily total of 150 construction vehicles are forecast to occur over the entire construction period of the Proposed Development.

1.3 CUMULATIVE CONSTRUCTION TRAFFIC

- 1.3.1 In order to understand the volume of traffic generated by construction sites in the area of the Development, a review of cumulative schemes has been undertaken. A full list of cumulative schemes included within the review is contained in **Appendix A**.
- 1.3.2 The review of construction sites and traffic information has been based on information contained within the public domain, where available. Where construction information is not available for sites, vehicle numbers have been calculated using the site's plot area, together with Transport for London's (TfL) HGV calculation tool.
- 1.3.3 In order to compare construction schemes in relation to the Proposed Development, the following analysis uses the average daily number of HGV movements associated with each. However it is noted that for any development site, as well as peak months (shown in this analysis) there will be peak days within some months.
- 1.3.4 Figure 1-2 provides an illustration of the forecast daily construction vehicles associated with development sites in the area during the construction period of the Proposed Development.
- 1.3.5 As shown by Figure 1-2, a peak daily total of approximately 550 construction vehicles are forecast to be generated by construction sites in the vicinity of the Site; this is forecast to occur in spring 2017 prior to construction of the Proposed Development. During the peak construction period of the Development itself (September 2018), the cumulative construction traffic is forecast to be lower based on schemes currently consented and in the public domain, with approximately 220 construction vehicles per day.
- 1.3.6 However it is noted that each of the above sites will have different construction vehicle routings and will therefore not necessarily utilise the same links on the local highway network.
- 1.3.7 Nevertheless, it is recognised that there would be the potential for cumulative traffic effects to arise in the event that the demolition and construction programmes of some or all of the cumulative schemes overlap with those of the Development, especially for those schemes which lie closest to the Site.

- 1.3.8 The Club is committed to working with the key authorities to ensure effective coordination with other developments, together with comprehensive delivery and monitoring of construction activity.
- 1.3.9 It is understood that a formal co-ordination group which oversees all construction activities in the area will be implemented and the applicant is committed to playing a full part in this.
- 1.3.10 For a project of this size and complexity with several distinct phases of work, it will be a project requirement that the appointed Principal Contractor will have a dedicated logistics team that will complement the construction team for the project. The logistics team will be led by an experienced manager who is conversant with the challenges associated with construction delivery management in and around the Borough. The developed CLP and the exact implementation of the plan will become the responsibility of the appointed logistics manager.

Figure 1-1: Stamford Bridge Grounds – Forecast Daily Construction Vehicles

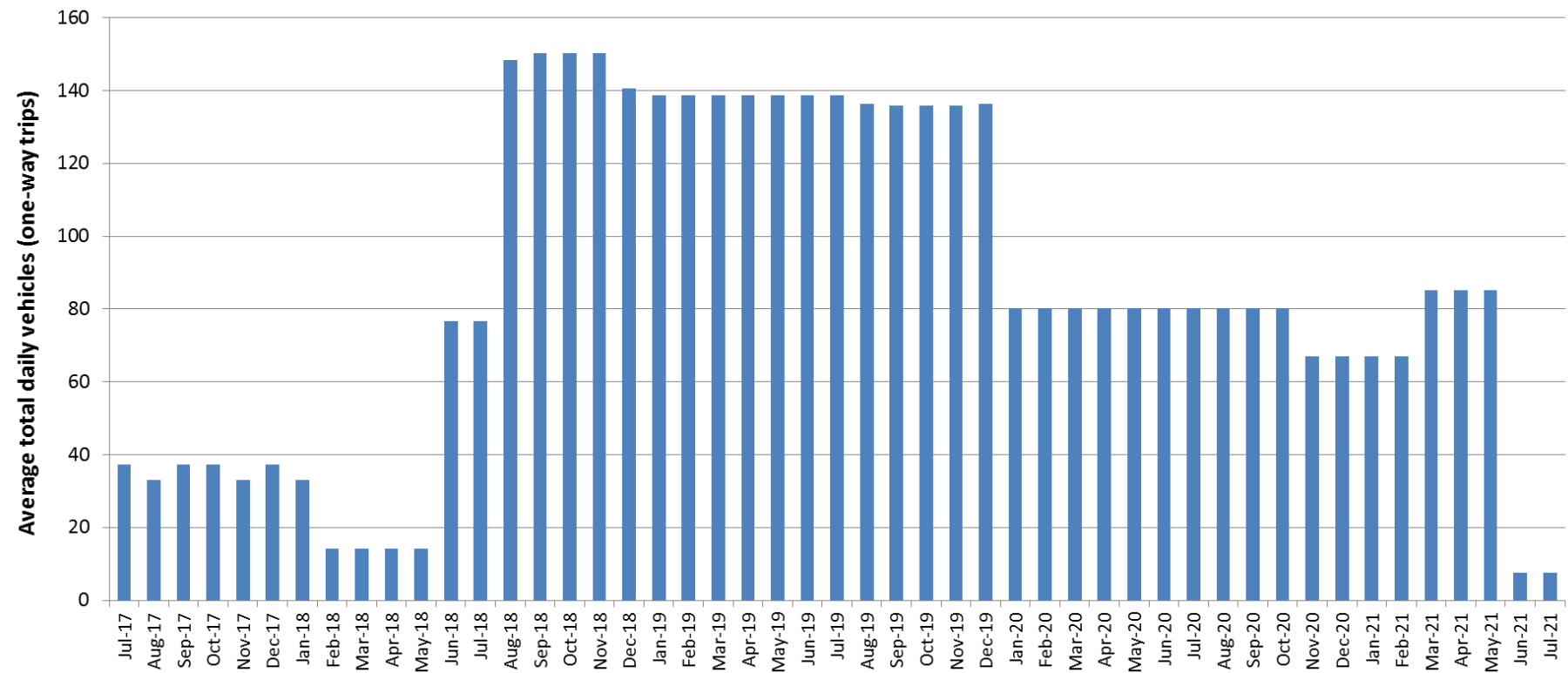
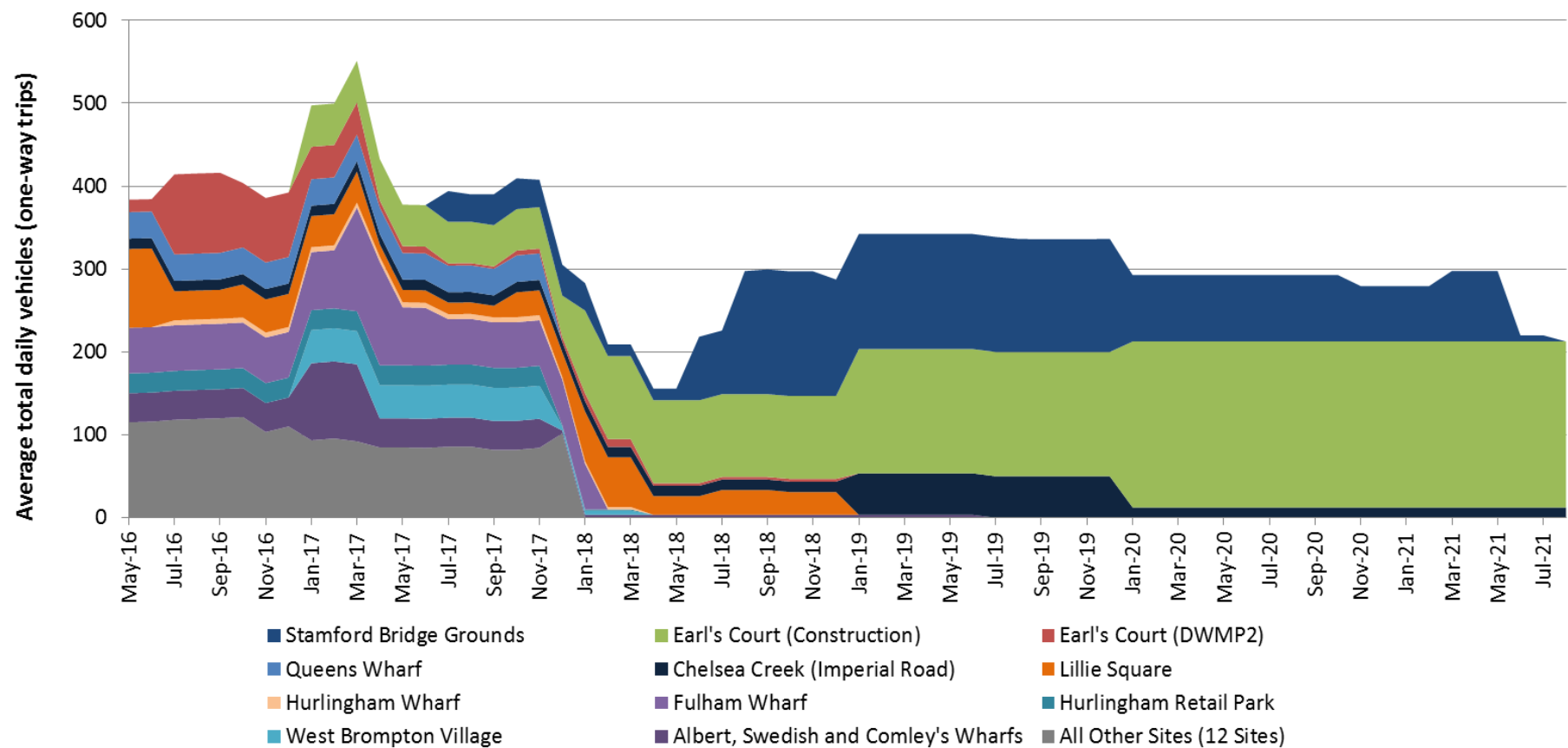


Figure 1-2: Cumulative Construction Sites – Forecast Daily Construction Vehicles



Appendix A: List of Cumulative Sites

Key Sites
Stamford Bridge Grounds
Earl's Court (Construction)
Earl's Court (DWMP2)
Chelsea Creek (Imperial Road)
Albert, Swedish and Comley's Wharfs
Fulham Wharf
Lillie Square
Hurlingham Wharf
Queens Wharf
West Brompton Village
Hurlingham Retail Park
Other Sites
Fulham Reach
The Tent Site
TTT-7: Carnwath Road Riverside
Whiffin Wharf
Imperial Wharf
TTT-2: Hammersmith Pumping Station
TTT-4: Putney Embankment Foreshore
TTT-9: Cremorne Wharf Depot
1-9 Lillie Road
Thames Wharf
20 Fulham Broadway
Carnwath Road Industrial Estate