Thames Tideway Tunnel
Thames Water Utilities Limited

Application for Development Consent

Application Reference Number: WWO10001

Transport Assessment

Doc Ref: **7.10.05**

Dormay Street

Main Report

APFP Regulations 2009: Regulation **5(2)(q)**

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Thames Tideway Tunnel

Creating a cleaner, healthier River Thames

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Thames Tideway Tunnel

Transport Assessment

Section 8: Dormay Street

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8.1 Introduction

8.1.1 This site specific *Transport Assessment* (*TA)* presents the findings of the assessment of the transport issues of the Thames Tideway Tunnel project at the Dormay Street site located within the London Borough (LB) of Wandsworth.

8.1.2 The assessment takes into consideration the changes as a result of all other Thames Tideway Tunnel project sites to ensure that results indicate the significance of each individual site in combination with construction works being undertaken at other sites.

8.1.3 The *TA* draws on a number of project-wide or common documents which include the *Transport Strategy* and the *Code of Construction Practice* (*CoCP*). Further detail on these documents which form the background to the *TA* can be found in Section 1 of the *TA*

8.1.4 The *TA* structure is as follows:

a. Section 8.2 includes a description of the proposed development, detailing construction phasing, vehicle and person trip generation and construction traffic routing and details of the operational phase.

b. Section 8.3 outlines the assessment methodology used for the *TA* for the construction and operational phases.

c. Section 8.4 details the baseline conditions on the transport network surrounding the site, including survey data analysis and accident analysis.

d. Section 8.5 provides the assessment of the construction phase of the project, including a comparison between the construction base case and the construction development case. This section also outlines sensitivity testing for the highway network.

e. Section 8.6 provides the assessment of the operational phase of the project.

f. Section 8.7 summarises the *TA* findings.

8.2 Proposed development

8.2.1 The proposed development site is located at Dormay Street within the LB of Wandsworth. It is bounded by railway lines and a vehicle storage area to the north, the Causeway to the east and a LB of Wandsworth maintenance depot to the west. Bell Lane Creek runs through the centre of the site.

8.2.2 The south of the site backs onto industrial buildings along Dormay Street including Wentworth House (a Grade II listed building). A public house and a row of cottages and terraced properties are located further south at

the junction of Dormay Street and Armoury Way (A3/A217) as indicated in Figure 8.2.1 in the Dormay Street *Transport Assessment* figures.

8.2.3 The site is North of Armoury Way (A217) which is part of the Transport for London (TfL) Road Network (TLRN), and access is provided via Dormay Street. Dormay Street is a two-way cul-de-sac (with a minimum width of around 5m) that leads to a number of small industrial units and a LB of Wandsworth depot.

8.2.4 The development at Dormay Street consists of an interception of the Frogmore Storm Relief – Bell Lane Creek CSO. This would connect through a drop shaft to the proposed Frogmore connection tunnel which would run north from the site to join the main Thames Tideway Tunnel at Carnwath Road Riverside and south to King George's Park. Dormay Street would be the drive site for the connection tunnel in both directions.

Construction

8.2.5 The construction site would be located two areas either side of Bell Lane Creek; an area to the south of the creek that currently accommodates an existing works depot to the north and east of Dormay Street and north of the creek on an existing works depot to the west of The Causeway.

8.2.6 The northern works depot is bounded by Bell Lane Creek to the south and west, an industrial site to the north (south of the railway line), and by The Causeway to the east. The southern works depot is bounded by Bell Lane Creek to the north, The Causeway to the east, industrial units/depots to the south and west.

8.2.7 It is proposed that the northern and southern sections of the site would be linked by a temporary 'Bailey' type bridge. Construction at the Dormay Street site is anticipated to last for approximately three years.

8.2.8 There would be two phases of construction covering; phase 1 - covering site set-up, shaft construction and tunnelling, and phase 2 - construction of other structures. The access plan and highway layout during plans are provided in the Dormay Street site *Transport Assessment* figures.

8.2.9 Stage 1 Road Safety Audits have been carried out on the illustrative highway layouts proposed for this site. The *Road Safety Audit* reports for this site are contained in Appendix E.

8.2.10 This *TA* assumes all construction materials to and from this site would be transported by road.

8.2.11 During construction it is anticipated that the transport networks may be affected as a result of the construction traffic associated with the Dormay Street site and other sites with construction routes through the area, changes to the pedestrian and cycle environment and additional journeys made on public transport services.

8.2.12 Pedestrian and cycle routes would not be significantly altered during construction. In Phase 1 the existing access point to the LB of Wandsworth depot entrance on The Causeway would be closed with a new entrance to the site located approximately 20m to the south of the current access. The existing entrance to the former Keltbray site on

Dormay Street (also known as the LB of Wandsworth depot east of Dormay Street) would be closed and relocated approximately 10m to the south of the current access. These access arrangements would be in place for the duration of construction.

8.2.13 In order to provide adequate carriageway width to allow construction vehicles to undertake the turning movements necessary to access and egress the site, a section of privately owned on-street parking on The Causeway opposite the site access would need to be removed for the duration of the construction works. This would not be relocated as a suitable alternative location is not available in the immediate vicinity.

8.2.14 The highway layout during construction vehicle swept path analysis plans are provided in the Dormay Street site *Transport Assessment* figures.

8.2.15 Parking for 15 essential maintenance/ operational vehicles would be provided on site. No worker parking would be provided.

8.2.16 Construction details for the site relevant to the construction assessment are summarised in Table 8.2.1.

Table 8.2.1 Construction traffic details

Description	Assumption
Assumed peak period of construction lorry movements and duration	Site Year 2 of construction
Assumed average peak daily construction lorry vehicle movements and duration	50 movements per day (25 trips) 1 month duration
Typical types of lorry requiring access (comprising rigid-bodied, flatbed and articulated vehicles)	Excavation lorries Plant and equipment lorries Imported fill lorries Ready mix mixer lorries Office delivery lorries Steel reinforcement lorries Pipe/Track/Oils/Greases lorries Segments lorries Cement tankers lorries

Note: a movement is a construction vehicle moving either to or from the site. A Site Year is a 12 month period, one in a series of Site Years; Site Year 1 commences at the start of construction.

8.2.17 During construction it is anticipated that all materials would be transported to and from the site by road.

Construction routes

8.2.18 The site is located at the northern end of Dormay Street on an area that currently accommodates two existing works depots.

8.2.19 Access to the site for construction lorries would be from a new access on Dormay Street, which in turn is accessed with a 'left-turn in, left-turn out' arrangement from Armoury Way (A3/A217) which accommodates eastbound traffic only and links to the A3 to the south. Armoury Way (A3/A217) forms part of the TLRN.

8.2.20 There would be a secondary access on The Causeway; this will be a new entrance to access the northern part of the site, which in turn is accessed from Dormay Street. The Causeway is a narrow cul-de-sac which is subject to a 10 tonne weight restriction. Usage of this access would be limited to light goods vehicles (LGVs) and cars.

8.2.21 Figure 8.2.2 in the Dormay Street *Transport Assessment* figures shows the primary construction routes for Dormay Street and the main junctions along the construction traffic routes in the vicinity of the site are:

a. East Hill (A3)/Fairfield Street (A3)/ Wandsworth High Street (A3)

b. Wandsworth High Street (A3)/ Ram Street

c. Wandsworth High Street (A3)/ Wandsworth Plain

d. Wandsworth High Street (A3)/ Putney Bridge Road (A3)

e. Putney Bridge Road (A3)/ Putney Bridge Road (A3209)/ Armoury Way (A3)

f. Armoury Way (A3/A217)/ Wandsworth Plain

g. Armoury Way (A3/A217)/ Ram Street/Old York Road (A217)

h. Armoury Way (A3/A217)/Old York Road (A217)/ Swandon Way (A217)/ Fairfield Street (A3)/

i. Armoury Way (A3/A217)/ Dormay Street

j. Dormay Street/ The Causeway.

8.2.22 Wandsworth Plain would be used by traffic approaching the site in a westbound direction, i.e. from the east along East Hill (A3) as a result of the one way system. Construction vehicles leaving the site towards the A3 westbound would route east on Armoury Way (A3/A217), south on Fairfield Street (A3), then west onto the East Hill (A3).

8.2.23 Construction vehicles heading towards the A3 eastbound would also route east on Armoury Way (A3/A217), south on Fairfield Street (A3), but then east onto the Wandsworth High Street (A3).

8.2.24 The construction routes have been discussed agreed in principle (and are subject to the agreement of final *Traffic Management Plans*) with both Transport for London and the Local Highway Authority; LB of Wandsworth.

8.2.25 The exact routing depends on the material origins and destinations which are detailed in the *Project-wide TA*.

Proposed construction flows

Construction vehicles

8.2.26 The proposed working hours are set out in the *CoCP* and vehicle movements would take place during the standard day shift of ten hours on weekdays (08:00 to 18:00) and five hours on Saturdays (08:00 to 13:00).

8.2.27 Construction activity would occur 24 hours a day for some periods but during such periods, construction vehicle movements would only occur during the ten and five hour periods stated above.

8.2.28 A limited number of extensions to working hours may be required to cover certain construction activities at Dormay Street site such as major concrete pours. The site would also require continuous working hours when the tunnelling and secondary lining construction activities are taking place. These underground works would occur on a continuous 24 hour cycle seven days a week. However, construction vehicle movements would be limited to the hours stated in para 8.2.26 other than in exceptional circumstances.

8.2.29 In exceptional circumstances HGV and abnormal load movements could occur up to 22:00 for large concrete pours and later at night on agreement with the LB of Wandsworth.

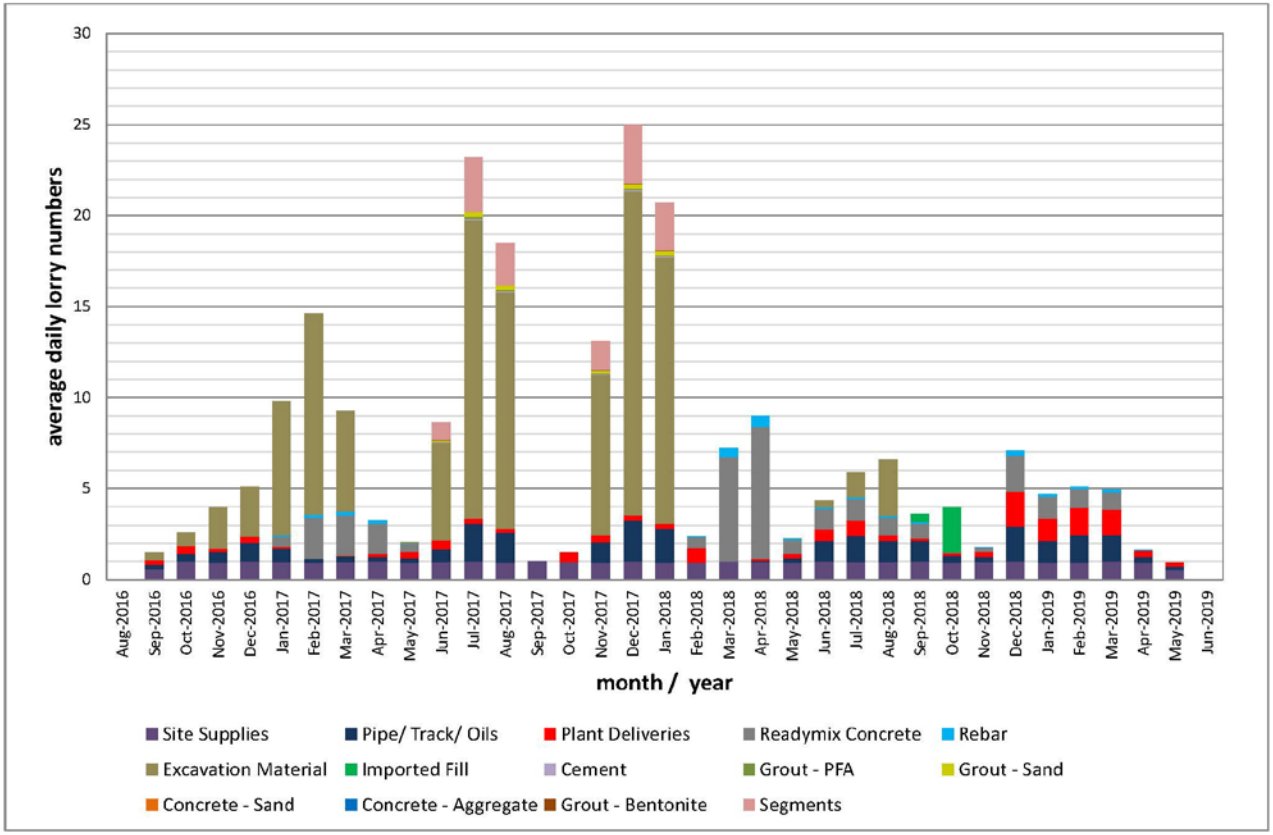
8.2.30 All construction materials to and from this site would be transported by road.

8.2.31 A site-specific peak construction assessment year has been identified. The histogram in Plate 8.2.1 shows that the peak site-specific activity at the Dormay Street site would occur in Site Year 2 of construction. This site-specific peak is earlier than the overall project-wide construction peak activity year of 2019.

8.2.32 The assessment is based on 10% of the daily number of lorry journeys occurring in the peak hours, which has been agreed with TfL as a reasonable approach. It is recognised that it may be desirable to reduce the number of construction lorry movements in peak hours and the mechanisms for addressing this would form part of the Traffic Management Plans which are required as part of the *CoCP*.

8.2.33 This *TA* assesses this site-specific peak construction year. As detailed in Table 8.2.1, there would be 50 average peak daily construction lorry vehicle movements. The number of vehicular movements would vary throughout the construction period, with Plate 8.2.1 indicating the construction vehicle profiles during construction.

Plate 8.2.1 Estimated construction lorry profile



Note: Figure shows approximate volumes and number of vehicle trips based upon assumed timings for the works. It is not a programme and remains subject to change.

8.2.34 As the *Project-wide TA* explains, the TfL Highway Assignment Models (HAMs) used for the strategic highway modelling represent peak hours of 08:00 to 09:00 and 17:00 to 18:00 and these have been taken as being the network-wide AM and PM peak hours in the project-wide and site-specific assessments.

8.2.35 The 07:00 - 09:00 and 17:00 - 19:00 periods identified from the local traffic surveys are busier on the network in the weekday than those encountered at the weekends (this is discussed in Section 8.4). Whilst the AM and PM peak hours differ slightly from these network-wide peak hours, in practice the number of vehicle movements at this site would be low in comparison to base case traffic flows on the adjacent network and is expected to be constant throughout the day.

8.2.36 Hourly construction vehicle trips during the inter-peak period are not expected to exceed the hourly trips generated between 08:00 - 09:00 and 17:00 - 18:00. The peak travel periods hours utilised for the modelling assessments in this report are therefore the weekday periods between 08:00 - 09:00 and 17:00 - 18:00.

8.2.37 Other construction vehicle movements associated with site operations and contractor activities would be cars and light goods vehicles. The construction worker vehicle movements expected to be generated by the Dormay Street site are shown in Table 8.2.4.

8.2.38 The peak month in Site Year 2 of construction has been used for the assessment and 10% of the daily HGV construction movements in the peak month have been assumed to take place in the peak hours to provide a busiest case assessment. The AM and PM peak hours are assumed to be 08:00 to 09:00 and 17:00 to 18:00 respectively.

8.2.39 As indicated in Plate 8.2.1 the number of vehicular movements varies throughout the construction period with one month of 50 movements a day, three months with between 30 to 38 HGV movements a day, two months with between 20 to 28 HGV movements a day, eight months with between 10 to 20 HGV movements a day and 19 months with less than ten movements a day during the three year build programme.

Construction workers

8.2.40 The construction site is expected to require a maximum workforce of approximately 92 workers on site over a 24 hour period. However, as a result of shift patterns, there will be a maximum of 70 workers on site at any one time. The number and type of workers is shown in Table 8.2.2.

Table 8.2.2 Maximum estimated construction worker numbers

Contractor				Client	
Staff*		Labour**		Staff***	
08:00-18:00	18:00-08:00	07:00-19:00	19:00-07:00	08:00-18:00	18:00-08:00
30	5	25	15	15	2

** Contractor Staff – engineering and support staff to direct and project manage the engineering work and site.*
*** Contractor Labour – those working on site doing engineering, construction and manual work.*
**** Client Staff – engineering and support staff managing the project and supervising the Contractor.*
Table shows maximum number of workers required (92). However, as a result of shift patterns the maximum work force on site would be 70 occurring during the day shift (08:00 – 18:00).

8.2.41 The worker mode split has been derived by taking the highest number of workers during the peak month and calculating the percentage of trips by mode using the 2001 Census[i] journey to work data for the area in the vicinity of the Dormay Street site.

8.2.42 The Census data indicates that the predominant mode of travel for journeys to work in this area is by car.

8.2.43 The mode split outlined in Table 8.2.3 has been used to assess the impact of worker journeys on the highway and public transport networks.

8.2.44 The method of distribution of worker trips on the transport networks, including the public transport services, has been agreed with the Local Highway Authority and TfL.

[i] Based on 2001 Census. This type of data had not been released from the 2011 Census at the time of the assessment.

Table 8.2.3 Transport mode split

Mode	Percentage of trips to site	Equivalent number of worker trips (based on 60* worker trips)	
		AM peak hour (07:00-08:00)	PM peak hour (18:00-19:00)
Bus	14%	9	9
National Rail	12%	7	7
Tube	10%	5	5
Car Driver	46%	28	28
Car Passenger	2%	1	1
Cycle	4%	3	3
Walk	9%	5	5
River	0%	0	0
Other mode (taxi/motorcycle)	3%	2	2
Total	**100%**	**60**	**60**

** Only 60 staff travel during the peak hour. The other ten will travel outside of the peak hours.*

8.2.45 Although there will be no worker parking provided on site, there is some limited parking that might be available close to the site. It has therefore been assumed that there would be some worker trips by car. However, the *Project Framework Travel Plan* and *Workplace Travel Plan* would include measures to discourage workers from travelling by car or parking in surrounding streets. This is therefore considered to be a robust assessment. Information regarding the travel arrangements of these workers would be included in the *Construction Management Plan* and *Workplace Travel Plan* documents for the site.

8.2.46 It is difficult to predict with certainty the directions to and from which workers at the site would travel. Staff could potentially be based in the local area or in the wider Greater London area and are unlikely to have the same trip origin-destination distributions as construction lorries.

Vehicle movements summary

8.2.47 Other construction vehicle movements associated with site operations and contractor activities would be cars and light good vehicles.

8.2.48 Table 8.2.4 shows the construction lorry movement for the local peak traffic periods. These are based on the peak months of construction activity at this site, together with the construction worker vehicle movements expected to be generated by the Dormay Street site.

Table 8.2.4 Peak construction works movements

Vehicle type	Vehicle movements per time period				
	Total Daily	**0700 to 0800**	**0800 to 0900**	**1700 to 1800**	**1800 to 1900**
Construction vehicle lorry movements 10%*	50	0	5	5	0
Other construction vehicle movements**	36	4	4	4	4
Worker vehicle movements***	84	28	3	3	28
Total	**170**	**32**	**12**	**12**	**32**

** The assessment is based on 10% of the daily construction lorry movements associated with materials taking place in each of the peak hours.*
*** Other construction vehicle movements includes cars and light goods vehicles associated with site operations and contractor activity.*
**** Worker vehicle numbers based on 46% of workers travelling by car, derived by taking the highest number of workers during the peak month and calculating the % of trips using the 2001 Census Journey to Work data. This represents an unconstrained case to produce a robust assessment, as there would be no parking on site for workers and the Project Framework Travel Plan and site-specific Travel Plan would include measures to discourage workers from travelling by car or parking in surrounding streets.*

8.2.49 The assessment has been based on a combination of the peak hour of movements for construction and worker vehicle movements between 07:00 to 09:00 and 17:00 to 19:00. These have been applied to the peak hours to take into account the highest number of movements generated by the site. In reality, not all peaks for these movements would occur concurrently and the peak for worker trips would be outside of the highway network peak hour, therefore the assessment is considered to be robust.

8.2.50 All construction material would be transported by road and an average peak flow of 170 vehicle movements a day is expected during the months of greatest activity during Site Year 2 at this site. At other times in the construction period, vehicle flows would be lower than this average peak figure.

8.2.51 Table 8.2.4 shows that in the AM (07:00 – 09:00) and PM (17:00 – 19:00) peak periods, the Dormay Street site would generate approximately 44 vehicle movements in each peak period. This has been assessed against the peak hour operation of the highway network and represents a robust figure for assessment as it combines the anticipated movements between 07:00 and 09:00 in the morning and 17:00 to 19:00 in the evening.

8.2.52 There would be four vehicle movements associated during the peak hours with other Thames Tideway Tunnel sites passing along Armoury Way (A3/A217) in Site Year 2 of construction at Dormay Street.

Code of Construction Practice

8.2.53 Measures incorporated into the *Code of Construction Practice* (*CoCP*)[ii] *Part A* (Section 5) to reduce transport effects include:

a. Site specific *TMP*: to set out how vehicular access to the site would be managed so as to minimise impact on the local area and communicate this with the local borough and other stakeholders. This includes any works on the highway, diversion or temporary closure of the highway or public right of way

b. HGV management and control: to ensure construction vehicles use appropriate routes to the sites and the vehicle fleet and/or drivers meet current safety and environmental standards

8.2.54 In addition to the general transport measures within the *CoCP Part A,* the *CoCP Part B* (Section 5) relating to the Dormay Street site includes the following measures:

a. provision of site access from Armoury Way (A3/A217) onto Dormay Street and right turn onto the site

b. provision of site access for light vehicles (up to 10 tonnes gross weight) only on The Causeway

c. vehicular and pedestrian access along The Causeway would be maintained for the duration of the works

d. the section of Dormay Street from Armoury Way to the site is narrow and is a primary vehicle route from the LB of Wandsworth Frogmore Depot. The contractor would manage and coordinate the access and egress of site vehicles along Dormay Street. This includes but is not limited to:

   i liaise with LB Wandsworth Depot on planned construction vehicle movements and where practical avoid times where there are a frequent number of vehicles exiting the depot. This would specifically include buses exiting the LB of Wandsworth depot

   ii liaise with other local businesses, including the adjacent public house, plumber merchants and stone masons, to avoid planned construction vehicle movements during scheduled third party delivery periods where practical

   iii coordinate and communicate with deliveries and suppliers to manage vehicle arrival and departure times to minimise likelihood of site vehicles meeting on the narrow section of the Dormay Street and also meeting LB of Wandsworth vehicles

   iv utilise a suitable remote lorry holding area and have radio communication to call in vehicles to site

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The Code of Construction Practice (CoCP) is provided in Vol 1 Appendix A. It contains general requirements (Part A), and site specific requirements for this site (Part B)[iii] Assessment Tool for Travel plan Building Testing and Evaluation, (ATTrBuTE), is a web-based travel planning tool, which ensures that Travel Plans are in accordance with TfL's published guidance on travel planning for new development in London, http://www.attrbute.org.uk/.

v use traffic marshals as required to direct vehicle movements on Dormay Street and, when required, manage turning of vehicles in from Armoury Way. Vehicles would be prevented from queuing on Armoury Way when attempting to turn into Dormay Street

vi advise deliveries and suppliers that queuing on Armoury Way is prohibited and all drivers are not required to continue around the one way system and not queue on Armoury Way.

8.2.55 Based on current travel planning guidance including TfL's '*Travel Planning for new development in London (*TfL, 2011)[1]', this development lies within the threshold for producing a Strategic Framework Travel Plan. A *Project Framework Travel Plan* has been prepared based on the TfL ATTrBuTE[iii] guidance. The *Project Framework Travel Plan* addresses project-wide travel planning measures including the need for a project-wide Travel Plan Manager, initial travel surveys during construction and a monitoring framework. It also contains requirements and guidelines for monitoring site-specific measures. The site-specific travel planning requirements of relevance to the *Project Framework Travel Plan* are as follows:

a. information on existing transport networks and travel initiatives for the Dormay Street site

b. a mode split established for the Dormay Street site construction workers to establish and monitor travel patterns

c. site-specific targets and interim targets would be established based on the mode share which would link to objectives based on local, regional and national policy

d. a nominated person with assigned responsibility for managing the Travel Plan monitoring and action plans specifically for this site.

Other measures during construction

8.2.56 Embedded design measures which are not outlined in the *CoCP* but are of relevance to the *TA* at the Dormay Street site include the provision of safe crossing points for pedestrians and cyclists at the site access.

8.2.57 These measures are detailed further within the construction assessment section (in Section 8.5).

Operation

8.2.58 Following completion of construction, the existing LB of Wandsworth Depot would be enlarged to include the part of the Dormay Street site to the south of Bell Lane Creek and the LB of Wandsworth depot to the east of Dormay Street. The permanent works would therefore be located inside the enlarged council depot but Thames Water would retain a right of access for operations and maintenance purposes.

[iii] Assessment Tool for Travel plan Building Testing and Evaluation, (ATTrBuTE), is a web-based travel planning tool, which ensures that Travel Plans are in accordance with TfL's published guidance on travel planning for new development in London, http://www.attrbute.org.uk/.

8.2.59 The area around the shaft, interception chamber and valve chamber would be finished with hardstanding to allow crane and other support vehicles access to the shaft and chamber access covers.

8.2.60 During ten-yearly inspections, space to locate two large cranes within the site area would be required.

8.2.61 During operation it is anticipated that there would be no significant issues for the transport infrastructure and operation within the local area, because maintenance trips to the site would be infrequent and short term. On this basis the only elements considered are:

a. Effects on highway layout and operation.

8.2.62 The potential for operational impacts on these elements is due to the short-term effects of the physical aspects of access to the site for maintenance. These are only considered qualitatively because the changes required to the highway network during maintenance activity will be minor and temporary, meaning that a quantitative assessment is not required. The scope of this analysis has been discussed with the LB of Wandsworth and TfL.

8.2.63 For routine three or six monthly inspections vehicular access would be required for light commercial vehicles, typically a transit van.

8.2.64 During the more significant maintenance visits due to take place approximately every ten years, access will be required to enable two mobile cranes and associated support vehicles to be brought to the site. The cranes would facilitate duty/standby access for personnel.

8.2.65 During operation, maintenance vehicles would enter the site from Dormay Street. The highway layout during operation is provided in the Dormay Street *Transport Assessment* figures and indicates the operational layout at the site.

8.2.66 No access will be required from The Causeway for operational for maintenance purposes.

8.3 Assessment methodology

Engagement

8.3.1 An extensive scoping and technical engagement process has been undertaken. All consultee comments relevant to this site are presented in Section 8 of the *Environmental Statement*.

8.3.2 Whilst the effects associated with transport for the operational phase have been scoped out of the *Environmental Statement*, the *TA* examines the operational phase in order to satisfy the relevant stakeholders that technical issues have been addressed (for example, those associated with access for maintenance activities).

Consultees

8.3.3 Throughout the scoping and technical engagement process, the key stakeholders with regards to transport, primarily TfL and the relevant local borough for each site, have been consulted. For Dormay Street, the LB of

Wandsworth has been consulted and the comments which have arisen relating directly to Dormay Street have been recorded and responded to accordingly.

8.3.4 The key issues arising from the stakeholder engagement are:

a. Access difficult via the Frogmore Complex. The Borough confirmed that it is happy to continue the current access arrangements rather than undertaking significant realignment of the Dormay Street/Armoury Way (A3/A217) junction

b. The Borough suggested access off Armoury Way (A3/A217) and bridging the Wandle as an alternative routing

c. As a general comment, the Borough would prefer the use of river for movement of materials wherever possible

d. Assessment should take into account potential changes to the gyratory proposed by other planning applications

e. The LB of Wandsworth children / disabled bus services would be moved to the southern section of the LB of Wandsworth depot to the east of Dormay Street to accommodate the Dormay Street site. Bus movements to and from the site will be intense in the morning and evening peaks. LB of Wandsworth request consideration given to this when HGV movements are being planned

f. It is possible the Ram Brewery Development would be under construction on site at the same time as the Thames Tideway Tunnel

g. If the Dormay Street junction with Armoury Way (A3/A217) requires redesign, the needs of pedestrians and cyclists as well as vehicles must be considered.

8.3.5 The key technical issues raised have been addressed as far as is practicable at this stage within this *TA*, the *Project-wide TA* and the *Environmental Statement*, in consultation with both TfL and the LB of Wandsworth.

Construction

8.3.6 The assessment methodology for the construction phase follows that described in the *Project-wide TA*. There are no site specific variations for undertaking the construction assessment of this site.

Construction assessment area

8.3.7 The assessment area for the Dormay Street site includes the site access directly onto Dormay Street and the junction of Dormay Street with Armoury Way (A3/A217) to the south of the site, which forms part of the TLRN. A secondary access on The Causeway has also been assessed.

8.3.8 These roads and junctions have been assessed for highway, cycle and pedestrian impacts. The Thames Path has been included within the assessment due to its proximity to the development site. Effects on local bus services within 640m (see para. 8.4.28) and rail services within 960m (see para. 8.4.33) of the site have also been assessed. The Public Transport Accessibility Level (PTAL) of the site, calculated using TfL's

approved PTAL methodology assumes a walking speed of 4.8km/h and considers rail stations within a 12 minute walk (960m) of the site and bus stops within an eight minute walk (640m).

8.3.9 The extent of the assessment area for the local highway network modelling has been informed by considering the volume of construction traffic at this site and the degree of impact that would be experienced at the nearest junction of the construction vehicle route with the Strategic Road Network (SRN) or TLRN. Where the assessment shows that the forecast impacts at this junction would not be significant, junctions further afield on the strategic network have not been assessed. Where impacts are forecast to be significant, a wider area of the local network has been considered in the assessment.

Construction assessment year

8.3.10 2019 has been used as the peak construction assessment year for the assessment of project-wide effects. This has been agreed with TfL and is reported in the *Environmental Statement*.

8.3.11 To assess the busiest case scenario for the Dormay Street locality, the peak construction traffic year has been identified. This ensures that the assessment for Dormay Street takes into consideration the heaviest flow of construction vehicles at this site on local roads for the local modelling assessment.

8.3.12 The site-specific peak construction traffic year at Dormay Street is Site Year 2 of construction, and this has formed the basis for this *TA*.

8.3.13 The assessment of the aggregated Thames Tideway Tunnel construction traffic flows on the wider highway network is included within the *Project-wide TA*.

Highway network modelling

8.3.14 The assessment for each site takes account of construction vehicle movements associated with the Dormay Street site, together with construction traffic from other Thames Tideway Tunnel project sites that would use the highway network in the vicinity of this site in Site Year 2 of construction.

8.3.15 As indicated in the *Project-wide TA*, the TfL HAMs have been used as part of the assessment. The strategic highway modelling has used three of the HAMs, which cover west, central and east London. These three models cover the locations of all of the Thames Tideway Tunnel project sites and this approach has been agreed with TfL.

8.3.16 The HAMs have been developed by TfL using GLA employment and population forecasts, which are based on the employment and housing projections, set out in the London Plan. As a result the assessment inherently takes into account a level of future growth and development across London.

8.3.17 The construction base case in Site Year 2 takes into account the following developments that are planned to be complete at this time; including Wandsworth Riverside Quarter which would be partially complete and

occupied and Battersea Reach which would be under construction. Those that would be fully or partially complete have been included in the construction base case. They comprise:

a. Southside Shopping Centre, Mapleton Crescent/Garratt Lane

b. Units 1 -20 Enterprise Way

c. Western Riverside Transfer Station

d. Osiers Road

e. Wandsworth Riverside Quarter, Point Pleasant/Osiers Road (Phase A)

f. Cockpen House, Buckhold Road

g. The Business Village, Broomhill Road

h. Battersea Reach

i. Townmead Road.

8.3.18 As the Wandsworth Riverside Quarter (Phase B) and Battersea Reach developments would be under construction, this means that cumulative effects should be assessed. However, as the TfL Highway Assignment Models (HAM) which have been used in the *TA* have been developed using GLA employment and population forecasts, and which are based on the employment and housing projections set out in the London Plan, the assessment inherently takes into account a level of future growth and development across London. This means that the trips associated with all the developments identified above are already taken into consideration within the traffic modelling

8.3.19 For future year assessments the TfL West London (WeLHAM) has been used for the Dormay Street site. The model provides factors for the increase in vehicle-kilometres in the borough between the construction base year and 2021. The relevant growth factor for the site was applied to the traffic surveys collected in 2011 to produce 2021 flows for existing traffic.

8.3.20 Office and operational trips associated with the site were assigned to the TfL WeLHAM model using the *Environmental Impact Assessment (*EIA) scenario and the project peak month. The assigned flows were added to the 2021 existing flows and the construction flows provide the turning movements for local modelling.

8.3.21 Construction traffic associated with other Thames Tideway Tunnel project sites using routes in this area has been included in the WeLHAM scenario.

8.3.22 This approach provides a robust assessment case for local modelling as the baseline traffic has been growthed to 2021, which is later than the site-specific peak year of construction, and no allowance has been made for existing traffic that might divert to other routes as a consequence of the use of local roads by the project related traffic.

Operation

8.3.23 The assessment methodology for the operational phase follows that described in the *Project-wide TA*. There are no site specific variations for undertaking the operational assessment of this site.

8.3.24 Given the level of transport activity associated with the Thames Tideway Tunnel project during the operational phase, only the localised transport issues around the Dormay Street site are assessed. Thames Tideway Tunnel project sites would not affect the area around Dormay Street in the operational phase and therefore they are not considered in the assessment.

8.3.25 With regard to other developments in the vicinity of the site, the developments listed in para. 8.3.15 within 1km of the Dormay Street site would be complete and operational by Year 1 of operation. As a result these developments have been included within the operational base case which takes into consideration the effects on highway layout and operation.

Operational assessment area

8.3.26 The assessment area for the operational assessment remains the same as for the construction assessment as set out in paras. 8.3.7 and 8.3.8.

Operational assessment year

8.3.27 The operational assessment year has been taken as Year 1 of operation which is the year in which it is assumed that the Thames Tideway Tunnel would become operational. As transport activity associated with the operational phase is very low, there is no requirement to assess any other year beyond that date.

8.4 Baseline

8.4.1 This section sets out the baseline conditions on the local transport network in the vicinity of the Dormay Street site in 2012, with the exception of the traffic survey data which was collected in 2011.

Policy review

8.4.2 The site is located within the LB of Wandsworth; the relevant national, regional and local policy documents have been reviewed, this review is presented in Appendix A.

Existing land use

8.4.3 The site comprises part of the Frogmore Industrial Complex and Causeway Island covering an area of 0.5ha and is located on an area that currently accommodates two existing works depots. The surrounding area is predominantly industrial in character and the nearest residents to the interception site are situated on the east side of Frogmore around 0.2km away.

Existing access

8.4.4 The site can be accessed via Dormay Street and The Causeway. Dormay Street joins Armoury Way (A3/A217) to the south of the site. Armoury Way (A3/A217) forms part of the TLRN and operates in the eastbound direction only and accommodates four lanes of traffic.

Pedestrian network and facilities

8.4.5 The key pedestrian network to and from the site is directly related to local transport services including bus stops and National Rail stations. The key pedestrian network related to the Dormay Street site are shown in Figure 8.4.1 in the Dormay Street *Transport Assessment* figures and comprises:

a. Thames Path

b. Dormay Street

c. The Causeway providing a connection to the Thames Path and to Wandsworth Riverside Quarter pier River bus services on the River Thames

d. Armoury Way (A3/A217) providing connection to bus stops along Armoury Way (A3/A217) and Wandsworth Plain.

8.4.6 The existing pedestrian network and facilities in the vicinity of the site are described below.

Thames Path

8.4.7 The Thames Path (a Public Right of Way) runs along the river foreshore approximately 110m walking distance north of the site, bridging the River Wandle east to west. It can be accessed from Armoury Way (A3/A217) via The Causeway and across the bridge (north/ south) over Bell Lane Creek.

8.4.8 A view of the access towards Thames Path is shown in Plate 8.4.1.

Plate 8.4.1 Access to the Thames Path via The Causeway (looking north)

Dormay Street

8.4.9 There are footpaths located on both sides of Dormay Street. These range from approximately 1.0m wide on the western side to 3.8m wide on the eastern side.

8.4.10 There are dropped kerbs in place on Dormay Street where it meets Armoury Way (A3/A217) but there is no tactile paving provided at this location. This is shown in Plate 8.4.2.

Plate 8.4.2 Dropped kerb at entrance to Dormay Street from Armoury Way

The Causeway

8.4.11 There is a narrow footpath on the eastern side of The Causeway of approximately 0.7m wide.

8.4.12 The bridge crossing of Bell Lane Creek; provides onward connections for pedestrians, as shown in Plates 8.4.3, that is separated from vehicular traffic by bollards. This bridge is subject to a weight limit of 10 tonnes.

8.4.13 The Wandle Trail is a walking and cycling route that begins at the River Wandle from its mouth with the River Thames and routes north-south along The Causeway. This route runs along the eastern boundary of the site.

Plate 8.4.3 Bell Lane Creek Bridge crossing

Armoury Way (A3/A217)

8.4.14 Armoury Way (A3/A217) provides the key pedestrian link to Wandsworth High Street (via Wandsworth Plain (A217) or Putney Bridge Road (A3)), as well as to Wandsworth Town Rail station (via Old York Road) and local bus stops. There are footpaths on either side of Armoury Way (A3/A217), ranging between 2.5m and 3m in width, as shown in Plate 8.4.4.

8.4.15 A signalised pedestrian crossing is in place to the west of Dormay Street where Armoury Way (A3/A217) meets Wandsworth Plain (A217) approximately 160m walking distance from the site. This crossing includes dropped kerbs and tactile paving on the Wandsworth Plain and Armoury Way (A3/A217) western arm. In addition, there are other pedestrian crossing facilities located throughout the gyratory system, incorporated within the signal junctions.

Plate 8.4.4 Footpath along Armoury Way (A3/A217) looking east from the junction with Wandsworth Plain

Cycle network and facilities

8.4.16 The existing cycle network and facilities in the vicinity of the site are described below and shown in Figure 8.4.1 in the Dormay Street *Transport Assessment* figures.

8.4.17 There are a number of designated Cycle Routes in the vicinity of the proposed site.

8.4.18 National Cycle Network (NCN) route 20 runs off street along Armoury Way (A3/A217), along The Causeway (adjacent to the site) to connect into NCN route 4 where The Causeway meets Smugglers Way and Enterprise Way, approximately 100m from the site.

8.4.19 NCN route 4 continues in an east-west direction along Smugglers Way and Enterprise Way.

8.4.20 The Wandle Trail routes north-south along The Causeway and runs along the eastern boundary of the site.

Plate 8.4.5 Cycle Route 20 along The Causeway looking north, south of the bridge over Bell Lane Creek

Barclays Cycle Superhighways

8.4.21 Barclays Cycle Superhighways (CS) are new cycle routes that run between central London and outer London, providing cyclists with safer, faster and more direct journeys into the city. The cycle lanes have bold road markings and signage which increase awareness among other road users. They incorporate information about journey times and links to other cycle routes along these CS routes.

8.4.22 The closest CS to the site is CS8 which is approximately 230m from the site and runs between Ram Street and Millbank. The cycle route starts on Ram Street in Wandsworth and runs along the A3025 York Road, Battersea Park, A3216 Queens Town Road, Chelsea Bridge and A3212 Grosvenor Road to Millbank; with an approximate 30 minute journey from Wandsworth to Millbank.

Barclays Cycle Hire scheme

8.4.23 There are no Barclays Cycle Hire docking stations within the vicinity of the site.

Cycle parking

8.4.24 The closest cycle parking facilities are located on Wandsworth High Street; where one row of seven Sheffield style stands are located within the southern footway approximately 365m walking distance to the south of the site, and one row of six Sheffield style stands are located within the southern footway approximately 425m walking distance to the south of the site.

8.4.25 These can be accessed via Dormay Street, Wandsworth Plain – Church Row and Wandsworth High Street.

Public transport

Public Transport Accessibility Level

8.4.26 The Public Transport Accessibility Level (PTAL) of the site has been calculated using TfL's approved PTAL methodology (TfL, 2010)[2] (analysis is included in Appendix B) and assumes a walking speed of 4.8km/h and considers rail stations within a 12 minute walk (960m) of the site and bus stops within an eight minute walk (640m).

8.4.27 Using this methodology the site has a PTAL rating of 5, rated as 'very good' (with 1 being the lowest accessibility and 6b being the highest accessibility). The following sections detail the public transport services in the vicinity of the site which are shown on Figure 8.4.2 in the Dormay Street *Transport Assessment* figures.

Bus services

8.4.28 A total of 13 daytime bus routes and four night bus routes operate within 640m walking distance of the site. Table 8.4.1 provides a summary of the bus services and their frequencies during the weekday peaks.

8.4.29 These bus routes operate from the following bus stops:

a. Wandsworth Town Hall bus stop on Fairfield Street (A3) eastbound only, approximately 500m walking distance southeast,

b. Ram Street bus stop on Ram Street southbound only, approximately 270m walking distance southeast

c. Armoury Way bus stop on Armoury Way (A3/A217) southbound and eastbound, approximately 250m walking distance south west

d. Wandsworth Police Station bus stop on Wandsworth High Street (A3) westbound, approximately 350m walking distance southwest

e. Wandsworth Plain bus stop on Wandsworth Plain (A3) eastbound, approximately 180m walking distance south.

Table 8.4.1 Existing daytime weekday peak hour local bus services and frequency (number of buses per hour)*

Bus number	Weekday two-way frequency		Nearest bus stop to the site	Approximate distance from the site (m)	Origin - destination
	AM peak (08:00-09:00)	PM peak (17:00-18:00)			
28	8	8	Wandsworth Town Hall	500	Staple Terrace to Mapleton Crescent
	9	7	Ram Street	270	Mapleton Crescent to Staple Terrace
37	7	6	Armoury Way	210	Putney Heath/Green Man to Peckham Bus Station
	6	6	Wandsworth Police Station	290	Peckham Bus Station to Putney Heath/Green Man
39	8	9	Wandsworth Police Station	290	Putney Bridge Station to Clapham Junction Station/Falcon Road
	8	8	Wandsworth /Buckhold Road	480	Clapham Junction Station/Falcon Road to Putney Bridge Station
44	6	6	Wandsworth Town Hall	500	Victoria Station to Tooting Station
	6	6	Ram Street	270	Tooting Station to Victoria Station
87	11	11	Wandsworth Plain	300	Wandsworth Plain/Aldwych/Drury Lane
	8	10			Aldwych/Drury Lane to Wandsworth Plain
156	8	8	Wandsworth Plain	300	Wimbledon Bus Station to Vauxhall Bus Station
	7	7	Wandsworth Southside /Buckhold Road	350	Vauxhall Bus Station to Wimbledon Bus Station
170	8	8	Armoury Way	290	Danebury Avenue/Minstead Gardens to Victoria Bus Station
	10	7	Wandsworth Police Station	290	Victoria Bus Station to Danebury Avenue/Minstead Gardens

Bus number	Weekday two-way frequency		Nearest bus stop to the site	Approximate distance from the site (m)	Origin - destination
	AM peak (08:00-09:00)	PM peak (17:00-18:00)			
220	10	7	Armoury Way	210	Mapleton Crescent to Willesden Junction
	9	8	Wandsworth Police Station	290	Willesden Junction Station to Mapleton Crescent
270	6	6	Armoury Way	210	Putney Bridge Station to Madeira Road
	6	6	Wandsworth Police Station	290	Madeira Road to Putney Bridge
337	-	-	Armoury Way	210	Richmond Bus Station to Northcote Road
	6	5	Wandsworth Police Station	290	Northcote Road to Richmond Bus Station
485	2	2	Armoury Way	210	Hammersmith Bus Station to Armoury Way
	2	2	Wandsworth Police Station	290	Armoury Way to Hammersmith Bus Station
639	1	-	Wandsworth Plain	300	St John Bosco College to Clapham Junction Station
	1	-	Wandsworth South Side	480	Clapham Junction Station to St John Bosco College
670	-	1	Armoury Way	210	John Paul II School to Clapham Junction Station
C3	9	8	Bridgend Road	900	Falcon Road/Grant Road to Warwick Road Tesco
	10	8			Warwick Road Tesco to Falcon Road/Grant Road

**TfL (2011) Timetables. Available at: www.tfl.gov.uk (Accessed: September 2012)*

Table 8.4.2 Existing night time local bus services and frequency (number of buses per hour)*

Bus number	Frequency		Nearest bus stop to the site	Approximate distance from the site (m)	Origin - destination
	Mon-Fri (00:00-06:00)	Saturday (00:00-06:00)			
N28	1	1-2	Bridgend Road	1000	Bayham Street to Mapleton Crescent
N28	1	1-2	Bridgend Road	1000	Mapleton Crescent to Bayham Street
N87	3-7	4-7	Wandsworth Plain	300	Fairfield Bus Station to Aldwych/Drury Lane
N87	3-4	4-7	Wandsworth Town Hall	500	Ladbroke Grove Sainsbury's to Clapham Junction Station/Falcon Road
295 (24 hr)	2-4	2-3	Bridgend Road	1000	Clapham Junction Station/Falcon Road to Ladbroke Grove Sainsbury's
295 (24 hr)	2-4	2-3	Bridgend Road	1000	Peckham Bus Station to Putney Heath/Green Man
37 (24 hr)	2-3	2-3	Armoury Way	210	Putney Heath/Green Man to Peckham Bus Station
37 (24 hr)	2-3	2-3	Wandsworth Police Station	290	Peckham Bus Station to Putney Heath/Green Man

**TfL (2011) Timetables. Available at: www.tfl.gov.uk (Accessed: September 2012)*

8.4.30 On average there are approximately 172 daytime bus services in total per hour in the AM peak and 160 bus services in total per hour in the PM peak within 640m walking distance of the site.

8.4.31 With regard to night-time bus services, there are approximately 20 bus services per hour Monday – Friday between 00:00 – 06:00 and a total of 23 bus services on Saturdays between 00:00 – 06:00 within 640m walking distance of the site.

London Underground

8.4.32 As shown on Figure 8.4.2 in the Dormay Street *Transport Assessment* figures, East Putney Station is on the District Line of the London Underground. This station is greater than 960m from the site. Trains travel to Edgware Road or Upminster Station and Wimbledon in the opposite direction.

London Overground

8.4.33 As shown on Figure 8.4.2 in the Dormay Street *Transport Assessment* figures, there are no London Overground Stations located within 960m walking distance of the Dormay Street site.

National Rail

8.4.34 As shown on Figure 8.4.2 in the Dormay Street *Transport Assessment* figures, the closest National Rail station to the site is Wandsworth Town which is approximately 700m walking distance to the northeast of the site and serves Clapham Junction and Waterloo stations to the northeast and Weybridge and Hounslow to the southwest.

8.4.35 In each of the AM and PM peak hours, nine trains service Waterloo from Wandsworth Town rail station. Two trains and six trains operate towards Weybridge and Hounslow respectively in the AM and PM peak hour

8.4.36 Table 8.4.3 provides a summary of the National Rail services and their frequencies during the weekday peaks.

Table 8.4.3 Existing national rail services and frequency (number of services per hour)*

National Rail station	Weekday two-way frequency		Approximate walking distance from the site (m)	Origin - destination
	AM peak (08:00-09:00)	PM peak (17:00-18:00)		
Wandsworth Town	10	10	700	Waterloo: Clapham Junction, Queenstown Road, Vauxhall, London Waterloo.
	5	4		Weybridge: Barnes Bridge, Chiswick, Kew Bridge, Brentford, Syon Lane, Isleworth, Hounslow, Feltham, Ashford, Egham, Virginia Water, Chertsey, Addlestone, Weybridge.
	6	6		Hounslow: Putney, Barnes, Barnes Bridge, Chiswick, Kew Bridge Brentford, Syon Lane, Isleworth, Hounslow, Whitton, Twickenham, St Margarets, Richmond, North Sheen, Mortlake, Putney, Barnes, Wandsworth Town.

* National Rail Enquiries (2011) *Live departure boards*. Available at: http://www.nationalrail.co.uk/times_fares/ldb/ (Accessed: January 2013)

River passenger services

8.4.37 The Dormay Street site is located approximately 800m walking distance south of Wandsworth Riverside Quarter pier on the south bank of the River Thames.

8.4.38 Wandsworth Riverside Quarter pier is served by the TfL River Bus which operates both eastbound and westbound. The eastbound service towards Blackfriars Millennium operates from Monday to Friday during peak hours (06:25, 07:35 and 08:10 in AM peak and 18:15 in PM peak). The westbound service towards Putney operates from Monday to Friday with no service in the morning and 17:55, 19:10 and 19:50 services in the evening.

River navigation

8.4.39 There are no wharf or jetty facilities close to the Dormay Street site that would be affected by the proposed development.

Taxis

8.4.40 There are no on-street taxi ranks within a 640m walking distance of the site.

Highway network and operation

8.4.41 The site is located on Dormay Street which is a two-way cul-de-sac (with a minimum width of around 5m) that leads to a number of small industrial units and a LB of Wandsworth depot.

8.4.42 All construction vehicles would approach the site via Armoury Way (A3/A217) and utilise either Dormay Street or The Causeway as shown in Figure 8.2.2 in the Dormay Street *Transport Assessment* figures.

8.4.43 The Causeway forms a priority junction with Dormay Street just north of the Dormay Street / Armoury Way (A3/A217) junction. The Dormay Street / Armoury Way (A3/A217) junction is also a priority junction which operates on a 'left-turn in, left-turn out' arrangement.

8.4.44 The Causeway is a narrow cul-de-sac (which varies in width from around 4.7m to 8m) that accommodates two-way traffic flow. However, due to the restricted width in certain parts of the street only one direction of flow is possible at a time. A second access to the LB of Wandsworth depot is located at the northern end of The Causeway.

8.4.45 Armoury Way (A3/A217) is a one way, four lane eastbound route which forms part of the TLRN. A speed limit of 30mph is in place. This forms part of a one-way gyratory system which routes vehicles east along Armoury Way (A3/A217), south along Ram Street, west along Wandsworth High Street and north along either Wandsworth Plain or West Hill.

8.4.46 Local highway modelling has been undertaken to determine the operation of the Dormay Street / Armoury Way (A3/A217) and the Dormay Street / The Causeway junctions in the baseline situation. These are discussed in paras 8.4.100 and 8.4.111.

8.4.47 The modelling outputs for the baseline situation for these junctions are shown in Table 8.4.10 and Table 8.4.11. The results indicate that both junctions operate within capacity in both weekday peak hours.

Parking

8.4.48 Figure 8.4.3 in the Dormay Street *Transport Assessment* figures shows the locations of the existing car parking within the vicinity of the site.

Existing on-street car parking

8.4.49 There is no on-street parking along Armoury Way (A3/A217) or Dormay Street. There are 64 privately owned permit spaces at the northern end of The Causeway which are not heavily used.

Existing off-street/private car parking

8.4.50 Off-street car parking is provided at the B&Q store on Smugglers Way, approximately 380m walking distance northeast of the site. The car park provides approximately 240 spaces and is intended for customer use. It is open 07:00 to 21:00 Monday to Friday, 07:00 to 20:00 Saturday and 10:00 to 16:00 Sunday.

8.4.51 Off-street car parking is also provided at The Riverside West car park on Smugglers Way, approximately 450m walking distance northeast of the site. The car park provides approximately 525 spaces and there is a charge of £1.90 per hour and a maximum charge of £30.35 per day. The car park is open 24 hours Monday to Sunday. The charges are shown in Table 8.4.4.

Table 8.4.4 Riverside West car park parking charges

Duration	Charge
Up to 1 hour	£1.90
Up to 2 hour	£3.60
Up to 3 hour	£5.60
Up to 4 hour	£6.70
Up to 5 hour	£8.00
Up to 6 hour	£9.10
Up to 7 hour	£10.40
Up to 24 hour	£30.35
1 Week	£175.00
1 Month	£349.00
1 Quarter	£748.00
6 Months	£1,267.00
1 year	£2,087.00

8.4.52 Off-street car parking is also provided at a Sainsbury's car park on Garratt Lane approximately 600m walking distance south of the site. The car park provides approximately 423 spaces. There is a maximum stay of two hours with no charge for store customers and £1.70 charge for non-customers. The car park is open is open 08:00 to 22:00 Monday to Saturday and 11:00 to 17:00 Sunday. The charges are shown in Table 8.4.5.

Table 8.4.5 Sainsbury's car park parking charges

Duration	Charge
Maximum 2 hours – Store Customers	Free
Maximum 2 hours – Non Customers	£1.70

8.4.53 Off-street car parking is also provided at the Southside Wandsworth shopping centre which has two car parks: one at Garratt Lane (A217) which provides approximately 850 spaces and is approximately 550m walking distance south of the site, and one off Buckhold Road Way (A218) at Neville Gill Close which provides approximately 330 spaces and is approximately 570m walking distance south of the site. For both car parks, there is a charge of £1.20 per hour and a maximum charge of £20.20 per 24 hours, although some parking concessions are available to customers. The car park is open 06:00 to 23:00 Monday to Friday, 06:00 to 21:00 Saturdays and Sundays. The charges are shown in Table 8.4.6.

Table 8.4.6 Traders Hall multi-storey car park parking charges

Duration	Charge
Up to 1 hour	£1.20
Up to 2 hour	£2.40
Up to 3 hour	£3.50
Up to 4 hour	£4.90
Up to 5 hour	£6.40
Up to 6 hour	£7.80
Up to 9 hour	£14.40
Up to 12 hour	£17.30
Up to 24 hour	£20.20
Motorcycle per day	£3.50

Coach parking

8.4.54 There are no coach parking facilities within a 640m walking distance of the Dormay Street site. The nearest coach park is the Earls Court coach park which is located 4km north of the site.

Car clubs

8.4.55 Car clubs provide members with easy access to cars for short-term use. Cars are available as and when needed and allow members to access a car without the purchase, storage and operational costs associated with owning a private car. The car clubs available within a 640m walking distance of the Acton Storm Tanks site are discussed below.

8.4.56 The closest car club parking space to the site is operated by City Car and is located approximately 500m east walking distance from the site on Ebner Street.

8.4.57 The next closest car club parking space is operated by ZipCar and is located approximately 600m east walking distance from the site on Podmore Road.

Servicing and deliveries

8.4.58 There are no on-street loading or service bays in the immediate vicinity of the site. However, there are also no loading restrictions on the roads around the site therefore service vehicles are able to stop on the street.

Baseline Survey data

Description of data

8.4.59 Automatic Traffic Count (ATC) data for Swandon Way (A217) was obtained from TfL and was analysed to identify the traffic flows along this road in May - June 2011. The flows are discussed in paras. 8.4.89 to 8.4.96.

8.4.60 Five year accident data for roads surrounding the Dormay Street site has been obtained from TfL. This data is discussed in paras. 8.4.113 to 8.4.115.

8.4.61 Baseline survey data were collected in May, June and September 2011 to establish the existing transport movements in the area. Figure 8.4.4 in the Dormay Street *Transport Assessment* figures shows the survey locations in the vicinity of the site. Appendix A of the *Project-wide Transport Assessment* includes a *Baseline Data Report* which provides full detail of the surveys undertaken and the data collected.

8.4.62 The scope of the surveys in terms of location and time periods was considered to ensure that the data required for assessment was collected. In some cases ATC data was collected on links to validate the junction count data and provide information for noise and air quality assessments. Pedestrian and cycle count data was collected at locations where flows could be affected by pedestrian and cycle diversions during construction, the generation of additional trips or where conflicts could occur with construction vehicles. Parking survey data was collected where it was

possible that parking suspensions would be necessary or where additional parking demand might be generated by the proposed development.

8.4.63 As part of baseline surveys, manual and automated traffic surveys were undertaken to establish specific traffic, pedestrian and cycle movements including turning volumes, queue lengths, saturation flows, degree of saturation and traffic signal timings.

8.4.64 Traffic surveys were carried out on a weekday and a weekend to represent a weekly profile of traffic at particular location. Where two weekly profiles have been surveyed, the busiest survey was used.

8.4.65 Parking surveys were undertaken to establish the occupancy of on street parking along The Causeway.

8.4.66 The surveys undertaken in the vicinity of the site and their locations are provided in Table 8.4.7 below.

Table 8.4.7 Survey types and locations

Survey type and location	Date
Junction turning movement survey (including pedestrian and cycle movements)	
Wandsworth High Street (A3) / Buckhold Road (A218)	7 and 9 July 2011
The Causeway / Dormay Street	7 and 10 May 2011
Armoury Way(A3/A217) / Dormay Street	7 and 10 May 2011
Old York Road (A3) / Ram Street / Armoury Way(A3/A217)	7 and 10 May 2011
Swandon Way (A217)/ Old York Road/ Smugglers Way	7 and 10 May 2011
Marl Road/ Smugglers Way	7 and 10 May 2011
Wandsworth Bridge Road (A217)/ Jews Road	7 and 10 May 2011
Automatic Traffic Count (ATC)	
Swandon Way (A217) mid-way between Wandsworth Bridge and Armoury Way (A3/A217)	20 May to 24 June 2011
Pedestrian and cycle surveys	
Armoury Way (A3/A217) at Dormay Street – northern side	10 and 14 Sept 2011
Armoury Way (A3/A217) at Dormay Street – southern side	10 and 14 Sept 2011
The Causeway (north of the rail line towards the River Wandle)	1 and 3 Sept 2011

Survey type and location	Date
Bell Lane Creek-The Causeway / Enterprise Way Link (The Thames Path)	1 and 3 Sept 2011
Parking surveys	
The Causeway between Armoury Way to railway line	9 and 11 Sept 2011

8.4.67 Pedestrian and cyclist flow data from the pedestrian and cyclist surveys provided the baseline pedestrian traffic data sets which are set out in Table 8.4.8 and Table 8.4.9.

8.4.68 Vehicular traffic flow data from the junction turning movement surveys provided the baseline vehicular traffic data sets which were input into the junction assessment models described in paras. 8.4.100 to 8.4.111.

8.4.69 The following ATC and junction surveys are on construction traffic routes to and from the Dormay Street site:

a. ATC on Swandon Way (A217) mid-way between Wandsworth Bridge and Armoury Way (A3/A217)

b. Junction survey at Wandsworth High Street (A3) / Buckhold Road (A218)

c. Junction survey at The Causeway / Dormay Street

d. Junction survey at Armoury Way(A3/A217) / Dormay Street

e. Junction survey at Old York Road (A3) / Ram Street / Armoury Way (A3/A217).

Results of the surveys

8.4.70 The surveys inform the analysis of the baseline situation in the area surrounding the site and are summarised in the following paragraphs.

Pedestrians

8.4.71 Pedestrian surveys were undertaken at two locations around the site as indicated in Figure 8.4.4 in the Dormay Street *Transport Assessment* figures during the AM and PM peak hours.

8.4.72 Pedestrian surveys were also undertaken at the Armoury Way (A3/A217) / Dormay Street junction pedestrian crossings as part of the junction surveys.

8.4.73 Table 8.4.8 summarises the pedestrian flows surrounding the site during the AM, PM and weekend peak hours.

Table 8.4.8 Existing pedestrian flows

Road/route	Direction	Weekday			Saturday
		AM peak (08:00-09:00)	Inter-peak (12:00-13:00)	PM peak (17:00-18:00)	(13:00-14:00)
Bell Lane Creek-The Causeway / Enterprise Way Link (The Thames Path)	Westbound	70	16	26	25
	Eastbound	57	30	96	55
The Causeway (north of the rail line towards the River Wandle)	Northbound	15	13	9	6
	Southbound	15	10	15	6
Armoury Way (A3/A217) at Dormay Street (northern side) -					
Armoury Way (west) to Dormay Street	Northbound	0	4	1	2
Armoury Way (west) to The Causeway	Northeastbound	0	3	1	0
Armoury Way (west) to Armoury Way (east)	Eastbound	101	37	71	23
Dormay Street to Armoury Way (west)	Westbound	0	8	6	2
The Causeway to Armoury Way (west)	Westbound	2	3	3	1
Armoury Way (east) to Armoury Way (west)	Westbound	113	21	48	24
Armoury Way (A3/A217) at Dormay Street (southern side)	Eastbound	19	12	19	4
	Westbound	21	7	9	11
Armoury Way / Ram Street junction pedestrian crossings -					
Armoury Way (northern side) - Ram Street (western side)	Southbound	13	6	19	3
	Northbound	17	3	5	7
Armoury Way (northern side) - Ram Street (eastern side)	Southbound	10	8	7	7

Road/route	Direction	Weekday			Saturday
		AM peak (08:00-09:00)	Inter-peak (12:00-13:00)	PM peak (17:00-18:00)	(13:00-14:00)
	Northbound	12	4	5	15
Ram Street (western side) - Ram Street (eastern side)	Westbound	6	10	15	2
	Eastbound	17	18	15	12
High Street / Buckhold Road junction pedestrian crossings -					
High Street (north) to Buckhold Road (east)	Eastbound	60	n/a	188	16
High Street (north) to Buckhold Road (west)	Westbound	28	n/a	12	115
Buckhold Road (east) to High street (north)	Northbound	57	n/a	126	162
Buckhold Road (east) to Buckhold Road (west)	Westbound	144	n/a	227	244
Buckhold Road (west) to High street (north)	Northbound	25	n/a	31	25
Buckhold Road (west) to Buckhold Road (east)	Eastbound	91	n/a	262	361

8.4.74 The results of the pedestrian surveys indicate that pedestrian flows on the northern side of Armoury Way (A3/A217) at Dormay Street amounted to approximately 101 westbound movements in the AM peak hour and approximately 113 eastbound in the PM peak hour. On the southern side of Armoury Way (A3/A217) at Dormay Street, a total of approximately 40 two-way movements were recorded in the AM peak hour and 28 in the PM peak hour.

8.4.75 The survey recorded very low pedestrian flows in and out of Dormay Street and The Causeway and across Bell Lane Creek bridge (amounting to approximately 30 AM peak two-way movements and approximately 24 PM peak two-way movements).

8.4.76 There were approximately 127 AM peak two-way movements on the footbridge across the River Wandle, north of The Causeway, and approximately 122 PM peak two-way movements.

8.4.77 These results show that both the northern footway on Armoury Way (A3/A217) and the link between Enterprise Way and The Causeway (over the River Wandle bridge) are well used by pedestrians in both the AM and PM peak periods.

8.4.78 At the Armoury Way (A3/A217) / Ram Street junction, the surveys indicated that there were low pedestrian flows; amounting to a maximum of approximately 30 two-way movements in either peak periods across each approach.

8.4.79 At the High Street / Buckhold Road junction, pedestrian flows were much higher, with approximately 235 two-way movements recorded crossing Buckhold Road in the AM peak and approximately 489 in the PM peak. The surveys showed there to be approximately 170 two-way movements across both High Street approaches in the AM peak and approximately 351 in the PM peak.

Cyclists

8.4.80 Cyclist surveys were undertaken at the same locations as the pedestrian surveys during the AM and PM peak hours.

8.4.81 Table 8.4.9 summarises the cyclist flows surrounding the site during the AM, PM and weekend peak hours.

Table 8.4.9 Existing cycle flows

Road/route	Direction	Weekday			Weekend
		AM peak (08:00-09:00)	Inter-peak (12:00-13:00)	PM peak (17:00-18:00)	(13:00-14:00)
Bell Lane Creek-The Causeway / Enterprise Way Link (The Thames Path)	Westbound	62	13	48	17
	Eastbound	112	7	51	14
The Causeway (north of the rail line towards the River Wandle)	Northbound	20	5	3	1
	Southbound	2	2	6	3
Armoury Way (A3/A217) at Dormay Street (northern side) -					
Armoury Way (west) to Dormay Street	Northbound	0	0	1	0
Armoury Way (west) to The Causeway	Northeastbound	7	2	1	0
Armoury Way (west) to Armoury Way (east)	Eastbound	18	7	7	7
Dormay Street to Armoury Way (west)	Westbound	0	0	1	0
The Causeway to Armoury Way (west)	Westbound	2	1	0	1
Armoury Way (east) to Armoury Way (west)	Westbound	16	7	20	9
Armoury Way (A3/A217) at Dormay Street (southern side)	Eastbound	3	3	0	2
	Westbound	1	2	3	5
Armoury Way / Ram Street junction on carriageway -					
Armoury Way (one-way, west arm)	Eastbound	239	28	129	68
Old York Road (one-way northeast arm)	Northeastbound	361	33	91	68

Road/route	Direction	Weekday			Weekend
		AM peak (08:00-09:00)	Inter-peak (12:00-13:00)	PM peak (17:00-18:00)	(13:00-14:00)
Ram Street (south arm)	Southbound	17	6	50	10
	Northbound	139	11	12	10
High Street / Buckhold Road junction on carriageway -					
High Street (one-way east arm)	Westbound	87	n/a	70	59
Buckhold Road	Southbound	10	n/a	33	8
	Northbound	60	n/a	4	9
High Street (one-way west arm)	Eastbound	137	n/a	41	60

8.4.83 The results of the surveys indicate that cyclist flows at the Armoury Way (A3/A217)/ Dormay Street junction were low; amounting to approximately 18 westbound movements on the northern side of Armoury Way (A3/A217) in the AM peak hour and approximately seven eastbound in the PM peak hour. On the southern side of Armoury Way (A3/A217) at Dormay Street, a total of approximately 4 two-way movements were recorded in the AM peak hour and three in the PM peak hour. Flows in and out of Dormay Street amounted to approximately ten two-way movements in the AM peak and approximately four in the PM peak.

8.4.84 The survey also recorded low cyclist flows across Bell Lane Creek bridge (amounting to approximately 22 AM peak two-way movements and approximately nine PM peak two-way movements).

8.4.85 There were approximately 174 AM peak two-way movements on the footbridge across the River Wandle, north of The Causeway, and approximately 163 PM peak two-way movements.

8.4.86 These results show that although the Armoury Way (A3/A217)/ Dormay Street junction had low cyclist flows recorded, the link between Enterprise Way and The Causeway (over the River Wandle bridge) are well used by cyclists in both the AM and PM peak periods.

8.4.87 At the Armoury Way (A3/A217)/ Ram Street junction, the surveys indicated that there were high cyclist flows; amounting to approximately 239 eastbound movements and approximately 361 westbound movements in the AM peak, and approximately 129 eastbound movements and approximately 91 westbound movements in the PM peak.

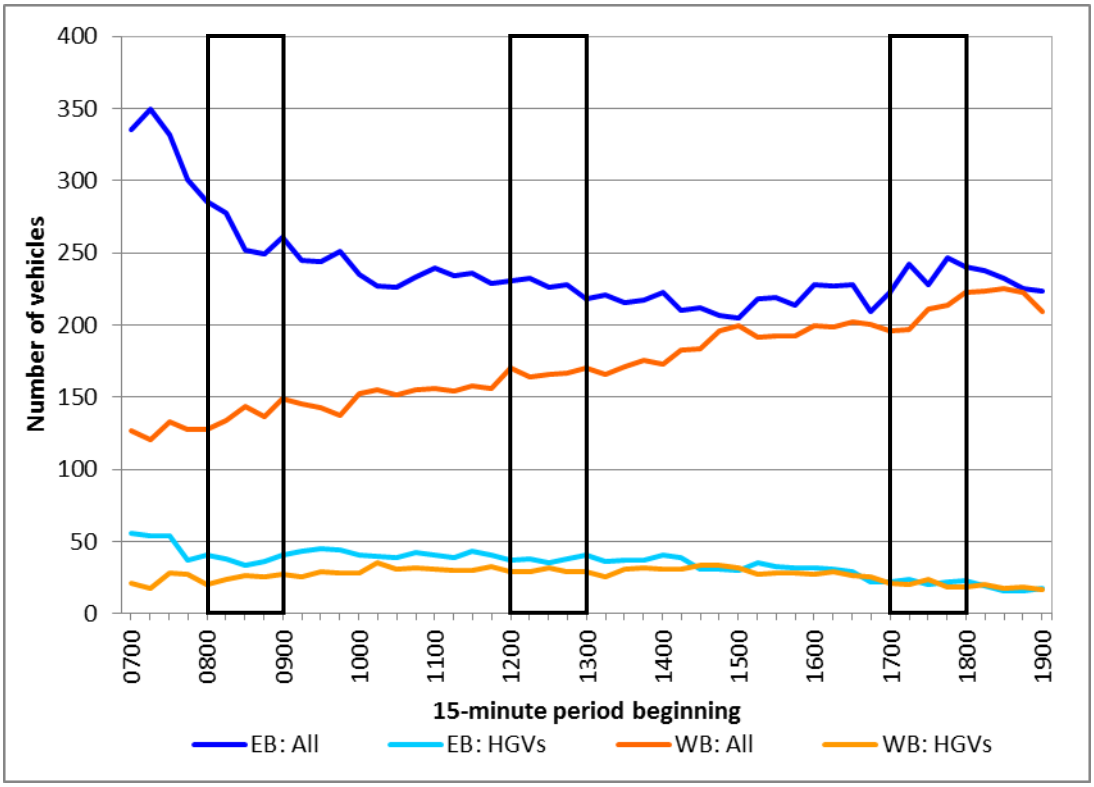
8.4.88 At the High Street/ Buckhold Road junction, cyclist flows amounted to approximately 70 two-way movements at Buckhold Road in the AM peak and approximately 37 in the PM peak. The surveys showed there to be approximately 224 two-way movements on High Street in the AM peak and approximately 111 in the PM peak.

Traffic flows

8.4.89 The ATC data has been analysed to identify the existing traffic flows along Swandon Way (A217). The location of the ATC survey sites are shown in Figure 8.4.4 in the Dormay Street *Transport Assessment* figures.

8.4.90 The weekday vehicle and HGV flows for a 12-hour period (07:00-19:00) are shown in Plate 8.4.6.

Plate 8.4.6 Existing traffic flow along Swandon Way (weekday ATC survey)



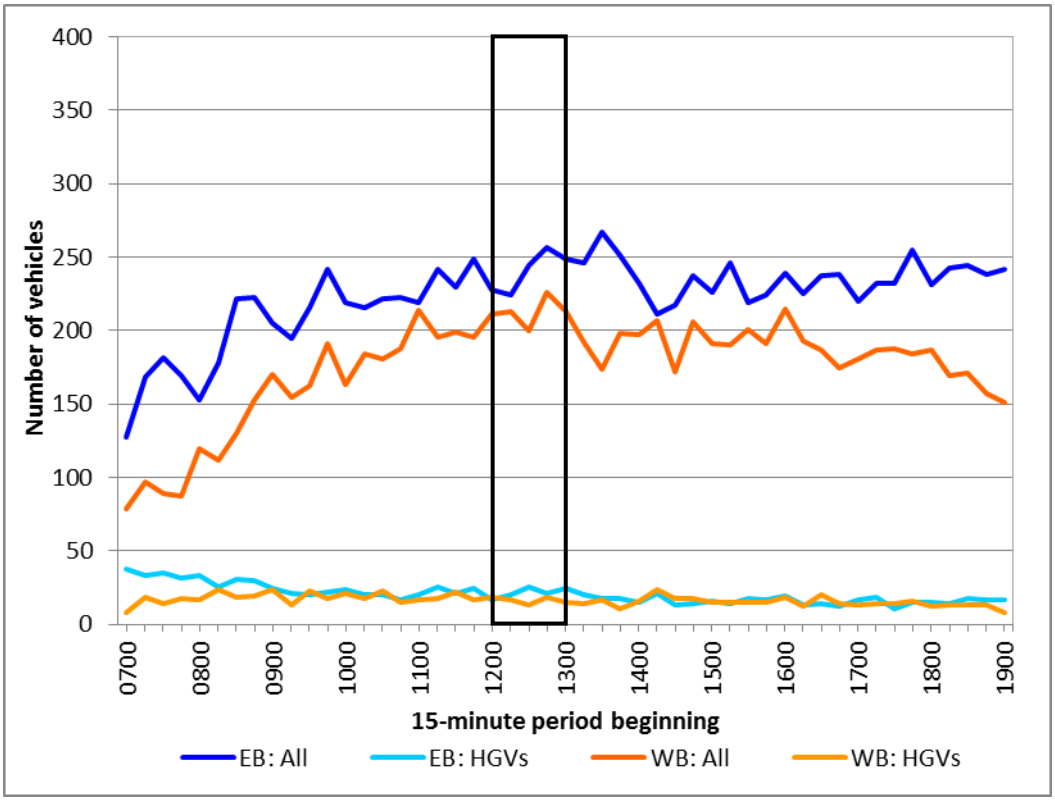
EB – East Bound, WB – West Bound. The black box represents the peak hour traffic flows used for the traffic assessment.

8.4.91 The weekday ATC data shows that between 08:00 – 09:00 there are approximately 1,607 two-way vehicle movements. The busiest 15 minute peak period in this period occurred after 08:00 with approximately 286 eastbound vehicles and approximately 127 westbound vehicles.

8.4.92 For the period between 17:00 – 18:00 there are approximately 1,829 two-way vehicle movements. The busiest 15 minute peak period in this period occurred after 18:00 with approximately 240 eastbound vehicles and approximately 223 westbound vehicles.

8.4.93 The Saturday vehicle and HGV flows for a 12-hour period (07:00-19:00) are shown in Plate 8.4.7 .

Plate 8.4.7 Existing traffic flow along Swandon Way (Saturday ATC survey)

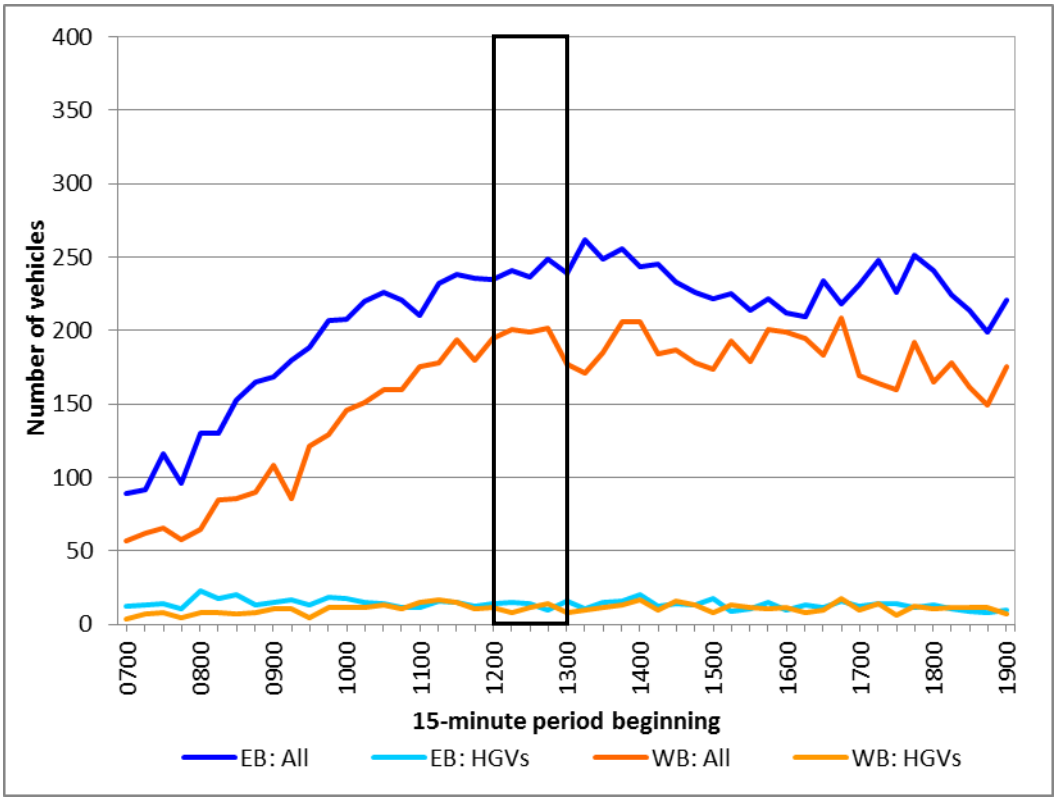


EB – East Bound, WB – West Bound. The black box represents the peak hour traffic flows used for the traffic assessment.

8.4.94 Analysis of the data showed that the Saturday peak travel period occurred between 12:15 – 13:15 with 1,829 two-way vehicle movements recorded. This is equal to the PM weekday two-way traffic flows and the period falls within the normal weekend construction works vehicle movements period of between 08:00 – 13:00.

8.4.95 The Sunday vehicle and HGV flows for a 12-hour period (07:00-19:00) are shown in Plate 8.4.8.

Plate 8.4.8 Existing traffic flow along Swandon Way (Sunday ATC survey)



EB – East Bound, WB – West Bound. The black box represents the peak hour traffic flows used for the traffic assessment.

8.4.96 Analysis of the data showed that the Sunday peak travel period occurred between 11:45 – 12:45 with 1,757 two-way vehicle movements recorded. This is less than the PM weekday two-way traffic flows and the period falls within the normal weekend construction works vehicle movements period of between 08:00 – 13:00. However, construction vehicle movements are not expected to take place on a Sunday.

Parking

8.4.97 There are 64 private permit holder parking spaces along The Causeway. Parking surveys on The Causeway were undertaken for both the weekday AM peak, inter-peak and PM peak periods, and the weekend peak period.

8.4.98 The results of the surveys undertaken indicate that the parking usage along The Causeway is light and that there is significant spare capacity available throughout the day.

8.4.99 No cars were parked within this section during the times of the surveys. However, three cars were parked on double yellow lines close to the Wandsworth depot access.

Local highway modelling

8.4.100 To establish the existing capacity on the local highway network, a scope was agreed with TfL and the LB of Wandsworth to model the Armoury Way (A3/A217)/ Dormay Street and the Dormay Street/ The Causeway junctions using a PICADY model.

8.4.101 Traffic models for the junction have been developed for this assessment and where possible suitable models from TfL have been used. The models have been constructed using on-site measurements of classified vehicle volumes and queue lengths.

8.4.102 The TfL modelling guidelines and Modelling Audit Process (MAP) have been used as the basis for preparing and checking models and their outputs. All required input data has been used in order to calibrate the model. Where TfL models have been used, saturation flows have been retained where no change is proposed to junctions; where changes are proposed, saturation flows have been calculated and compared with site observations to determine suitable values. Validation of the models has been based on observed data including signal timings, vehicle volumes and queue lengths to provide the key criteria for comparison with modelled queue lengths.

8.4.103 The models are considered suitable for this planning stage and are intended to demonstrate the nature of the effects of the additional vehicles generated by the Thames Tideway Tunnel project in this location. It is acknowledged that these models may require further refinement as the project moves from planning to detailed design stage; however as a period of time will elapse before construction commences at this site, it will be necessary in any case to review and revalidate the models against traffic conditions at that time, as is normal practice.

8.4.104 The baseline model therefore accounts for the current traffic and transport conditions within the vicinity of the site.

8.4.105 The weekday AM and PM peak baseline model flows for Dormay Street were compared against observed queue lengths for the peak periods to validate the PICADY model and ensure reasonable representation of existing conditions.

8.4.106 Figures 8.4.5 and 8.4.6 in the Dormay Street *Transport Assessment* figures show the traffic flows which were used for the baseline AM and PM peak hour assessments which take the observed flows into account.

8.4.107 Armoury Way (A3/A217) is one way, such that vehicles on Dormay Street can only turn left onto Armoury Way (A3/A217). Correspondingly vehicles can only turn left into Dormay Street from Armoury Way (A3/A217).

8.4.108 Because the Dormay Street / The Causeway junction is within five metres of the approach of the Dormay Street / Armoury Way (A3/A217) junction, any queuing of more than one vehicle on Dormay Street at the Dormay Street / Armoury Way (A3/A217) junction may impact on the Dormay Street / The Causeway junction. This has been considered in interpreting the results of the PICADY modelling.

8.4.109 Table 8.4.10 shows the modelling outputs for the Dormay Street / Armoury Way (A3/A217) junction. Table 8.4.11 shows the modelling outputs for the Dormay Street / The Causeway junction.

Table 8.4.10 PICADY baseline model outputs Dormay Street/Armoury Way (A3/A217) junction

Approach	Movement	Weekday							
		AM peak hour (08:00-09:00)				PM peak hour (17:00-18:00)			
		Flow (vehs)	RFC	Max Queue (vehs)	Delay (seconds /vehs)	Flow (vehs)	RFC	Max Queue (vehs)	Delay (seconds /veh)
Dormay Street	Left onto Armoury Way (A3/A217)	31	9%	0	12	18	4%	0	8

Table 8.4.11 PICADY baseline model outputs Dormay Street/The Causeway Junction

Approach	Movement	Weekday							
		AM peak hour (08:00-09:00)				PM peak hour (17:00-18:00)			
		Flow (vehs)	RFC	Max Queue (vehs)	Delay (seconds /vehs)	Flow (vehs)	RFC	Max Queue (vehs)	Delay (seconds /veh)
The Causeway	Left or right onto Dormay Street	15	3%	0	8	2	1%	0	9
Dormay Street	Right turn onto The Causeway	8	1%	0	6	2	0%	0	6

Notes: RFC represents Ratio of Flow to Capacity. Queue represents number of vehicles in queue. Delay represents the mean delay per vehicle.

8.4.110 The modelling outputs for the Dormay Street / Armoury Way (A3/A217) junction demonstrate that the junction is currently operating well within capacity in the weekday AM and PM peak hours. The validated model indicates that there is no queuing at the junction during the AM and PM peak hours assessed and the maximum delay per vehicle is 12 seconds.

8.4.111 The modelling outputs for the Dormay Street / The Causeway junction indicate that the junction is operating well within capacity in both peak hours assessed. The validated model indicates that there is no queuing at the junction during the AM and PM peak hours assessed and the maximum delay per vehicle is nine seconds.

8.4.112 More detailed model outputs are included in Appendix C.

Accident analysis

8.4.113 Accident data within the vicinity of the site has been obtained from TfL and analysed to determine if there are any specific road safety issues, trends or patterns evident on the surrounding highway network.

8.4.114 Data has been obtained for a five year period to the 31st March 2011. Figure 8.4.7 in the Dormay Street *Transport Assessment* figures indicates the accidents that have occurred within the vicinity of the site. The following roads and junctions have been analysed:

a. Armoury Way
b. Putney Bridge Road
c. Putney Bridge Road / North Passage / Oak Hill Road / Adelaide Road / Point Pleasant junction
d. Putney Bridge Road / Frogmore junction
e. Armoury Way / Putney Bridge Road / Wandsworth Plain junction
f. Armoury Way / Dormay Street junction
g. Armoury Way / Ram Street junction
h. Swandon Way / Old York Road / Fairfield Street junction
i. Old York Road
j. Swandon Way
k. Swandon Way / Smugglers Way junction
l. Fairfield Street.

8.4.115 Table 8.4.12 provides a summary of the accidents within the local area surrounding the Dormay Street site. Appendix D provides a full analysis of the accidents.

Table 8.4.12 Accident severity from 2006 to 2011

Location	Slight	Serious	Fatal	Total
Armoury Way	5	1	0	6
Putney Bridge Road	1	1	0	2
Putney Bridge Road / North Passage / Oak Hill Road / Adelaide Road / Point Pleasant junction	3	0	1	4
Putney Bridge Road / Frogmore junction	1	0	0	1
Armoury Way / Putney Bridge Road junction	5	1	0	6
Armoury Way / Frogmore / Wandsworth Plain junction	10	0	0	10
Armoury Way / Dormay Street junction	4	1	0	5
Armoury Way / Ram Street junction	4	0	0	4
Swandon Way / Old York Road / Fairfield Street Junction	8	5	0	13
Old York Road	2	0	0	2
Swandon Way	2	1	0	3
Swandon Way / Smugglers Way junction	6	0	0	6
Fairfield Street	1	0	0	1
Total	**52**	**10**	**1**	**63**

8.4.116 A total of 63 accidents were recorded in the area assessed over the five year period. Of these there was one fatal accident, ten serious accidents and 52 slight accidents.

8.4.117 The one fatal accident occurred at the junction of Putney Bridge Road / North Passage / Oak Hill Road / Adelaide Road and Point Pleasant and involved either a pedal cycle or a motor cycle. It is understood that the accident was caused as a result of the cycle rider travelling too fast for the conditions and losing control of the vehicle. This suggests that the accident was not caused as a result of the highway conditions or the existing infrastructure.

8.4.118 The highest number of accidents in total and the majority of serious accidents occurred at the Swandon Way / Old York Road / Fairfield Street Junction. Of these accidents, five were serious and eight were slight. There is a significant cluster of serious accidents at this junction. However, analysis suggests that the majority of accidents were caused by human error rather than the layout or the geometry of the highway.

8.4.119 Of the total accidents, 11 involved either a light goods vehicle (LGV) or a medium goods vehicle (MGV). However, the majority of these led to accidents which were rated slight in severity. A HGV was involved in one serious accident along Swandon Way, approximately 50m north of the junction with Old York Road and Fairfield Street.

8.4.120 Of the six pedestrian-injury accidents, four occurred on the roads expected to be used by construction vehicles within the study area. Inspection of the data showed that three of these occurred at junctions with signalised pedestrian crossing facilities, with the remaining accident occurring at locations without signal control. Of the 14 cyclist-injury accidents, 12 occurred on the roads expected to be used by construction vehicles within the study area and at least four of these occurred at junctions with signalised junctions, these are shown in Figure 8.4.8 in the Dormay Street *Transport Assessment* figures.

8.4.121 In the context of the construction HGV movements associated with the Dormay Street site, the accident risk to these modes of travel would be managed by providing pedestrian and cyclist awareness training for commercial drivers associated with the construction works as set out in the *CoCP*. For sections of road affected by roadworks, the risk to all road users would be managed by the contractor(s) in accordance with the provision made under the *Traffic Signs Manual Chapter 8 – Traffic Safety measures and Signs for Road Works (*DfT, 2009)[3].

8.5 Construction assessment

8.5.1 The *TA* including both qualitative and quantitative analysis has been undertaken drawing on discussions with TfL and the Local Highway Authorities, knowledge of the transport networks and their operational characteristics in the vicinity of each site and the anticipated construction programme, duration and levels of construction activity.

8.5.2 The construction assessment compares a construction base case, which represents transport conditions in the assessment year without the Thames Tideway Tunnel project, with a construction development case, which represents conditions with the Thames Tideway Tunnel project under construction. The construction base case does not include any traffic related to the Thames Tideway Tunnel project, whether from the Dormay Street site or from other sites.

Construction base case

8.5.3 As described in Section 8.3 of this *TA*, the construction assessment year for transport issues in relation to this site is Site Year 2 of construction.

Pedestrians and cyclists

8.5.4 There are no proposals to change the cycle or pedestrian network by Site Year 2 of construction and the construction base case for these networks is therefore the same as indicated in the baseline situation.

Public transport

8.5.5 In terms of the public transport network, it is expected that as a result of the TfL London Underground Upgrade Plan (TfL, 2011)[4] capacity will increase on the District Line by approximately 24% compared to the current baseline capacity. It is envisaged that London Underground and London Overground patronage will also increase by Site Year 2 of construction.

8.5.6 Due to the traffic growth in the construction base case compared to the baseline situation, bus journey times along Armoury Way (A3/A217) and within the wider area will be affected. The effect on journey times is detailed under the highway operation and network assessment (paras. 8.5.10 to 8.5.13). However, the scope of the modelling covered a PICADY assessment of the Dormay Street Armoury Way (A3/A217) junction which provided results of delay only to vehicles exiting Dormay Street. Delay to buses on Armoury Way could only occur if they encounter vehicles exiting Dormay Street and are forced to slow down. The delay to buses resulting from this movement is expected to be minimal.

8.5.7 It is anticipated that patronage on public transport services may change between the baseline situation and Site Year 2 of construction. Future patronage changes on bus and rail networks will be driven by a range of complex factors and there are inherent uncertainties in setting a patronage level for a future year. There are further capacity improvements anticipated at the Bakerloo, Piccadilly and Central Lines, however, the best way of delivering these improvements, including the timescales, are currently being investigated by TfL. With the exception of the London Overground extension between Dalston Junction and Clapham Junction (via Surrey Quays) there are no further proposals at the time of writing for the London Overground. Services on this part of the Overground network are not expected to change. At this stage, it is not possible to estimate how much of these upgrades will have been completed by the construction base case or how much will be remaining.

8.5.8 In order to ensure that the busiest base case scenario is used in the assessment, the capacity for National Rail, London Underground and river services in the base case has been assumed to remain the same as capacity in the baseline situation. This ensures a robust assessment.

River navigation

8.5.9 There are no proposals to alter any river navigation patterns from the current baseline conditions and therefore the construction base case remains similar to the baseline position.

Highway network and operation

8.5.10 Baseline traffic flows (from the junction surveys) have been used and forecasting carried out to understand the capacity on the highway network in the vicinity of the Dormay Street site in Site Year 2 of construction without the Thames Tideway Tunnel project. The scope of this analysis has been discussed with the LB of Wandsworth and TfL.

8.5.11 Strategic highway network modelling has been undertaken at a project-wide level using the TfL HAMs, which include forecasts of employment and population growth in line with the London Plan. Growth factors have been derived at individual Borough level by comparing the 2008/9 base and 2021 forecast years in the HAMs, as described in the *Project-wide TA*.

8.5.12 For the Dormay Street site, WeLHAM has been used. The relevant growth factor for this site is described in para. 8.5.16 which was applied to the 2011 survey flows to produce flows for the base and development cases.

8.5.13 It should be noted that these factors represent growth over the period to 2021, which is beyond Site Year 2 of construction at the Dormay Street site and therefore ensures that the construction base case for the highway network is robust.

Committed developments

8.5.14 By Site Year 2 of construction, seven other developments identified within 1km of the Dormay Street site would be complete and operational. Wandsworth Riverside Quarter would be partially complete and occupied and Battersea Reach would be under construction. Those that would be fully or partially complete have been included in the construction base case.

8.5.15 As the Wandsworth Riverside Quarter (Phase B) and Battersea Reach developments would be under construction, this means that cumulative effects should be assessed. However, as the TfL HAMs which have been used in the *TA* have been developed using GLA employment and population forecasts, which are based on the employment and housing projections set out in the London Plan, the assessment inherently takes into account a level of future growth and development across London. This means that the trips associated with all the developments identified above are already taken into consideration within the traffic modelling.

Local highway modelling

8.5.16 The growth factors for the LB of Wandsworth based on the WeLHAM model have been discussed with TfL and LB of Wandsworth and applied to the baseline traffic flows. The growth factors are:

a. Weekday AM Peak growth factor: – 3.6%

b. Weekday PM Peak growth factor: – 4.6%

8.5.17 Para. 8.4.100 explains the definition of the assessment area for local highway network modelling. At this site, the assessment examines only the two nearest junctions of the construction vehicle routes with the TLRN.

8.5.18 The construction base case PICADY model outputs for the Dormay Street/The Causeway junction are shown in Table 8.5.1 and Table 8.5.2.

Table 8.5.1 Construction base case PICADY model outputs – Dormay Street / Armoury Way (A3/A217)

Approach	Movement	Weekday							
		AM peak hour (08:00-09:00)				PM peak hour (17:00-18:00)			
		Flow (vehs)	RFC	Max Queue (vehs)	Delay (seconds/ veh)	Flow (vehs)	RFC	Max Queue (vehs)	Delay (seconds/ veh)
Dormay Street	Left onto Armoury Way	32	10%	0	12	19	4%	0	9

Table 8.5.2 Construction base case PICADY model outputs, Dormay Street/The Causeway Junction

Approach	Movement	Weekday							
		AM peak hour (08:00-09:00)				PM peak hour (17:00-18:00)			
		Flow (vehs)	RFC	Max Queue (vehs)	Delay (seconds/ veh)	Flow (vehs)	RFC	Max Queue (vehs)	Delay (seconds/ veh)
The Causeway	Left or right onto Dormay Street	16	3%	0	8	2	1%	0	9
Dormay Street	Right turn onto The Causeway	8	1%	0	6	2	0%	0	6

Notes: RFC represents Ratio of Flow to Capacity. Queue represents number of vehicles in queue. Delay represents the mean delay per vehicle.

8.5.19 The resulting construction base case PICADY model for the Dormay Street/Armoury Way junction indicates that junction will be operating well within capacity in the AM and PM peak periods assessed. Overall there will be no change in delay during the morning peak hour, and an increase of 1 second during the evening peak hour assessed.

8.5.20 The Dormay Street / The Causeway junction construction base case PICADY model will generate a relatively small increase in traffic flow on the network and the junction will be operating well within capacity in the AM and PM peak periods assessed.

8.5.21 The results indicate that the local network will continue to operate within capacity when taking into account the construction base case traffic flows

Construction development case

8.5.22 This section summarises the findings of the assessment undertaken for the peak year of construction at the Dormay Street site (Site Year 2 of construction).

Pedestrian routes

8.5.23 There would be no diversions to pedestrian routes during the construction of the Dormay Street site and as detailed in Section 8.2, there would be minimal change to pedestrian movements around the Dormay Street site.

8.5.24 The highway layout during construction plan is provided in the Dormay Street *Transport Assessment* figures and shows the effect on the pedestrian footways during construction.

8.5.25 To assess a busiest case scenario, it has been anticipated that all worker trips would finish their journeys by foot. As a result the 60 worker trips generated by the site have been added to the construction base case pedestrian flows during the AM and PM peak hours.

8.5.26 The assessment assumes that all construction workers would travel in the peak hours, the increase in pedestrian numbers against baseline usage during the peak hours due to construction workers walking is considered to be a conservative estimate because, due to the site working start and finish times, many workers will be travelling outside of peak network hours.

8.5.27 As there would be no change to pedestrian routes in the vicinity of the Dormay Street site, pedestrian journey times would not be affected. This therefore results in a negligible impact on pedestrian delay.

8.5.28 With regards to pedestrian amenity and accidents and safety, again there would not be a significant change to baseline conditions and the number of additional HGV movements would be a maximum of four two way movements per hour. This would mean, for pedestrian amenity and accidents and safety there would be a negligible change.

8.5.29 During all construction work and on any section of road subject to temporary diversions or restrictions imposed by roadworks associated with the Dormay Street site, the risk to all road-users would be managed by the contractor(s) in accordance with the provisions made under the Traffic Signs Manual Chapter 8 - Traffic Safety Measures and Signs for Road Works. This will include compliance with the Equality Act 2010 (HM

Government, 2010)[5] to ensure safe passage for mobility and vision impaired pedestrians.

Cycle routes

8.5.30 There would be no changes to cycle routes as a result of construction at the Dormay Street site and cyclists using the highway would not experience any additional delay to journey time as a result of the construction works. This therefore represents a negligible impact on cycle delay.

8.5.31 Cyclists would not be required to make any additional road crossings and cycle usage is low along Dormay Street.

8.5.32 The Causeway provides a route to the Thames Path. However, construction vehicle numbers on The Causeway would be a maximum of four two-way movements an hour and the maximum gross weight of vehicles permitted on The Causeway would be limited to 10 tonnes. In addition, given that vehicle movements associated with the current site use would be removed; there would not be any change to the potential for cycle accidents or to cyclists.

8.5.33 Construction vehicles serving the site will comprise a range of sizes and types, including light vans, rigid bodied vehicles and longer articulated vehicles. At this site the majority of the vehicles are expected to be medium or heavy rigid bodied goods vehicles.

8.5.34 As indicated in para. 8.2.54, works would include the following measures affecting cyclists:

a. use traffic marshals as required to direct vehicle movements on Dormay Street and, when required, manage turning of vehicles in from Armoury Way. Vehicles would be prevented from queuing on Armoury Way when attempting to turn into Dormay Street.

8.5.35 Measures set out in the *CoCP* described in paras. 8.2.53 and 8.2.54 include marshalling of traffic at the site access. During all construction work and on any section of road subject to temporary diversions or restrictions imposed by roadworks associated with the Dormay Street site, the risk to all road-users would be managed by the contractor(s) in accordance with the provisions made under the Traffic Signs Manual Chapter 8 - Traffic Safety Measures and Signs for Road Works. This would include compliance with TfL guidance (Cyclists at Roadworks – Guidance (DfT, 2009)[6]) to ensure safe passage for cyclists.

8.5.36 During the construction period, the operation and layout of the road network will not change other than to construct a site access crossover point on Cringle Street. A minimum carriageway width of either 4m (where HGVs can safely overtake cyclists) or 3.25m (where HGVs cannot overtake cyclists) would be retained for traffic in each direction. Where necessary, carriageway widths of less than 3.25m would be agreed with the LB of Wandsworth prior to execution of any works.

Bus routes and patronage

8.5.37 No bus services run immediately past the site. However, additional construction vehicles serving the site may affect some bus routes and bus journey times along Armoury Way (A3/A217) and within the wider area.

8.5.38 The effect on journey times on this route is detailed in the construction development case highway network assessment (see para. 8.5.57 to 8.5.69) and the results show that there would be no additional delay for bus users over the base case.

8.5.39 It is expected that approximately nine additional two-way worker trips would be made by bus during the AM and PM peak hours. The area is served by a large number of bus routes with multiple origins and destinations, providing a total of 172 and 160 buses within 640m walking distance during the AM and PM peak hours respectively this equates to less than one additional passenger per bus.

8.5.40 If the additional 12 workers in the AM peak and PM peak expected to travel by rail and underground were to complete their journeys by bus this would increase the additional demand on bus services to approximately 21 journeys in the AM and PM peak hours. This would still equate to less than one additional passenger per bus.

8.5.41 On this basis the additional worker trips made by bus in peak hours would be capable of being accommodated on the base case bus services and would typically be within the normal daily variation in bus patronage on these routes.

London Underground and National Rail and patronage

8.5.42 No underground or rail stations are directly adjacent to the site and therefore none would be directly affected by the construction works at the site.

8.5.43 It is anticipated that approximately 12 workers would use London Underground or National Rail services to access the site which would result in seven additional person trips on National Rail services and five additional person trips on London Underground services in the AM and PM peak hours.

8.5.44 On National Rail services this equates to approximately one additional passenger per train, based on a frequency of 17 services at Wandsworth Town station in the AM and PM peak hours.

8.5.45 This would result in a negligible impact on National Rail patronage.

8.5.46 As there are no London Underground stations within 960m of the Dormay Street site, workers using these services as their main mode of transport would either complete their journey by bus or on foot and this is taken into account in the pedestrian and bus assessments described earlier in this section.

8.5.47 An additional five passenger journeys on London Underground would equate to less than one additional passenger per train from the nearest London Underground station at East Putney.

River passenger services and patronage

8.5.48 During construction, no river passenger services would be directly affected. However, it is anticipated less than 1% of construction workers would use river services to access the construction site, and such workers would complete their journeys on foot or by bus. There would therefore be a negligible impact on river passenger service patronage.

Parking

8.5.49 Parking for 15 essential maintenance vehicles would be provided on site. With regard to construction worker parking, measures would be taken for this site to discourage workers from travelling by car, including promoting the use of public transport, walking or cycling. These measures are included in the *Project Framework Travel Plan* and *CoCP* and would be reflected in the site-specific *Travel Plan* for this site. The 2001 census data has been used to provide a robust assessment of the effects that might arise if some workers drive to this site.

8.5.50 In order to provide adequate carriageway width to allow construction vehicles to undertake the turning movements necessary to access and egress the site, a section of privately owned on-street parking on The Causeway opposite the site access would need to be removed.

8.5.51 The highway layout during construction plan is provided in the Dormay Street *Transport Assessment* figures shows the proposed suspension and removal of private parking bays associated with the construction works at Dormay Street.

8.5.52 Although private car parking would need to be removed on The Causeway, as the utilisation of spaces is very low it is expected that there would be spare parking capacity within the existing spaces along this stretch of road to accommodate demand. The impact on parking on The Causeway has therefore been assessed as negligible.

Highway assessment

Highway layout

8.5.53 The highway layout during construction plan is provided in the Dormay Street *Transport Assessment* figures.

8.5.54 To allow access to the Dormay Street site, the existing access points to the LB of Wandsworth depot entrance on The Causeway and the eastern entrance to the LB Wandsworth depot site on Dormay Street would need to be relocated approximately 20m and 10m to the south respectively. This revised access arrangement to these facilities would be in place for the duration of construction.

8.5.55 The highway layout during construction vehicle swept path analysis plan is provided the Dormay Street *Transport Assessment* figures and shows that construction vehicles would be able to safely enter and leave the site, in a way that is consistent with the current operation of the junction.

8.5.56 The highway network would remain unchanged during all phases of construction. The removal of private on-street parking on The Causeway

would increase the effective width of the carriageway at the key turning point into the site.

Highway network

8.5.57 Construction lorry movements would be limited to the day shift only (08:00 to 18:00) except for in exceptional circumstances HGV and abnormal load movements could occur up to 22:00 for large concrete pours and later at night on agreement with the LB of Wandsworth.

8.5.58 Table 8.2.4 shows the vehicle movement assumptions for the local peak traffic periods based on the peak months of construction activity at this site. The table also shows the construction worker vehicle movements expected to be generated by the site.

8.5.59 Table 8.2.4 shows that an average peak flow of 170 vehicle movements a day is expected during the months of greatest activity during Site Year 2 of construction at the Dormay Street site. At other times in the construction period, vehicle flows would be lower than this average peak figure. In addition to the construction HGV movements associated with the Dormay Street site, it is anticipated that there would be five two way HGV movements on Armoury Way (A3/A217) during the peak hours associated with other Thames Tideway Tunnel sites during Site Year 2 of construction at the Dormay Street site.

8.5.60 The busiest peak in the AM and PM period for each type of movement (construction lorries, other construction vehicles and worker vehicles) has been combined in the development case and assessed against the peak hour operation of the highway network. In reality not all peaks for these movements will occur concurrently and the peak for worker trips will be outside of the highway network peak hour, therefore the assessment is considered to be robust.

8.5.61 The *Project-wide TA* explains the method used to assign construction traffic to the HAMs, from which the likely changes in turning movements at local junctions have been identified and added to the construction base case flows.

8.5.62 The assignment of construction lorry trips has been undertaken using OmniTrans[iv] software, which enables a fixed assignment to be created for these trips in order to ensure that they are assigned only to the proposed construction routes. The OmniTrans outputs also identify lorry traffic which would be associated with the Dormay Street site, or with other Thames Tideway Tunnel project sites, that would use routes in the vicinity of the Dormay Street site. Figure 8.5.1 in the Dormay Street *Transport Assessment* figures shows the OmniTrans plot for the local road network around the Dormay Street site.

8.5.63 Changes to the highway network during construction and the additional construction traffic generated by the project may lead to local changes in

[iv] OmniTrans is a software package used for multi-modal transport network modelling and in this case has been used to produce assignments of construction traffic across the proposed network of routes to be used for the project.

traffic flow and capacity. Local modelling has been undertaken to assess the effect on the highway operation resulting from these changes. The local PICADY model has been used to apply the construction traffic demands to the construction base case to determine the changes in the highway network operation due to the project (i.e. comparison of base and development cases).

8.5.64 To ensure a robust assessment, the assessment has been based on a combination of the peak hour of movements for construction and worker vehicle movements between 0700–0900 and 1700-1900. These have been combined and applied to the peak hour to take into account the highest number of movements generated by the site.

8.5.65 The junctions tested in the modelling are as follows:

a. Dormay Street / Armoury Way (A3/A217)

b. Dormay Street / The Causeway

8.5.66 A summary of the construction assessment results for the weekday AM and PM peak hours for the Dormay Street/Armoury Way junction is shown in Table 8.5.3 and Table 8.5.4.

Table 8.5.3 Transport – construction PICADY model outputs (AM peak hour), Dormay Street/Armoury Way Junction

Approach	Arm	Flow (vehs)	Weekday								
			AM peak hour (08:00-09:00)								
			RFC			Max Queue (vehs)			Delay (seconds/veh)		
			Base case	Devt case	Change	Base case	Devt case	Change	Base case	Devt case	Change
Dormay Street	Left onto Armoury Way	36	10%	11%	+1%	0	0	0	9	12	+3

Table 8.5.4 Transport – construction PICADY model outputs (PM peak hour), Dormay Street/Armoury Way Junction

Approach	Arm	Flow (vehs)	Weekday								
			PM peak hour (17:00-18:00)								
			RFC			Max Queue (vehs)			Delay (seconds/veh)		
			Base case	Devt case	Change	Base case	Devt case	Change	Base case	Devt case	Change
Dormay Street	Left onto Armoury Way	24	4%	6%	+2%	0	0	0	9	9	+0

Notes: RFC represents Ratio of Flow to Capacity. Queue represents number of vehicles in queue. Delay represents the mean delay per vehicle.

Table 8.5.5 Transport – construction PICADY model outputs (AM peak hour), Dormay Street/The Causeway Junction

Approach	Arm	Flow (vehs)	Weekday								
			AM peak hour (08:00-09:00)								
			RFC			Max Queue (vehs)			Delay (seconds/veh)		
			Base case	Devt case	Change	Base case	Devt case	Change	Base case	Devt case	Change
The Causeway	Left or right onto Dormay Street	18	3%	4%	+1%	0	0	0	8	8	+0
Dormay Street	Right turn onto The Causeway	11	1%	2%	+1%	0	0	0	6	6	+0

Table 8.5.6 Transport – construction PICADY model outputs (PM peak hour), Dormay Street/The Causeway Junction

Approach	Arm	Flow (vehs)	Weekday								
			PM peak hour (17:00-18:00)								
			RFC			Max Queue (vehs)			Delay (seconds/veh)		
			Base case	Devt case	Change	Base case	Devt case	Change	Base case	Devt case	Change
The Causeway	Left or right onto Dormay Street	5	0%	1%	+1%	0	0	0	9	7	-2
Dormay Street	Right turn onto The Causeway	4	0%	1%	+1%	0	0	0	6	6	+0

Notes: RFC represents Ratio of Flow to Capacity. Queue represents number of vehicles in queue. Delay represents the mean delay per vehicle.

8.5.67 The results indicate that at the Dormay Street/Armoury Way junction, the additional road network delay during the AM and PM peak hours as a result of the additional construction traffic would be a maximum of three seconds per vehicle in the AM peak and no increase during the PM peak.

8.5.68 The construction assessment results for the Dormay Street/The Causeway junction show that the delay in the AM and PM peak periods assessed will not change over the base case.

8.5.69 The modelling shows that both junctions will continue to operate well within capacity.

Construction mitigation

8.5.70 The project has been designed to limit the issues arising on transport networks as far as possible and many measures have been embedded directly in the design of the project. These are summarised in Table 8.5.7. No additional measures are proposed for transport and therefore there is no mitigation identified for the construction phase.

Table 8.5.7 Dormay Street Station site design measures

Phase	Issues	Design measures
Construction	Creating access point	• Creation of one new access point close to the existing accesses on each of Dormay Street (for construction traffic) and on The Causeway (for light vehicles only)
	Safe passage for pedestrians and cyclists	• Provision of a safe crossing point for pedestrians and cyclists at the site access • Marshalling to direct vehicle movements on Dormay Street and, when required to manage turning of vehicles in from Armoury Way
	Street parking	• Suspension of private permit controlled parking bays on The Causeway.
	Movement of construction traffic flows on the local highway network	• Where possible, construction vehicle movements to avoid peak operational periods of other activities in Dormay Street (e.g. the LB of Wandsworth depots) to minimise conflicts with other traffic.
Operation	Permanent access point	• Provision of permanent kerbing at Dormay Street site access to accommodate ten yearly maintenance vehicles.

8.5.71 These embedded measures have been taken into account in the assessment. The outcomes indicate that with these measures in place the changes to be expected in the transport networks are not significant and therefore no additional measures are required for the construction phase.

8.6 Operational assessment

8.6.1 This section summarises the findings of the assessment undertaken for Year 1 of operation at the Dormay Street site.

8.6.2 The transport demands in the operational phase would be extremely low. Access would be required for a light commercial vehicle on a three to six monthly maintenance schedule. Additionally there would be more substantive maintenance visits at approximately ten year intervals which would require access to enable two cranes and other associated support vehicles to be brought to the site.

8.6.3 The assessment of the operational phase is therefore limited to the physical issues associated with accessing the site from the highway network as outlined in Section 8.2. This has been discussed with the LB of Wandsworth and TfL.

Operational base case

8.6.4 The operational assessment year for transport is Year 1 of operation.

8.6.5 The assessment of the operational phase is limited to the physical issues associated with accessing the site from the highway network as outlined in Section 8.2 of this *TA*. This has been agreed with the LB of Wandsworth and TfL

Operational development case

8.6.6 The operational development case for the site includes any permanent changes in the vicinity of the Dormay Street site as a result of the Thames Tideway Tunnel project and takes into consideration the occasional maintenance activities required at the site.

8.6.7 As outlined in section 8.2, during the operational phase, the area around the Dormay Street site would be reinstated to the current layout.

8.6.8 The transport demands created by the development in the operational phase would be extremely low and limited to occasional maintenance visits every three to six months and larger cranes and supporting vehicles required for access to the shaft and tunnel every ten years.

8.6.9 The operational assessment has taken into consideration those elements that would be affected, which comprise the short term changes on highway layout and operation when maintenance visits are made to the site.

8.6.10 The permanent highway layout plan is provided in the Dormay Street *Transport Assessment* figures and indicates the operational phase permanent works.

Parking

8.6.11 No change is required to parking to accommodate the routine maintenance visits to the Dormay Street site, which would be undertaken every three to six months.

Highway layout and operation

8.6.12 For routine three or six monthly inspections vehicular access would be required for light commercial vehicles, typically a transit van. On occasion there may also be a need for small flatbed vehicles or crane to access the site.

8.6.13 During ten-yearly inspections, space to locate two large cranes and supporting vehicles within the site area would be required. The cranes would provide duty/standby access for personnel and equipment. To assess the effect of these on the highway layout, swept paths have been undertaken for the largest vehicles including a 10m rigid articulated vehicle, a 10.7m articulated vehicle, and 11.36m mobile cranes. The permanent highway layout vehicle swept path analysis plan is provided in the Dormay Street *Transport Assessment* figures and show safe access/ egress at the site for the operational phase.

8.6.14 When larger vehicles are required to service the site, there would be some temporary, short-term delay to other road users while manoeuvres are made. However, it is anticipated that the arrival of large vehicles would normally be scheduled to take place outside of the peak hours to minimise the effect on the local highway network and would only be once every ten years, which would therefore be a negligible impact on road network delay.

8.6.15 Taking into consideration the various sensitivities of the receptors affected during the operational phase (private vehicle users, emergency vehicles, users of commercial properties in the vicinity of the site), this would result in a negligible effect on highway layout and operation.

Operational mitigation

8.6.16 Due to there being no significant changes to transport networks during the operational phase, no mitigation is required.

8.7 Summary of site specific Transport Assessment

8.7.1 The key outcomes and findings of this *TA* are summarised in Table 8.7.1.

Table 8.7.1 Dormay Street Pumping Station Transport Assessment results

Phase	Mode of transport	Key Findings
Construction	Pedestrians	There would not be any additional journey time for pedestrians as pedestrian routes would not be significantly altered. There would be no significant change in pedestrian amenity and safety.
	Cyclists	There is no significant additional risk to cyclists, and cyclists using the highway would not experience any additional delay to journey time as a result of construction works.
	Bus patronage and operators	Approximately nine additional two-way worker trips would be made by bus during AM and PM peak hours. There would be no significant delay to buses resulting from construction traffic.
	London Underground and National Rail patronage	Approximately 12 worker trips would be made on London Underground or National Rail services. These could be accommodated on base case services.
	River passenger services and patronage	It is anticipated that less than 1% of worker trips would be made by river services and can be accommodated on existing services.
	Parking	A section of permit controlled on-street parking on The Causeway opposite the site access would need to be suspended for movements of vehicles into and out of the site, if required.
	Highway network and operation	The existing access point to the LB of Wandsworth depot entrance on The Causeway would be closed and a new entrance to the site provided approximately 20m to the south. The existing entrance to the former Keltbray site on Dormay Street would be closed and relocated approximately 10m to the south. This access arrangement would be in place for the duration of construction. It is estimated that there would be no more than four HGV movements at the Dormay Street site per hour, which would not create any significant change to the operation of the highway network
Operation	Highway layout and operation	When larger vehicles are required to service the site, there would be some temporary, short-term delay to other road users while manoeuvres are made.

References

[1]TfL, *Travel Planning for new development in London,* Transport for London (2011)

[2] Transport for London, Transport Assessment Best Practice guidance, April 2010

[3] Department for Transport (DfT), *Traffic Signs Manual Chapter 8 - Traffic Safety Measures and Signs for Road Works and Temporary Situations, 2009.*

[4] London Undergr*ound Upgrade Plan, http://www.tfl.gov.uk/assets/downloads/corporate/our-upgrade-plan-london-underground-february-2011.pdf*

[5] HM Government, *Equality Act 2010 – Guidance, 2010.*

[6] Department for Transport (DfT), *Traffic Advisory Leaflet 15/99 – Cyclists at Road Works, December 2009.*

Thames Tideway Tunnel
Thames Water Utilities Limited

Application for Development Consent

Application Reference Number: WWO10001

Transport Assessment

Doc Ref: **7.10.05**

Dormay Street

Appendices

APFP Regulations 2009: Regulation **5(2)(q)**

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January 2013

Thames Tideway Tunnel

Creating a cleaner, healthier River Thames

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Thames Tideway Tunnel

Transport Assessment

Section 8 Appendices: Dormay Street

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Appendix A: Policy review

A.1 Introduction

A.1.1 There are a number of documents containing planning policies that are relevant to transport matters for the proposed development at Dormay Street. This includes national, regional and local policies relevant to the site.

A.1.2 This section reviews current documents relevant to the proposed development which is situated within the Borough of Wandsworth.

A.2 National Policy

National Planning Policy Framework (March 2012)

A.2.1 The Department for Communities and Local Government published the National Planning Policy Framework (NPPF) in March 2012. The NPPF replaces a variety of existing planning guidance, most notable the following document, Planning Policy Guidance 13: Transport (November 2010).

A.2.2 The key objective of the NPPF is to create a policy context to support economic growth. The principle of the guidance is to place an emphasis on sustainable development, where environmental conditions should be considered alongside economical and social matters.

A.2.3 It outlines the importance of local development plans and notes that where development accords with an up to date development plan then the proposals should be approved. Moreover, it suggests that local authorities should follow the approach of the presumption in favour of sustainable development.

A.2.4 With particular reference to transport matters the documents states:

"*In preparing local plans, local planning authorities should therefore support a pattern of development which, where reasonable to do so, and facilitates the use of sustainable modes of transport.*"

A.2.5 The guidance goes on to advise at paragraph 32:

"All developments that generate significant amounts of movement should be supported by a Transport Statement or Transport Assessment. Plans and decisions should take account of whether:

the opportunities for sustainable transport modes have been taken up depending on the nature and location of the site, to reduce the need for major transport infrastructure;

safe and suitable access to the site can be achieved for all people; and

improvements can be undertaken within the transport network that cost effectively limit the significant impacts of the development. Development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe."

A.2.6 The document also states that:

"Plans should protect and exploit opportunities for the use of sustainable transport modes for the movement of goods or people". Therefore:

"A key tool to facilitate this would be a Travel Pan. *All developments which generate significant amounts of movement should be required to provide a Travel Plan".*

National Policy Statement for Waste Water (March 2012)

A.2.7 The National Policy Statement for Waste Water was published by the Department of Environment, Food and Rural Affairs in March 2012. This National Policy Statement (NPS) sets out Government policy for the provision of major waste water infrastructures. The NPS does not recognise the Thames TidewayTunnel project within the original thresholds which is contained within the Planning Act. However the document indicates that *"the Government has already stated its intention that the project should be considered at a national level"*.

A.2.8 The Secretary of State announced that development consent for the Thames Tideway Tunnel project should also be dealt with under the regime for nationally significant infrastructure projects under the Planning Act 2008.

A.2.9 The NPS for Waste Water seeks a sustainable long term solution to address the untreated sewage discharged into the river Thames and Thames Tideway Tunnel project has been considered as the preferred solution.

A.2.10 With particular reference to transport matters the document states:

"The Environmental Statement should include a transport assessment, using the NATA/WebTAG methodology stipulated in Department for Transport (DfT), or any successor to such methodology. Applicants should consult the Highways Agency and/or the relevant highway authority, as appropriate, on the assessment and on mitigation measures. The assessment should distinguish between the construction, operation and decommissioning project stages as appropriate".

A.2.11 The document states that the impacts on the surrounding transport infrastructure should be mitigated and where the mitigation measures are not sufficient the requirements to mitigate adverse impacts on transport networks should be considered.

A.2.12 Therefore it is advised to prepare a travel plan which includes demand management measures to mitigate transport impacts, and *"to provide details of proposed measures to improve access by public transport, walking and cycling, to reduce the need for parking associated with the proposal and to mitigate transport impacts".*

A.2.13 The NPS for Waste Water prefers water-borne or rail transport over road transport and where there is likely to be substantial HGV traffic, the following measures should be looked:

- *"control numbers of HGV movements to and from the site in a specified period during its construction and possibly on the routing of such movements;*
- *make sufficient provision for HGV parking, either on the site or at dedicated facilities elsewhere, to avoid 'overspill' parking on public roads, prolonged queuing on approach roads and uncontrolled on-street HGV parking in normal operating conditions; and*
- *ensure satisfactory arrangements for reasonably foreseeable abnormal disruption, in consultation with network providers and the responsible police force".*

A.2.14 The proposed development is located at a relatively moderate accessible transport hub and the proposed location has a Public Transport Accessibility Level (PTAL) rating of 3, rated as 'moderate'. It is assumed that construction workers would not travel by car to and from the site on the basis that there would be no worker parking on site; on-street parking in the area is restricted; and site-specific Travel Plan measures will discourage workers from travelling by car. Information regarding the travel arrangements of the workers associated with the site will be included in the *Project Framework Travel Plan* and site-specific Travel Plan documents.

A.3 Regional policy

The London Plan (July 2011)

A.3.1 The London Plan 2011 is produced by the Greater London Authority (GLA) and sets out the strategic planning guidance for London planning authorities. The Mayor of London is responsible for strategic planning and the production of a Spatial Development Strategy called The London Plan. The London plan sets out the integrated economic, environmental, transport and social framework for the development of London over the next 20-25 years. The Plan takes the year 2031 as its formal end date and its over-arching vision is supported by six detailed objectives for London:

- A city that meets the challenges of economic and population growth;
- An internationally competitive and successful city;
- A city of diverse, strong, secure and accessible neighbourhoods;
- A city that delights the senses;
- A city that becomes a world leader in improving the environment; and
- A city where it is easy, safe and convenient for everyone to access jobs, opportunities and facilities.

A.3.2 The last objective of the plan relates specifically to transport. Policies within the London Plan of relevance to the proposed development are outlined as follows:

A.3.3 **Policy 6.1 – Strategic Approach** advises that the mayor will work with all relevant partners to encourage the closer integration of transport and development by:

- Encouraging patterns and nodes of development that reduce the need to travel, especially by car;
- Seeking to improve the capacity and accessibility of public transport, walking and cycling, particularly in areas of greater demand;
- Supporting development that generates high levels of trips at locations with high public transport accessibility and/or capacity, either currently or via committed, funded improvement;
- Seeking to increase the use of the Blue Ribbon Network, especially the Thames, for passenger and freight use;
- Facilitating the efficient distribution of freight whilst minimising its impacts on the transport network;
- Supporting measures that encourage shifts to mode sustainable modes and appropriate demand management; and
- Promoting greater use of low carbon technology so that carbon dioxide and other contributors to global warming are reduced.

A.3.4 **Policy 6.2 – Providing public transport capacity and safeguarding land for transport** which notes that development proposals that do not provide adequate safeguarding for the schemes should be refused.

A.3.5 **Policy 6.3 – Assessing effects of development on transport capacity** outlines that development proposals should ensure that impacts on transport capacity and the transport network, at both a corridor and local level, are fully assessed. Development should not adversely affect safety on the transport network. Where existing transport capacity is insufficient for the travel generated by proposed developments, and no firm plans exist for an increase in capacity, boroughs should ensure that the development proposals are phased until it is known that these requirements can be met. The policy notes that the use of Travel Plans and addressing freight issues can help reduce the impact of development on the transport network.

A.3.6 **Policy 6.7 – Better streets and surface transport** notes that high levels of priority should be provided to bus routes and there should be direct, secure, accessible and pleasant walking routes to stops. The development would include provision of transport to and from public transport nodes where sites are at a distance from public transport services.

A.3.7 **Policy 6.9 – Cycling** presents measures to increase cycling mode share in London to 5 percent by 2026. Measures include completing the Cycle Super Highways and expanding the London cycle hire scheme. To support this, developments should provide cycle parking to at least the minimum standards, provide showers and changing facilities and facilitate the major cycling schemes in London (Super Highways / Cycle Hire).

A.3.8 **Policy 6.10 – Walking** recommends the use of shared space principles with simplified streetscape, de-cluttering and access for all. Developments should therefore ensure high quality pedestrian environments and emphasise the quality of pedestrian and street space. It points to the 'Legible London' pedestrian wayfinding system as a successful measure to support walking journeys.

A.3.9 **Policy 6.13 – Parking** outlines the need to seek an appropriate balance between promoting new development and preventing excessive car parking provision that can undermine cycling, walking and public transport use. As such, car parking should reduce as public transport accessibility (measured by PTAL) increases. The policy advises that Transport assessments and travel plans for major developments should give details of proposed measures to improve non-car based access, reduce parking and mitigate adverse transport impacts.

A.3.10 **Policy 6.14 – Freight** notes that freight distribution should be improved and movement of freight by rail and waterway should be promoted. To support this, developments that generate high number of freight movements should be located close to major transport routes. In addition, the Freight Operators Recognition Scheme, construction logistics plans and delivery and servicing plans should be promoted. The policy also advises the increase in the use of the Blue Ribbon Network for freight transport.

The Mayors Transport Strategy (GLA, 2010)

A.3.11 In addition to the London Plan, the Mayor has prepared a number of strategies that are essentially an extension of the London Plan. Published by the GLA in 2010, the Mayor's Transport Strategy (MTS) (Greater London Authority, May 2010) envisages *"London's Transport system excelling among that of global cities, providing access to opportunities for all people and enterprises while achieving the highest environmental standards and leading the world in its move towards tackling the urban transport challenges of the 21st century"*.

A.3.12 The MTS sets out a number of policy commitments or requirements which have implications for TfL and a range of other delivery partners including the GLA and the London boroughs. The policies that are relevant to the proposed development are:

- **Policy 4** indicating that the Mayor will seek *"to improve people's access to jobs, business' access to employment markets, business to business access, and freight access by seeking to ensure appropriate transport capacity and connectivity is provided on radial corridors into central London";*
- **Policy 5** seeks *"to ensure efficient and effective access for people and goods within central London";*
- **Policy 8** supports *"a range of transport improvements within metropolitan town centres for people and freight that help improve connectivity and promote the vitality and viability of town centres, and that provide enhanced travel facilities for pedestrians and cyclists";*

- **Policy 9** states that the Mayor *"will use the local and strategic development control processes";*
- **Policy 11** specifies that the Mayor will *"encourage the use of more sustainable, less congesting modes of transport, set appropriate parking standards, and aim to increase public transport, walking and cycling mode share";*
- **Policy 12** states that the Mayor *"will seek to improve the distribution of freight through the provision of better access to/from Strategic Industrial Locations, delivery and servicing plans, and other efficiency measures across London"; and*
- **Policy 15** and **Policy 16** indicate that the Mayor will seek to reduce emissions of air pollutants and noise impacts from transport respectively.

A.3.13 The *London Freight Plan, Sustainable Freight Distribution: a Plan for London* (TfL, June 2008) sets out the steps that have to be taken over the next five to ten years to identify and begin to address the challenge of delivering freight sustainably in the capital. Principles set in that document are expected to be relevant to the consideration of the construction logistics strategy for the proposed development.

A.4 Local policy

A.4.1 The London Borough of Wandsworth has a number of policies relevant to transport within the Local Development Framework (LDF) and the Unitary Development Plan (UDP). Both reflect national and regional focused policies and are referred to below where appropriate.

Local Development Framework

A.4.2 The emerging LDF aims to guide and manage development and regeneration in the borough until 2025. The Core Strategy of the LDF – adopted in October 2010 – now forms part of the statutory planning guidance for the borough, together with the saved policies of the borough's Unitary development Plan (UDP).

A.4.3 Transport policies within this document are concerned with ensuring improvements are made to the public transport, river wharves and accessibility, reducing carbon emissions, and encouraging the use of sustainable transport within the borough.

A.4.4 **Policy PL 3 – Transport** – outlines how the borough will improve the transport network by ensuring *'quality cycling conditions will be delivered'* and *'improved conditions for walking'* along the Thames Path and other accessible routes will be delivered.

A.4.5 **Policy PL 9 – River Thames and the riverside** - outlines that '*greater use will be made of the river'* and that the 'five wharves will continue to be safeguarded', while the redevelopment of these wharves will be accepted *'if the wharf is no longer viable or capable of being made viable for cargo handling uses'*. Further*'existing river infrastructure that provides access to the river and the foreshore, such as piers, jetties, drawdocks, slipways,*

steps and stairs will be protected and new facilities, including piers for river buses, promoted'.

A.4.6 *'Putney Embankment's special recreational character and function'* will be protected, particularly for river sports. Also this policy commits to stating that *'development will not be permitted which encroaches onto the river foreshore'* and opportunities will be taken in consultation with partner agencies, to *'create habitat and reduce flood risk'*.

A.4.7 Also measures will be made to protect and enhance the river as a valuable resource for wild life, in particular at the mouth of the River Wandle.

A.4.8 **Policy PL 10 – The Wandle Valley** - identifies that *'improved accessibility within the corridor and to the riverside will be pursued including the provision of pedestrian and cycle ways'*.

A.4.9 It further outlines the council will support the recreation development of *'King George's Park and north of Wandsworth town centre to the River Wandle mouth'*.

A.4.10 **Policy PL 12 – Central Wandsworth and the Wandle Delta** outlines a number of proposals within central Wandsworth and the Wandle Delta. Amongst them are:

- The Ram Brewery development is to provide a 'high quality public realm' linking the riverside and the juinction of Wandsworth Plain and Armoury Way,
- The banks of the River Wandle will be improved to provide a resource for wild life and recreation and enhancing the existing open space at Causeway Island,
- Wandsworth Business Village 'will provide pedestrian and cycle links to the south via a new park side promenade at Neville Gill Close' which will access King George's Park.

A.4.11 The council further state that 'the impact of traffic on the town centre should be reduced in partnership with TfL' and they will achieve this 'through developer contributions and funds from TfL and other transport infrastructure providers'.

A.4.12 **Policy IS 1 – Sustainable development** - supports '*measures that mitigate and adapt to climate change and reduce emissions of carbon dioxide, and will promote a sustainable relationship between development and transport so as to minimise the need to travel'*.

Development Management Policies (LB of Wandsworth, Feb 2012)

A.4.13 The DMP was adopted by the LB of Wandsworth in February 2012 and supports the Core Strategy. It sets out the Council's detailed policies for managing development in the borough. The policies in the DMP and the SSA replace all of the remaining policies in the Councils Unitary Development Plan (UDP) which have not previously expired or been superseded by the policies in the Core Strategy.

A.4.14 Transport policies within this document are concerned with ensuring sustainable urban design, riverside walking and cycling and parking within the borough.

A.4.15 **Policy DMS 1 – General development principles - Sustainable urban design and the quality** – identifies that developments must ensure that they do *'not harm the amenity of occupiers/users and nearby properties through unacceptable'* traffic congestion, it *'is adequately served by public transport'*, is *'designed to reduce the need to travel and minimise car use'* and is *'accessible to people with disabilities'*.

A.4.16 **Policy DMO 6 – Riverside development** – distinguishes developments adjoining the River Thames and River Wandle which *'promotes sustainable transport'* and in particular *'provides access to public transport routes including the incorporation of a public riverside walk and cycle-path'*.

A.4.17 **Policy DMT1 – Transport impacts of development** – recognises that developments do *'not have a negative impact on the transport system, including public transport capacity and the highway network'*.

A.4.18 **Policy DMT 2 – Parking and servicing** – ascertains that developments will be permitted once 'off-street car parking is provided subject to the maximum levels' set out by the borough.

A.4.19 **Policy DMT 3 – Riverside walking and cycling routes** - permits developments along the Thames and Wandle once provision has been made *'for a riveside walk at least 6 metres wide (Thames) or 3 metres wide (Wandle)'*, *'new accesses lining the riverside walk to the surrounding area are a least 3 metres wide'* and *'riverside routes incorporate provision for cyclists, ensuring pedestrian safety'*.

Site Specific Allocations Document (LB of Wandsworth, Feb, 2012)

A.4.20 The SSAD was adopted by LB Wandsworth in February 2012 and supports the Core Strategy.

A.4.21 **Battersea Park Station** – is classified as being *'within the Vauxhall/Nine Elms/ Battersea Opportunity Area'* and is a key strategic site that will *'deliver transport improvements'* and *'significant public transport provision'* will be needed. Amongst this provision will be an extension to the London Underground Northern Line, river passenger pier including provision of a river bus service, a bus service between BPS and Wandsworth Road and enhancement for the strategic Nine Elms Lane/Battersea Park Road *'to overcome the hostile environment for pedestrians and cyclists that currently exists'*. A Thames Path *'linking with existing and proposed Thames paths must be provided'*.

A.4.22 **Riverlight Development** – identifies that improvements would be made to the *'Riverside walk and cycle route'* as well as the junction between Cringle Street and Nine Elms Lane. Also within this SSAD the importance of the safeguarded wharves at Cringle Dock, Kirtling Wharf and Middle Wharf will *'require their retention and continued operation'*. As for BPS there will be *'significant public transport provision*' here as well.

A.4.23 **US Embassy** – outlines the proposed realignment of Ponton Road, as well as potential for a proposed river crossing. As the same for BPS, there will be *'significant public transport provision*' here as well.

A.4.24 **Embassy Gardens –** ascertains that a public realm is expected to run through the site in conjunction with the proposed *'linear park linking Vauxhall to BPS*'. As the same for BPS, there will be *'significant public transport provision*' here as well.

A.4.25 **Nine Elms Parkside** - recognises that provisions are to be made for *'improved pedestrian and cycle links through the site to provide improved permeability particularly between Nine Elms Lane and Wandsworth Road'*. There is to be a site access onto Nine Elms Lane at the junction of Cringle Street and Nine Elms Lane, making it a four arm junction. As for BPS there will be *'significant public transport provision*' here as well. As in Embassy Gardens there are proposals for a public realm to run through the site linking BPS and Vauxhall.

A.4.26 **New Covent Garden Market** – identifies that the public realm and the existing main access to NCGM 'will need particularly careful treatment' to ensure that the public realm will continue *'across what will continue to be a major junction'* at Kirtling Street/Battersea Park Road.

A.4.27 **Wandsworth Business Village** – outlines that provision will be given for three new connections providing public access through the site. A new pedestrian crossing facility on Buckhold Road will need to be provided, as well improvements to the King George Park entrance and Neville Gill Close promenade.

A.4.28 **Ram Brewey/ Capita Studios** – distinguishes that there should be *'provision for new riverside walks on both banks of the River Wandle'*. Proposals to change the trunk road system with the Wandsworth One-Way System will be required. Also, proposals are to be made to improve the bus services, provide a public realm and the provision of land to public highway, riverside walks and cycle paths surrounding the site.

A.4.29 **Supplementary Planning Guidance**

A.4.30 The SPG supports and is a document with important local views which support local areas within the borough and their relevant transport issues.

A.4.31 Transport policies within these documents are concerned with views of surrounding buildings and landmarks within the borough.

Unitary Development Plan (LB of Wandsworth, Aug 2003)

A.4.32 The UDP was adopted by the London Borough of Wandsworth in August 2003. Due to the merging LDF and the adoption of the Core Strategy, a number of policies have been deleted from the UDP. The relevant UDP policies which have been saved since September 2007 are outline below.

A.4.33 **Policy RDP1: Regeneration and Development Principles** - outline that without *'adequate and satisfactory provision for pedestrian access and for parking'* a development will not be permitted.

A.4.34 **Policy RDP5: Regeneration and Development Principles** – further identifies that the beneficial effects resulting from a lighting scheme on site must not affect 'vehicle users and pedestrians'.

A.4.35 **Policy TBE1: Townscape and Built Environment** - classifies that a development *'provides safe and convenient access for cyclists and pedestrians'*.

A.4.36 **Policy R2: River Thames and Riverside** - ascertains that developments will not be permitted unless *'provision is made for riverside walk at least 6m wide along the entire river frontage'* and *'any new accesses linking the riverside walk to the surrounding area are at least 3m wide'*.

A.4.37 **Policy R7: River Thames and Riverside** – further recognises that proposals for piers and jetties will be permitted provided *'they do not harm the use of the docks and working wharves or other existing uses of the river'.*

A.4.38 **Policy R8: River Thames and Riverside** – identifies that the *'loss of drawdocks, slipways, steps and stairs which give safe access to the river and foreshore'* within development proposals will not be permitted.

A.4.39 **Policy R9: River Thames and Riverside** – distinguishes that for proposals adjoining the River Wandle the council will seek the provision of a riverside walk at least 3m wide and improved access to the riverside.

A.4.40 **Policy R11: River Thames and Riverside** – further identifies that the Council will seek developments within Causeway Island for *'river related uses'*.

A.4.41 **Policy R14: River Thames and Riverside** – further categorizes that the Council will not permit the loss of uses and facilities relying on access to the Thames within the Putney Embankment Area.

A.4.42 **Policy H3: Housing** – identifies that developments harming the *'amenities of predominantly residential areas'* because of traffic generation.

A.4.43 **Policy T2: Transport** – recognises that developments that would *'generate sufficient traffic to harm the environment, or create congestion or hazards on the road network'* would not be permitted by Council.

A.4.44 **Policy T5: Transport** – further pinpoints that *'new developments will only be permitted where they provide safe, secure and direct access for pedestrians, connected to existing pedestrian routes in the surrounding area'*.

A.4.45 **Policy T7: Transport** – distinguishes that for non-residential developments *'adequate servicing arrangements'* must be made for *'commercial vehicles'* in order for the Council to permit planning.

A.4.46 **Policy T8: Transport** – categorizes that developments that propose *'new or expanded wharves and railheads will be permitted where they do not cause harm to the environment and are located so that there is suitable road access'*.

A.4.47 **Policy T12: Transport** – classifies that the loss of off-street parking spaces in areas in or adjacent t the House Conversion Restraint Areas will be resisted.

Appendix B: PTAL analysis

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PTAI Study Report File Summary

PTAI Run Parameters

PTAI Run	20120410150405
Description	20120410150405
Run by user	PTAL web application
Date	04/10/2012

Walk File Parameters

Walk File	PLSQLTest
Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
BUS Walk Access Time (mins)	8
BUS Reliability Factor	2.0
LU LRT Walk Access Time (mins)	12
LU LRT Reliability Factor	0.75
NATIONAL_RAIL Walk Access Time (mins)	12
NATIONAL_RAIL Reliability Factor	0.75
Coordinates:	525566, 174967

Mode	Stop	Route	Distance (metres)	Frequency (vph)	Weight	Walk time (mins)	SWT (mins)	TAT (mins)	EDF	AI
BUS	WANDSWORTH PLAIN	39	235.36	8	0.5	2.94	5.75	8.69	3.45	1.73
BUS	WANDSWORTH PLAIN	156	235.36	7.5	0.5	2.94	6	8.94	3.35	1.68
BUS	WANDSWORTH ARMOURY WAY	220	300.64	7.5	0.5	3.76	6	9.76	3.07	1.54
BUS	WANDSWORTH ARMOURY WAY	485	300.64	2	0.5	3.76	17	20.76	1.45	0.72
BUS	WANDSWORTH ARMOURY WAY	337	300.64	5	0.5	3.76	8	11.76	2.55	1.28
BUS	WANDSWORTH ARMOURY WAY	37	300.64	6	0.5	3.76	7	10.76	2.79	1.39
BUS	WANDSWORTH ARMOURY WAY	170	300.64	7.5	0.5	3.76	6	9.76	3.07	1.54
BUS	WANDSWORTH ARMOURY WAY	270	300.64	6	0.5	3.76	7	10.76	2.79	1.39
BUS	OLD YORK RD FAIRFIELD ST	28	454.5	8	0.5	5.68	5.75	11.43	2.62	1.31
BUS	OLD YORK RD FAIRFIELD ST	44	454.5	6	0.5	5.68	7	12.68	2.37	1.18
BUS	WANDSWORTH	87	235.36	10	1	2.94	5	7.94	3.78	3.78

Mode	Stop	Route	Distance (metres)	Frequency (vph)	Weight	Walk time (mins)	SWT (mins)	TAT (mins)	EDF	AI
	PLAIN									
NATIONAL_RAIL	WANDSWORTH TOWN BR	LONDON WATERLOO BR to WEYBRIDGE	761.83	2	1	9.52	15.75	25.27	1.19	1.19
NATIONAL_RAIL	WANDSWORTH TOWN BR	SHEPPERTON to LONDON WATERLOO BR	761.83	1	0.5	9.52	30.75	40.27	0.74	0.37
NATIONAL_RAIL	WANDSWORTH TOWN BR	LONDON WATERLOO BR to HOUNSLOW	761.83	0.33	0.5	9.52	91.66	101.18	0.3	0.15
NATIONAL_RAIL	WANDSWORTH TOWN BR	LONDON WATERLOO BR to LONDON WATERLOO BR	761.83	2	0.5	9.52	15.75	25.27	1.19	0.59
NATIONAL_RAIL	WANDSWORTH TOWN BR	LONDON WATERLOO BR to LONDON	761.83	2	0.5	9.52	15.75	25.27	1.19	0.59

Mode	Stop	Route	Distance (metres)	Frequency (vph)	Weight	Walk time (mins)	SWT (mins)	TAT (mins)	EDF	AI
		WATERLOO BR								
NATIONAL_RAIL	WANDSWORTH TOWN BR	KINGSTON to LONDON WATERLOO BR	761.83	0.33	0.5	9.52	91.66	101.18	0.3	0.15
NATIONAL_RAIL	WANDSWORTH TOWN BR	STAINES to LONDON WATERLOO BR	761.83	0.33	0.5	9.52	91.66	101.18	0.3	0.15
NATIONAL_RAIL	WANDSWORTH TOWN BR	WEYBRIDGE to LONDON WATERLOO BR	761.83	1.67	0.5	9.52	18.71	28.24	1.06	0.53
NATIONAL_RAIL	WANDSWORTH TOWN BR	TWICKENHAM BR to LONDON WATERLOO BR	761.83	0.33	0.5	9.52	91.66	101.18	0.3	0.15

Note: Total AI for this POI is 21.41.
PTAL Rating is 5.

Appendix C: Local modelling outputs

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C.1 Baseline results, AM peak hour

Armoury Way/Dormay Street junction priority layout

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
Baseline, AM	Baseline	AM		Varies by Arm	08:00	09:00	60	15				✓		

Junction Network

Junctions

Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS

J17	T-Junction	One-way from A to C	A,B,C		11.81	B

Junction Network Options

Driving Side	Lighting	Road Surface
Left	Normal/unknown	(Mini-roundabouts only)

Arms

Arms

Arm	Name	Description	Arm Type
A	Armoury Way (West)		Major
B	Dormay Street		Minor
C	Armoury Way (East)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)
C	11.70		0.00		2.20	250.00		

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor	Lane	Lane Width	Lane Width	Width at	Width at	Width at	Width at	Width at	Estimate Flare	Flare Length	Visibility To	Visibility To

	Arm Type	Width (m)	(Left) (m)	(Right) (m)	give-way (m)	5m (m)	10m (m)	15m (m)	20m (m)	Length	(PCU)	Left (m)	Right (m)
B	One lane	3.00										22	16

Pedestrian Crossings

Arm	Crossing Type
A	None
B	None
C	None

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (Veh/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	492.609	0.022	0.055	0.035	0.079
1	B-C	634.009	0.024	0.060	-	-
1	C-B	718.741	0.068	0.068	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.
Streams may be combined, in which case capacity will be adjusted.
Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
A	DIRECT	✓	N/A	100.000
B	DIRECT	✓	N/A	100.000
C	DIRECT	✓	N/A	100.000

Turning Proportions

Turning Counts or Proportions (Veh/hr) - Junction 1 (for whole period)

		To		
		A	B	C
From	A	0.000	29.000	2868.000
	B	0.000	0.000	31.000

	C	0.000	0.000	0.000

Turning Proportions (Veh) - Junction 1 (for whole period)

		To		
		A	B	C
From	A	0.00	0.01	0.99
	B	0.00	0.00	1.00
	C	0.33	0.33	0.33

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To		
		A	B	C
From	A	1.000	1.172	1.105
	B	1.000	1.000	1.323
	C	1.000	1.000	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

	To

From		A	B	C
	A	0.000	17.241	10.460
	B	0.000	0.000	32.258
	C	0.000	0.000	0.000

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
B-AC	0.09	11.81	0.10	B	31.00	31.00	5.98	11.57	0.10	5.98	11.57
C-A	-	-	-	-	0.00	0.00	-	-	-	-	-
C-B	0.00	0.00	0.00	A	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A-B	-	-	-	-	29.00	29.00	-	-	-	-	-
A-C	-	-	-	-	2868.01	2868.01	-	-	-	-	-

C.2 Baseline results, PM peak hour

Armoury Way/Dormay Street junction priority layout

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
Baseline, PM	Baseline	PM		Varies by Arm	17:00	18:00	60	15				✓		

Junction Network

Junctions

Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS

J17	T-Junction	One-way from A to C	A,B,C		8.37	A

Junction Network Options

Driving Side	Lighting	Road Surface
Left	Normal/unknown	(Mini-roundabouts only)

Arms

Arms

Arm	Name	Description	Arm Type
A	Armoury Way (West)		Major
B	Dormay Street		Minor
C	Armoury Way (East)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)
C	11.70		0.00		2.20	250.00		

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor	Lane	Lane Width	Lane Width	Width at	Width at	Width at	Width at	Width at	Estimate Flare	Flare Length	Visibility To	Visibility To

	Arm Type	Width (m)	(Left) (m)	(Right) (m)	give-way (m)	5m (m)	10m (m)	15m (m)	20m (m)	Length	(PCU)	Left (m)	Right (m)
B	One lane	3.00										22	16

Pedestrian Crossings

Arm	Crossing Type
A	None
B	None
C	None

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (Veh/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	492.609	0.022	0.055	0.035	0.079
1	B-C	634.009	0.024	0.060	-	-
1	C-B	718.741	0.068	0.068	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.
Streams may be combined, in which case capacity will be adjusted.
Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
A	DIRECT	✓	N/A	100.000
B	DIRECT	✓	N/A	100.000
C	DIRECT	✓	N/A	100.000

Turning Proportions

Turning Counts or Proportions (Veh/hr) - Junction 1 (for whole period)

		To		
		A	B	C
From	A	0.000	11.000	2499.000
	B	0.000	0.000	18.000

	C	0.000	0.000	0.000

Turning Proportions (Veh) - Junction 1 (for whole period)

		To		
		A	B	C
From	A	0.00	0.00	1.00
	B	0.00	0.00	1.00
	C	0.33	0.33	0.33

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To		
		A	B	C
From	A	1.000	1.364	1.076
	B	1.000	1.000	1.056
	C	1.000	1.000	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

	To

From		A	B	C
	A	0.000	36.364	7.563
	B	0.000	0.000	5.556
	C	0.000	0.000	0.000

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
B-AC	0.04	8.37	0.04	A	18.00	18.00	2.47	8.24	0.04	2.47	8.24
C-A	-	-	-	-	0.00	0.00	-	-	-	-	-
C-B	0.00	0.00	0.00	A	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A-B	-	-	-	-	11.00	11.00	-	-	-	-	-
A-C	-	-	-	-	2499.00	2499.00	-	-	-	-	-

C.3 Construction base case results, AM peak hour

Armoury Way/Dormay Street junction priority layout

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
Base Case, AM	Base Case	AM		Varies by Arm	08:00	09:00	60	15				✓		

Junction Network

Junctions

Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS
J17	T-Junction	One-way from A to C	A,B,C		12.05	B

Junction Network Options

Driving Side	Lighting	Road Surface
Left	Normal/unknown	(Mini-roundabouts only)

Arms

Arms

Arm	Name	Description	Arm Type
A	Armoury Way (West)		Major
B	Dormay Street		Minor
C	Armoury Way (East)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)
C	11.70		0.00		2.20	250.00		

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor Arm Type	Lane Width (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate Flare Length	Flare Length (PCU)	Visibility To Left (m)	Visibility To Right (m)
B	One lane	3.00										22	16

Pedestrian Crossings

Arm	Crossing Type
A	None
B	None
C	None

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (Veh/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	492.609	0.022	0.055	0.035	0.079
1	B-C	634.009	0.024	0.060	-	-
1	C-B	718.741	0.068	0.068	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.
Streams may be combined, in which case capacity will be adjusted.
Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
A	DIRECT	✓	N/A	100.000
B	DIRECT	✓	N/A	100.000
C	DIRECT	✓	N/A	100.000

Turning Proportions

Turning Counts or Proportions (Veh/hr) - Junction 1 (for whole period)

		To		
From		A	B	C
	A	0.000	30.000	2971.000

	B	0.000	0.000	32.000
	C	0.000	0.000	0.000

Turning Proportions (Veh) - Junction 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	0.01	0.99
	B	0.00	0.00	1.00
	C	0.33	0.33	0.33

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	1.000	1.172	1.105
	B	1.000	1.000	1.323
	C	1.000	1.000	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To		
		A	B	C
From	A	0.000	17.241	10.460
	B	0.000	0.000	32.258
	C	0.000	0.000	0.000

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
B-AC	0.10	12.05	0.11	B	32.00	32.00	6.30	11.80	0.10	6.30	11.81
C-A	-	-	-	-	0.00	0.00	-	-	-	-	-
C-B	0.00	0.00	0.00	A	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A-B	-	-	-	-	30.00	30.00	-	-	-	-	-
A-C	-	-	-	-	2971.01	2971.01	-	-	-	-	-

C.4 Construction base case results, PM peak hour

Armoury Way/Dormay Street junction priority layout

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
Base Case, PM	Base Case	PM		Varies by Arm	17:00	18:00	60	15				✓		

Junction Network

Junctions

Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS
J17	T-Junction	One-way from A to C	A,B,C		8.52	A

Junction Network Options

Driving Side	Lighting	Road Surface
Left	Normal/unknown	(Mini-roundabouts only)

Arms

Arms

Arm	Name	Description	Arm Type
A	Armoury Way (West)		Major
B	Dormay Street		Minor
C	Armoury Way (East)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)
C	11.70		0.00		2.20	250.00		

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor Arm Type	Lane Width (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate Flare Length	Flare Length (PCU)	Visibility To Left (m)	Visibility To Right (m)
B	One lane	3.00										22	16

Pedestrian Crossings

Arm	Crossing Type
A	None
B	None
C	None

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (Veh/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	492.609	0.022	0.055	0.035	0.079
1	B-C	634.009	0.024	0.060	-	-
1	C-B	718.741	0.068	0.068	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.
Streams may be combined, in which case capacity will be adjusted.
Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
A	DIRECT	✓	N/A	100.000
B	DIRECT	✓	N/A	100.000
C	DIRECT	✓	N/A	100.000

Turning Proportions

Turning Counts or Proportions (Veh/hr) - Junction 1 (for whole period)

		To		
		A	B	C
From	A	0.000	12.000	2614.000

	B	0.000	0.000	19.000
	C	0.000	0.000	0.000

Turning Proportions (Veh) - Junction 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	0.00	1.00
	B	0.00	0.00	1.00
	C	0.33	0.33	0.33

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	1.000	1.364	1.076
	B	1.000	1.000	1.056
	C	1.000	1.000	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To		
		A	B	C
From	A	0.000	36.364	7.563
	B	0.000	0.000	5.556
	C	0.000	0.000	0.000

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
B-AC	0.04	8.52	0.04	A	19.00	19.00	2.66	8.39	0.04	2.66	8.39
C-A	-	-	-	-	0.00	0.00	-	-	-	-	-
C-B	0.00	0.00	0.00	A	0.00	0.00	0.00	0.00	0.00	0.00	9999999999.00
A-B	-	-	-	-	12.00	12.00	-	-	-	-	-
A-C	-	-	-	-	2614.00	2614.00	-	-	-	-	-

C.5 Construction development case results, AM peak hour

Armoury Way/Dormay Street junction priority layout

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
Dev Case, AM	Dev Case	AM		Varies by Arm	08:00	09:00	60	15				✓		

Junction Network

Junctions

Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS

J17	T-Junction	One-way from A to C	A,B,C		12.44	B

Junction Network Options

Driving Side	Lighting	Road Surface
Left	Normal/unknown	(Mini-roundabouts only)

Arms

Arms

Arm	Name	Description	Arm Type
A	Armoury Way (West)		Major
B	Dormay Street		Minor
C	Armoury Way (East)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)
C	11.70		0.00		2.20	250.00		

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor	Lane	Lane Width	Lane Width	Width at	Width at	Width at	Width at	Width at	Estimate Flare	Flare Length	Visibility To	Visibility To

	Arm Type	Width (m)	(Left) (m)	(Right) (m)	give-way (m)	5m (m)	10m (m)	15m (m)	20m (m)	Length	(PCU)	Left (m)	Right (m)
B	One lane	3.00										22	16

Pedestrian Crossings

Arm	Crossing Type
A	None
B	None
C	None

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (Veh/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	492.609	0.022	0.055	0.035	0.079
1	B-C	634.009	0.024	0.060	-	-
1	C-B	718.741	0.068	0.068	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.
Streams may be combined, in which case capacity will be adjusted.
Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
A	DIRECT	✓	N/A	100.000
B	DIRECT	✓	N/A	100.000
C	DIRECT	✓	N/A	100.000

Turning Proportions

Turning Counts or Proportions (Veh/hr) - Junction 1 (for whole period)

		To		
		A	B	C
From	A	0.000	35.000	2976.000
	B	0.000	0.000	36.000

	C	0.000	0.000	0.000

Turning Proportions (Veh) - Junction 1 (for whole period)

		To		
		A	B	C
From	A	0.00	0.01	0.99
	B	0.00	0.00	1.00
	C	0.33	0.33	0.33

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To		
		A	B	C
From	A	1.000	1.205	1.105
	B	1.000	1.000	1.343
	C	1.000	1.000	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

	To

From		A	B	C
	A	0.000	20.542	10.479
	B	0.000	0.000	34.266
	C	0.000	0.000	0.000

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
B-AC	0.11	12.44	0.12	B	36.00	36.00	7.31	12.18	0.12	7.31	12.18
C-A	-	-	-	-	0.00	0.00	-	-	-	-	-
C-B	0.00	0.00	0.00	A	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A-B	-	-	-	-	35.00	35.00	-	-	-	-	-
A-C	-	-	-	-	2976.00	2976.00	-	-	-	-	-

C.6 Construction development case results, PM peak hour

Armoury Way/Dormay Street junction priority layout

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
Dev Case, PM	Dev Case	PM		Varies by Arm	17:00	18:00	60	15				✓		

Junction Network

Junctions

Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS
J17	T-Junction	One-way from A to C	A,B,C		9.28	A

Junction Network Options

Driving Side	Lighting	Road Surface
Left	Normal/unknown	(Mini-roundabouts only)

Arms

Arms

Arm	Name	Description	Arm Type
A	Armoury Way (West)		Major
B	Dormay Street		Minor
C	Armoury Way (East)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)
C	11.70		0.00		2.20	250.00		

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor Arm Type	Lane Width (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate Flare Length	Flare Length (PCU)	Visibility To Left (m)	Visibility To Right (m)
B	One lane	3.00										22	16

Pedestrian Crossings

Arm	Crossing Type
A	None
B	None
C	None

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (Veh/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	492.609	0.022	0.055	0.035	0.079
1	B-C	634.009	0.024	0.060	-	-
1	C-B	718.741	0.068	0.068	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.
Streams may be combined, in which case capacity will be adjusted.
Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
A	DIRECT	✓	N/A	100.000
B	DIRECT	✓	N/A	100.000
C	DIRECT	✓	N/A	100.000

Turning Proportions

Turning Counts or Proportions (Veh/hr) - Junction 1 (for whole period)

		To		
From		A	B	C
	A	0.000	16.000	2628.000

	B	0.000	0.000	24.000
	C	0.000	0.000	0.000

Turning Proportions (Veh) - Junction 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	0.00	0.01	0.99
	B	0.00	0.00	1.00
	C	0.33	0.33	0.33

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To		
		A	**B**	**C**
From	**A**	1.000	1.400	1.076
	B	1.000	1.000	1.129
	C	1.000	1.000	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

	To			
From		A	B	C
	A	0.000	39.973	7.564
	B	0.000	0.000	12.870
	C	0.000	0.000	0.000

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
B-AC	0.06	9.28	0.06	A	24.00	24.00	3.65	9.13	0.06	3.65	9.13
C-A	-	-	-	-	0.00	0.00	-	-	-	-	-
C-B	0.00	0.00	0.00	A	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A-B	-	-	-	-	16.00	16.00	-	-	-	-	-
A-C	-	-	-	-	2628.00	2628.00	-	-	-	-	-

C.7 Baseline results, AM peak hour

Dormay Street/The Causeway junction priority layout

Arm Names and Flow Scaling Factors

Arm	Arm Name	Flow Scaling Factor (%)
Arm A	Dormay Street (North)	100
Arm B	Armoury Way	100
Arm C	Dormay Street (South)	100

Errors and Warnings

Parameter	Values
Warning	No Errors Or Warnings

Geometric Data

Geometric Parameters

Parameter	Minor Arm B
Major Road Carriageway Width (m)	6.00
Major Road Kerbed Central Reserve Width (m)	0.00
Major Road Right Turning Lane Width (m)	2.20
Minor Road First Lane Width (m)	2.40
Minor Road Visibility To Right (m)	15
Minor Road Visibility To Left (m)	13
Major Road Right Turn Visibility (m)	60
Major Road Right Turn Blocks Traffic	Yes

Slope and Intercept Values

Stream	Intercept for Stream B-A	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	459.853	0.084	0.212	0.133	0.302
B-C	595.332	0.091	0.231	-	-
C-B	608.710	0.236	0.236	-	-

Note: Streams may be combined in which case capacity will be adjusted
These values do not allow for any site-specific corrections

Demand Data

Modelling Periods

Parameter	Period	Duration (min)	Segment Length (min)
First Modelling Period	08:00-09:00	60	15

Direct Entry Flows

Demand Set: Existing 2011 AM Peak
Modelling Period: 08:00-09:00

Segment: 08:00-08:15

Arm	Flow (veh/interval)
Arm A	8.75
Arm B	3.75
Arm C	9.00

Segment: 08:15-08:30

Arm	Flow (veh/interval)
Arm A	8.75
Arm B	3.75
Arm C	9.00

Segment: 08:30-08:45

Arm	Flow (veh/interval)
Arm A	8.75
Arm B	3.75
Arm C	9.00

Segment: 08:45-09:00

Arm	Flow (veh/interval)
Arm A	8.75
Arm B	3.75
Arm C	9.00

Turning Counts

Demand Set: Existing 2011 AM Peak
Modelling Period: 08:00-09:00

From/To	Arm A	Arm B	Arm C
Arm A	-	3	32
Arm B	1	-	14
Arm C	28	8	-

Turning proportions are calculated from turning count data

Turning Proportions

Demand Set: Existing 2011 AM Peak
Modelling Period: 08:00-09:00

From/To	Arm A	Arm B	Arm C
Arm A	0.000	0.086	0.914
Arm B	0.067	0.000	0.933
Arm C	0.778	0.222	0.000

Heavy Vehicles Percentages

Demand Set: Existing 2011 AM Peak
Modelling Period: 08:00-09:00

From/To	Arm A	Arm B	Arm C
Arm A	-	33.0	34.0
Arm B	100.0	-	14.0
Arm C	18.0	0.0	-

Overall Queues & Delays

Queueing Delay Information Over Whole Period

Demand Set: Sum of Demand Sets for Modelling Period: 08:00 - 09:00
Modelling Period: 08:00-09:00

Stream	Total Demand (veh)	Total Demand (veh/h)	Queueing Delay (min)	Queueing Delay (min/veh)	Inclusive Delay (min)	Inclusive Delay (min/veh)
B-AC	15.0	15.0	1.9	0.1	1.9	0.1
C-AB	8.4	8.4	0.9	0.1	0.9	0.1
C-A	27.6	27.6	-	-	-	-
A-B	3.0	3.0	-	-	-	-
A-C	32.0	32.0	-	-	-	-
All	**86.0**	**86.0**	**2.9**	**0.0**	**2.9**	**0.0**

Delay is that occurring only within the time period.
Inclusive delay includes delay suffered by vehicles which are still queuing after the end of the time period.

These will only be significantly different if there is a large queue remaining at the end of the time period.

C.8 Baseline results, PM peak hour

Dormay Street/The Causeway junction priority layout

Arm Names and Flow Scaling Factors

Arm	Arm Name	Flow Scaling Factor (%)
Arm A	Dormay Street (North)	100
Arm B	Armoury Way	100
Arm C	Dormay Street (South)	100

Errors and Warnings

Parameter	Values
Warning	No Errors Or Warnings

Geometric Data

Geometric Parameters

Parameter	Minor Arm B
Major Road Carriageway Width (m)	6.00
Major Road Kerbed Central Reserve Width (m)	0.00
Major Road Right Turning Lane Width (m)	2.20
Minor Road First Lane Width (m)	2.40
Minor Road Visibility To Right (m)	15
Minor Road Visibility To Left (m)	13
Major Road Right Turn Visibility (m)	60
Major Road Right Turn Blocks Traffic	Yes

Slope and Intercept Values

Stream	Intercept for Stream B-A	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	459.853	0.084	0.212	0.133	0.302
B-C	595.332	0.091	0.231	-	-
C-B	608.710	0.236	0.236	-	-

Note: Streams may be combined in which case capacity will be adjusted
These values do not allow for any site-specific corrections

Demand Data

Modelling Periods

Parameter	Period	Duration (min)	Segment Length (min)
First Modelling Period	17:00-18:00	60	15

Direct Entry Flows

Demand Set: Existing 2011 PM Peak
Modelling Period: 17:00-18:00

Segment: 17:00-17:15

Arm	Flow (veh/interval)
Arm A	3.75
Arm B	0.50
Arm C	3.25

Segment: 17:15-17:30

Arm	Flow (veh/interval)
Arm A	3.75
Arm B	0.50
Arm C	3.25

Segment: 17:30-17:45

Arm	Flow (veh/interval)
Arm A	3.75
Arm B	0.50
Arm C	3.25

Segment: 17:45-18:00

Arm	Flow (veh/interval)
Arm A	3.75
Arm B	0.50
Arm C	3.25

Turning Counts

Demand Set: Existing 2011 PM Peak
Modelling Period: 17:00-18:00

From/To	Arm A	Arm B	Arm C
Arm A	-	0	15
Arm B	0	-	2
Arm C	11	2	-

Turning proportions are calculated from turning count data

Turning Proportions

Demand Set: Existing 2011 PM Peak
Modelling Period: 17:00-18:00

From/To	Arm A	Arm B	Arm C
Arm A	0.000	0.000	1.000
Arm B	0.000	0.000	1.000
Arm C	0.846	0.154	0.000

Heavy Vehicles Percentages

Demand Set: Existing 2011 PM Peak
Modelling Period: 17:00-18:00

From/To	Arm A	Arm B	Arm C
Arm A	-	0.0	13.0
Arm B	0.0	-	50.0
Arm C	36.0	0.0	-

Overall Queues & Delays

Queueing Delay Information Over Whole Period

Demand Set: Sum of Demand Sets for Modelling Period: 17:00 - 18:00
Modelling Period: 17:00-18:00

Stream	Total Demand (veh)	Total Demand (veh/h)	Queueing Delay (min)	Queueing Delay (min/veh)	Inclusive Delay (min)	Inclusive Delay (min/veh)
B-AC	2.0	2.0	0.3	0.2	0.3	0.2
C-AB	2.0	2.0	0.2	0.1	0.2	0.1
C-A	11.0	11.0	-	-	-	-
A-B	0.0	0.0	-	-	-	-
A-C	15.0	15.0	-	-	-	-
All	**30.0**	**30.0**	**0.5**	**0.0**	**0.5**	**0.0**

Delay is that occurring only within the time period.
Inclusive delay includes delay suffered by vehicles which are still queuing after the end of the time period.
These will only be significantly different if there is a large queue remaining at the end of the time period.

C.9 Construction base case results, AM peak hour

Dormay Street/The Causeway junction priority layout

Arm Names and Flow Scaling Factors

Arm	Arm Name	Flow Scaling Factor (%)
Arm A	Dormay Street (North)	100
Arm B	Armoury Way	100
Arm C	Dormay Street (South)	100

Errors and Warnings

Parameter	Values
Warning	No Errors Or Warnings

Geometric Data

Geometric Parameters

Parameter	Minor Arm B
Major Road Carriageway Width (m)	6.00
Major Road Kerbed Central Reserve Width (m)	0.00
Major Road Right Turning Lane Width (m)	2.20
Minor Road First Lane Width (m)	2.40
Minor Road Visibility To Right (m)	15
Minor Road Visibility To Left (m)	13
Major Road Right Turn Visibility (m)	60
Major Road Right Turn Blocks Traffic	Yes

Slope and Intercept Values

Stream	Intercept for Stream B-A	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	459.853	0.084	0.212	0.133	0.302
B-C	595.332	0.091	0.231	-	-
C-B	608.710	0.236	0.236	-	-

Note: Streams may be combined in which case capacity will be adjusted
These values do not allow for any site-specific corrections

Demand Data

Modelling Periods

Parameter	Period	Duration (min)	Segment Length (min)
First Modelling Period	08:00-09:00	60	15

Direct Entry Flows

Demand Set: Future 2021 AM Peak
Modelling Period: 08:00-09:00

Segment: 08:00-08:15

Arm	Flow (veh/interval)
Arm A	9.00
Arm B	4.00
Arm C	9.25

Segment: 08:15-08:30

Arm	Flow (veh/interval)
Arm A	9.00
Arm B	4.00
Arm C	9.25

Segment: 08:30-08:45

Arm	Flow (veh/interval)
Arm A	9.00
Arm B	4.00
Arm C	9.25

Segment: 08:45-09:00

Arm	Flow (veh/interval)
Arm A	9.00
Arm B	4.00
Arm C	9.25

Turning Counts

Demand Set: Future 2021 AM Peak
Modelling Period: 08:00-09:00

From/To	Arm A	Arm B	Arm C
Arm A	-	3	33
Arm B	1	-	15
Arm C	29	8	-

Turning proportions are calculated from turning count data

Turning Proportions

Demand Set: Future 2021 AM Peak
Modelling Period: 08:00-09:00

From/To	Arm A	Arm B	Arm C
Arm A	0.000	0.083	0.917
Arm B	0.063	0.000	0.938
Arm C	0.784	0.216	0.000

Heavy Vehicles Percentages

Demand Set: Future 2021 AM Peak
Modelling Period: 08:00-09:00

From/To	Arm A	Arm B	Arm C
Arm A	-	33.0	34.0
Arm B	100.0	-	14.0
Arm C	18.0	0.0	-

Overall Queues & Delays

Queueing Delay Information Over Whole Period

Demand Set: Sum of Demand Sets for Modelling Period: 08:00 - 09:00
Modelling Period: 08:00-09:00

Stream	Total Demand (veh)	Total Demand (veh/h)	Queueing Delay (min)	Queueing Delay (min/veh)	Inclusive Delay (min)	Inclusive Delay (min/veh)
B-AC	16.0	16.0	2.1	0.1	2.1	0.1
C-AB	8.4	8.4	0.9	0.1	0.9	0.1
C-A	28.6	28.6	-	-	-	-
A-B	3.0	3.0	-	-	-	-
A-C	33.0	33.0	-	-	-	-
All	**89.0**	**89.0**	**3.0**	**0.0**	**3.0**	**0.0**

Delay is that occurring only within the time period.
Inclusive delay includes delay suffered by vehicles which are still queuing after the end of the time period.
These will only be significantly different if there is a large queue remaining at the end of the time period.

C.10 Construction base case results, PM peak hour

Dormay Street/The Causeway junction priority layout

Arm Names and Flow Scaling Factors

Arm	Arm Name	Flow Scaling Factor (%)
Arm A	Dormay Street (North)	100
Arm B	Armoury Way	100
Arm C	Dormay Street (South)	100

Errors and Warnings

Parameter	Values
Warning	No Errors Or Warnings

Geometric Data

Geometric Parameters

Parameter	Minor Arm B
Major Road Carriageway Width (m)	6.00
Major Road Kerbed Central Reserve Width (m)	0.00
Major Road Right Turning Lane Width (m)	2.20
Minor Road First Lane Width (m)	2.40
Minor Road Visibility To Right (m)	15
Minor Road Visibility To Left (m)	13
Major Road Right Turn Visibility (m)	60
Major Road Right Turn Blocks Traffic	Yes

Slope and Intercept Values

Stream	Intercept for Stream B-A	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	459.853	0.084	0.212	0.133	0.302
B-C	595.332	0.091	0.231	-	-
C-B	608.710	0.236	0.236	-	-

Note: Streams may be combined in which case capacity will be adjusted
These values do not allow for any site-specific corrections

Demand Data

Modelling Periods

Parameter	Period	Duration (min)	Segment Length (min)
First Modelling Period	17:00-18:00	60	15

Direct Entry Flows

Demand Set: Future 2021 PM Peak
Modelling Period: 17:00-18:00

Segment: 17:00-17:15

Arm	Flow (veh/interval)
Arm A	4.00
Arm B	0.50
Arm C	3.50

Segment: 17:15-17:30

Arm	Flow (veh/interval)
Arm A	4.00
Arm B	0.50
Arm C	3.50

Segment: 17:30-17:45

Arm	Flow (veh/interval)
Arm A	4.00
Arm B	0.50
Arm C	3.50

Segment: 17:45-18:00

Arm	Flow (veh/interval)
Arm A	4.00
Arm B	0.50
Arm C	3.50

Turning Counts

Demand Set: Future 2021 PM Peak
Modelling Period: 17:00-18:00

From/To	Arm A	Arm B	Arm C
Arm A	-	0	16
Arm B	0	-	2
Arm C	12	2	-

Turning proportions are calculated from turning count data

Turning Proportions

Demand Set: Future 2021 PM Peak
Modelling Period: 17:00-18:00

From/To	Arm A	Arm B	Arm C
Arm A	0.000	0.000	1.000
Arm B	0.000	0.000	1.000
Arm C	0.857	0.143	0.000

Heavy Vehicles Percentages

Demand Set: Future 2021 PM Peak
Modelling Period: 17:00-18:00

From/To	Arm A	Arm B	Arm C
Arm A	-	0.0	13.0
Arm B	0.0	-	50.0
Arm C	36.0	0.0	-

Overall Queues & Delays

Queueing Delay Information Over Whole Period

Demand Set: Sum of Demand Sets for Modelling Period: 17:00 - 18:00
Modelling Period: 17:00-18:00

Stream	Total Demand (veh)	Total Demand (veh/h)	Queueing Delay (min)	Queueing Delay (min/veh)	Inclusive Delay (min)	Inclusive Delay (min/veh)
B-AC	2.0	2.0	0.3	0.2	0.3	0.2
C-AB	2.0	2.0	0.2	0.1	0.2	0.1
C-A	12.0	12.0	-	-	-	-
A-B	0.0	0.0	-	-	-	-
A-C	16.0	16.0	-	-	-	-
All	**32.0**	**32.0**	**0.5**	**0.0**	**0.5**	**0.0**

Delay is that occurring only within the time period.
Inclusive delay includes delay suffered by vehicles which are still queuing after the end of the time period.
These will only be significantly different if there is a large queue remaining at the end of the time period.

C.11 Construction development case results, AM peak hour

Dormay Street/The Causeway junction priority layout

Arm Names and Flow Scaling Factors

Arm	Arm Name	Flow Scaling Factor (%)
Arm A	Dormay Street (North)	100
Arm B	Armoury Way	100
Arm C	Dormay Street (South)	100

Errors and Warnings

Parameter	Values
Warning	No Errors Or Warnings

Geometric Data

Geometric Parameters

Parameter	Minor Arm B
Major Road Carriageway Width (m)	6.00
Major Road Kerbed Central Reserve Width (m)	0.00
Major Road Right Turning Lane Width (m)	2.20
Minor Road First Lane Width (m)	2.40
Minor Road Visibility To Right (m)	15
Minor Road Visibility To Left (m)	13
Major Road Right Turn Visibility (m)	60
Major Road Right Turn Blocks Traffic	Yes

Slope and Intercept Values

Stream	Intercept for Stream B-A	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	459.853	0.084	0.212	0.133	0.302
B-C	595.332	0.091	0.231	-	-
C-B	608.710	0.236	0.236	-	-

Note: Streams may be combined in which case capacity will be adjusted
These values do not allow for any site-specific corrections

Demand Data

Modelling Periods

Parameter	Period	Duration (min)	Segment Length (min)
First Modelling Period	08:00-09:00	60	15

Direct Entry Flows

Demand Set: Future and Proposed AM Peak
Modelling Period: 08:00-09:00

Segment: 08:00-08:15

Arm	Flow (veh/interval)
Arm A	9.50
Arm B	4.50
Arm C	10.50

Segment: 08:15-08:30

Arm	Flow (veh/interval)
Arm A	9.50
Arm B	4.50
Arm C	10.50

Segment: 08:30-08:45

Arm	Flow (veh/interval)
Arm A	9.50
Arm B	4.50
Arm C	10.50

Segment: 08:45-09:00

Arm	Flow (veh/interval)
Arm A	9.50
Arm B	4.50
Arm C	10.50

Turning Counts

Demand Set: Future and Proposed AM Peak
Modelling Period: 08:00-09:00

From/To	Arm A	Arm B	Arm C
Arm A	-	3	35
Arm B	1	-	17
Arm C	31	11	-

Turning proportions are calculated from turning count data

Turning Proportions

Demand Set: Future and Proposed AM Peak
Modelling Period: 08:00-09:00

From/To	Arm A	Arm B	Arm C
Arm A	0.000	0.079	0.921
Arm B	0.056	0.000	0.944
Arm C	0.738	0.262	0.000

Heavy Vehicles Percentages

Demand Set: Future and Proposed AM Peak
Modelling Period: 08:00-09:00

From/To	Arm A	Arm B	Arm C
Arm A	-	33.0	38.0
Arm B	100.0	-	13.0
Arm C	23.0	0.0	-

Overall Queues & Delays

Queueing Delay Information Over Whole Period

Demand Set: Sum of Demand Sets for Modelling Period: 08:00 - 09:00
Modelling Period: 08:00-09:00

Stream	Total Demand (veh)	Total Demand (veh/h)	Queueing Delay (min)	Queueing Delay (min/veh)	Inclusive Delay (min)	Inclusive Delay (min/veh)
B-AC	18.0	18.0	2.3	0.1	2.3	0.1
C-AB	11.6	11.6	1.3	0.1	1.3	0.1
C-A	30.4	30.4	-	-	-	-
A-B	3.0	3.0	-	-	-	-
A-C	35.0	35.0	-	-	-	-
All	**98.0**	**98.0**	**3.6**	**0.0**	**3.6**	**0.0**

Delay is that occurring only within the time period.
Inclusive delay includes delay suffered by vehicles which are still queuing after the end of the time

period.
These will only be significantly different if there is a large queue remaining at the end of the time period.

C.12 Construction development case results, PM peak hour

Dormay Street/The Causeway junction priority layout

Arm Names and Flow Scaling Factors

Arm	Arm Name	Flow Scaling Factor (%)
Arm A	Dormay Street (North)	100
Arm B	Armoury Way	100
Arm C	Dormay Street (South)	100

Errors and Warnings

Parameter	Values
Warning	No Errors Or Warnings

Geometric Data

Geometric Parameters

Parameter	Minor Arm B
Major Road Carriageway Width (m)	6.00
Major Road Kerbed Central Reserve Width (m)	0.00
Major Road Right Turning Lane Width (m)	2.20
Minor Road First Lane Width (m)	2.40
Minor Road Visibility To Right (m)	15
Minor Road Visibility To Left (m)	13
Major Road Right Turn Visibility (m)	60
Major Road Right Turn Blocks Traffic	Yes

Slope and Intercept Values

Stream	Intercept for Stream B-A	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	459.853	0.084	0.212	0.133	0.302
B-C	595.332	0.091	0.231	-	-
C-B	608.710	0.236	0.236	-	-

Note: Streams may be combined in which case capacity will be adjusted
These values do not allow for any site-specific corrections

Demand Data

Modelling Periods

Parameter	Period	Duration (min)	Segment Length (min)
First Modelling Period	17:00-18:00	60	15

Direct Entry Flows

Demand Set: Future and Proposed PM Peak
Modelling Period: 17:00-18:00

Segment: 17:00-17:15

Arm	Flow (veh/interval)
Arm A	4.50
Arm B	1.25
Arm C	4.50

Segment: 17:15-17:30

Arm	Flow (veh/interval)
Arm A	4.50
Arm B	1.25
Arm C	4.50

Segment: 17:30-17:45

Arm	Flow (veh/interval)
Arm A	4.50
Arm B	1.25
Arm C	4.50

Segment: 17:45-18:00

Arm	Flow (veh/interval)
Arm A	4.50
Arm B	1.25
Arm C	4.50

Turning Counts

Demand Set: Future and Proposed PM Peak
Modelling Period: 17:00-18:00

From/To	Arm A	Arm B	Arm C
Arm A	-	0	18
Arm B	0	-	5
Arm C	14	4	-

Turning proportions are calculated from turning count data

Turning Proportions

Demand Set: Future and Proposed PM Peak
Modelling Period: 17:00-18:00

From/To	Arm A	Arm B	Arm C
Arm A	0.000	0.000	1.000
Arm B	0.000	0.000	1.000
Arm C	0.778	0.222	0.000

Heavy Vehicles Percentages

Demand Set: Future and Proposed PM Peak
Modelling Period: 17:00-18:00

From/To	Arm A	Arm B	Arm C
Arm A	-	0.0	23.0
Arm B	0.0	-	21.0
Arm C	46.0	0.0	-

Overall Queues & Delays

Queueing Delay Information Over Whole Period

Demand Set: Sum of Demand Sets for Modelling Period: 17:00 - 18:00
Modelling Period: 17:00-18:00

Stream	Total Demand (veh)	Total Demand (veh/h)	Queueing Delay (min)	Queueing Delay (min/veh)	Inclusive Delay (min)	Inclusive Delay (min/veh)
B-AC	5.0	5.0	0.6	0.1	0.6	0.1
C-AB	4.1	4.1	0.4	0.1	0.4	0.1
C-A	13.9	13.9	-	-	-	-
A-B	0.0	0.0	-	-	-	-
A-C	18.0	18.0	-	-	-	-
All	**41.0**	**41.0**	**1.0**	**0.0**	**1.0**	**0.0**

Delay is that occurring only within the time period.
Inclusive delay includes delay suffered by vehicles which are still queuing after the end of the time

period.
These will only be significantly different if there is a large queue remaining at the end of the time period.

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Appendix D: Accident Analysis

D.1 Existing Highway Safety Analysis

D.1.1 Accident data within the vicinity of the site has been obtained from Transport for London (TfL) and analysed to determine if there are any specific road safety issues, trends or patterns evident on the surrounding highway network.

D.1.2 Data has been obtained for a 5 year period, up until the 31st March 2011. Figure 1.1 shwos the extent of the study area which has been reviewed. The following roads and junctions have been analysed:

- Armoury Way;
- Putney Bridge Road;
- Putney Bridge Road / North Passage / Oak Hill Road / Adelaide Road / Point Pleasant junction;
- Putney Bridge Road / Frogmore junction;
- Armoury Way / Putney Bridge Road / Wandsworth Plain junction;
- Armoury Way / Dormay Street junction
- Armoury Way / Ram Street junction;
- Swandon Way / Old York Road / Fairfield Street junction;
- Old York Road;
- Swandon Way;
- Swandon Way / Smugglers Way junction; and
- Fairfield Street.

D.1.3 Table D.1 provides a summary of the accident locations, the total number of accidents and the associated level of accident severity.

Table D.1 Accident severity 2006 to 2011

Location	Slight	Serious	Fatal	Total
Armoury Way	5	1	0	6
Putney Bridge Road	1	1	0	2
Putney Bridge Road / North Passage / Oak Hill Road / Adelaide Road / Point Pleasant junction	3	0	1	4
Putney Bridge Road / Frogmore junction	1	0	0	1
Armoury Way / Putney Bridge Road junction	5	1	0	6
Armoury Way / Frogmore / Wandsworth	10	0	0	10

Plain junction				
Armoury Way / Dormay Street junction	4	1	0	5
Armoury Way / Ram Street junction	4	0	0	4
Swandon Way / Old York Road / Fairfield Street Junction	8	5	0	13
Old York Road	2	0	0	2
Swandon Way	2	1	0	3
Swandon Way / Smugglers Way junction	6	0	0	6
Fairfield Street	1	0	0	1
Total	**52**	**10**	**1**	**63**

D.1.4 During the 5 year period, a total of 63 accidents have been recorded within the site area analysed. Of these accidents, 52 were slight, 10 were serious and one accident was fatal. The accident data, for each location, is discussed in the following sections.

Armoury Way

D.1.5 Armoury Way (located to the south of the site) forms part of a one-way system with Ram Street, South Circular Road (A3) and Putney Bridge Road, which is part of the wider Transport for London's Road Network (TLRN). The traffic along the Armoury Way stretch of the one-way system routes in an eastward direction. The carriageway consists of two-lanes before it splits into 4 lanes at the junction of Armoury Way and Wandsworth Plain.

D.1.6 This section considers the accidents which have occurred at Armoury Way and at the following junctions:

- Armoury Way / Putney Bridge Road junction;
- Armoury Way / Frogmore / Wandsworth Plain junction;
- Armoury Way / Dormay Street junction; and
- Armoury Way / Ram Street junction.

D.1.7 In total, 31 accidents have occurred at Armoury Way and at the junctions adjoining Armoury Way. Of these accidents, 3 were identified as serious in terms of severity and 28 were identified as slight.

D.1.8 The highest number of accidents (10 accidents) occurred at the junction with Frogmore and Wandsworth Plain. All of these accidents were rated as slight in severity. Of these accidents, 3 involved pedestrians which were caused by pedestrians falling in the road and running out into the path of oncoming vehicles.

D.1.9 In general, the slight accidents that were recorded were attributed to vehicle drivers / riders failing to look properly, sudden breaking,

undertaking a poor turn or manoeuvre, careless / reckless driving and vehicles following too closely.

D.1.10 The serious accidents occurred along Armoury Way and at the junctions with Putney Bridge Road and Dormay Street. Two of the accidents involved LGV; one accident involved the collision with a motorcyclist as a result of the LGV driver failing to look properly. The second accident occurred along Armoury Way and involved a cyclist, although it occurred as a result of the cyclist failing to look properly. The remaining serious accident occurred on Putney Bridge Road and involved a motorcyclist loosing control and colliding with a lampost.

D.1.11 Of the total accidents, 2 involved a MGV, 4 involved a LGV and one involved an HGV. The majority of these accidents were rated as slight in severity. However, 2 accidents involving LGVs led to serious accidents (as described above). The (slight) accident involving the HGV also occurred at the junction with Armoury Street. A motorcyclist braked suddenly causing a collision with the HGV.

Putney Bridge Road

D.1.12 Putney Bridge Road adjoins with Armoury Way to the west. This section considers the accidents that have occurred at along Putney Bridge Road and at the following junctions:

D.1.13 Putney Bridge Road / North Passage / Oak Hill Road / Adelaide Road / Point Pleasant junction; and

D.1.14 Putney Bridge Road / Frogmore junction.

D.1.15 The accidents at the junction of Armoury Way and Putney Bridge Road have been analysed in the previous section.

D.1.16 In total, 7 accidents have occurred within this locality. Of these accidents, 5 were rated as slight in severity, one accident was serious and one accident was fatal.

D.1.17 The fatal accident occurred at the Putney Bridge Road / Adelaide Road arm of the Putney Bridge Road / North Passage / Oak Hill Road / Adelaide Road / Point Pleasant junction. The accident involved a motorcyclist who was travelling too fast for the conditions and lost control of the vehicle, no other vehicles were involved.

D.1.18 There is also a cluster of slight accidents at this 5-arm junction. However, the major contributory factors were recorded as vehicle drivers / riders failing to look properly, failing to judge the speed of other vehicles, following too closely to vehicles, sudden breaking and loss of control.

D.1.19 The serious accident occurred along Putney Bridge Road, approximately 40 metres north of the junction with Frogmore Road. This accident consisted of a pedestrian, recorded to be impaired by alcohol, walking into the path of a vehicle.

D.1.20 Of the total accidents, one accident involved a LGV. This occurred at the junction with Frogmore, where the LGV collided with a cyclist as a result of the LGV driver failing to look properly, failing to judge the speed of the cyclist and driving recklessly / in a hurry.

Swandon Way

D.1.21 Swandon Way is located to the east of Armoury Way. This section considers the accidents that have occurred along Swandon Way and at the following junctions:

- Swandon Way / Old York Road / Fairfield Street; and
- Swandon Way / Smugglers Way.

D.1.22 At this location, 22 accidents were recorded. In terms of severity, 16 accidents were slight and 6 accidents were serious.

D.1.23 The majority of the serious accidents occurred at the junction with Swandon Way / Old York Road / Fairfield Street. Of these accidents one involved a cyclist and one involved a pedestrian. The pedestrian accident was attributed to the pedestrian not using the pedestrian crossing properly. One of these serious accidents also involved a LGV, this occurred as a result of the LGV driver turning the wrong way into a one-way street. The remaining (serious) accidents were often a result of sudden breaking, following too closely, poor turn or manoeuvre, driving recklessly / in a hurry and exceeding the speed limit.

D.1.24 Additionally, there was one serious accident which occurred along Swandon Way, approximately 50 metres north of the junction with Old York Road and Fairfield Street. This accident involved the collision of HGV and a cyclist as a result of the HGV driver failing to look properly and passing to close to the cyclist.

D.1.25 Of the total accidents at this location, 4 accidents involved LGVs. The majority of these accidents were slight in severity, however one was serious (as described above). One of the serious accidents also involved an HGV, which has also been discussed above.

Fairfield Street

D.1.26 Fairfield Street routes south from the junction with Swandon Way and Old York Road. One slight accident occurred along this stretch of road (included within the study area analysed) during the 5 year period. The accident involved the collision of a car and a cyclist resulting from the car driver passing too closely to the cyclist and the cyclist failing to judge the speed of the car correctly.

Old York Road

D.1.27 Old York Road also forms part of the junction with Swandon Way and Fairfield Street, routing in easterly direction from the junction. There were 2 accidents along this stretch road (within the study area analysed) and both were rated as slight in severity. Neither of these accidents involved a goods delivery vehicle. The prevalent causes included vehicle drivers / riders failing to look properly and undertaking a poor turn or manoeuvre.

D.2 Summary and conclusion

D.2.1 The highest number of accidents in total and the number of serious accidents occurred at the Swandon Way / Old York Road / Fairfield Street

Junction. Of these accidents, 5 were serious and 8 were slight. There is a significant cluster of serious accidents at this junction. However, the majority of accidents were caused by human error rather the layout or the geometry of the highway.

D.2.2 There has been one fatal (motorcycle) accident within this locality, which occurred at the junction of Putney Bridge Road / North Passage / Oak Hill Road / Adelaide Road and Point Pleasant. It is understood that the accident was caused as a result of the rider travelling too fast for the conditions and losing control of the vehicle. This suggests that the accident was not caused as a result of the highway conditions or the existing infrastructure.

D.2.3 Of the total accidents, 11 involved either a LGV or a MGV. However, the majority of these led to accidents which were rated slight in severity. An HGV was involved in one serious accident along Swandon Way, approximately 50 metres north of the junction with Old York Road and Fairfield Street.

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Appendix E: Road Safety Audit

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Your ref -
Our ref 211146-00/cvl

ARUP

Central Square
Forth Street
Newcastle upon Tyne
NE1 3PL
United Kingdom

t +44 191 261 6080
f +44 191 261 7879

chris.van-lottum@arup.com-
www.arup.com

Thames Tideway Tunnel
The Point (7th Floor),
37 North Wharf Road,
Paddington,
London W2 1AF
For the attention of Dermot Scanlon

13 February 2013

Dear Sirs

Thames Tideway Tunnel
Dormay Street – Stage 1 Road Safety Audit

I have the pleasure of enclosing our Dormay Street, Stage 1 Road Safety Audit report. In addition to the enclosed report, the Audit Team noted the following points outwith the remit of the audit. I would be grateful if you would bring these issues to the attention of the Highway Authority, Designer and/or Maintainer as appropriate.

Additional Comments

- There are two accesses which would become blocked or partially blocked by the stopping-up of the northern end of Dormay Street. The designer should ensure an appropriate, safe permanent access is provided for the adjacent sites following the completion of the construction works.

IMG_8473.jpg

IMG_8474.jpg

- There is a signed cycle route across the southern end of Dormay Street leading to a segregated cycle path, while the Causeway is a recommended route for cycles. Any traffic management proposed on these roads should take full account of cycles. Delivery drivers should be made aware of the presence of the cycle routes and the likely increased risk of cycle / goods vehicle conflict.
- The construction plan indicates improvements to the Causeway junction with Dormay Street, however these are not shown on any other drawing.
- The proposals indicate the removal of some private car parking spaces along the Causeway. The drawings do not reflect the high demand for parking in this area during the construction phase at Dormay Street. It is likely to result in congestion and frustration for drivers who cannot find somewhere to park. Replacement facilities should be provided during the duration of the construction works.

IMG_8283.jpg

If you have any further queries regarding this letter or the enclosed report, please do not hesitate to contact me.

Yours faithfully

Chris van Lottum
Senior Engineer
Road Safety Audit Team Leader

Enc

cc Phil Longman, Peter Brett Associates
Gavin Wicks, Arup

Thames Tideway Tunnel

Thames Tideway Tunnel - Dormay Street

Stage 1 Road Safety Audit

RSA1.1a

Rev A | 13 February 2013

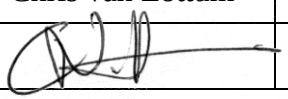
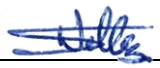
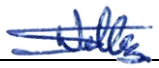
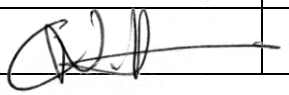
Job number 211146-03

Ove Arup & Partners Ltd
Central Square
Forth Street
Newcastle-upon-Tyne NE1 3PL
United Kingdom
www.arup.com

ARUP

Document Verification

ARUP

Job title		Thames Tideway Tunnel - Dormay Street		**Job number**	211146-03
Document title		Stage 1 Road Safety Audit		**File reference**	
Document ref		RSA1.1a			
Revision	**Date**	**Filename**	RP CVL TTT 05 Dormay RSA1.1 130213 Rev A.docx		
Issue	10 Jan 2013	**Description**	Issue document		
			Prepared by	Checked by	Approved by
		Name	Chris van Lottum	Steve Wells	Steve Wells
		Signature			
Rev A	13 Feb 2013	**Filename**	RP CVL TTT 05 Dormay RSA1.1 130213 Rev A.docx		
		Description	Revised information received		
			Prepared by	Checked by	Approved by
		Name	Chris van Lottum	Tom Corke	Steve Wells
		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	✓

Contents

Figures

Appendices

1 Introduction

Arup was appointed by Thames Tideway Tunnel to conduct a Stage 1 Road Safety Audit on proposals to create a construction access and egress for works associated with the Thames Tideway Tunnel at Dormay Street in the London Borough of Wandsworth.

The agreed Audit Team consisted of:

- Mr C van Lottum MEng (Hons), MCIHT, MSoRSA
- Mr T Corke BEng (Hons), MSc, CEng, MICE, MCIHT, MSoRSA

The Audit Team visited the site together on Tuesday 4th December 2012; weather conditions at the time of the site visit were bright and cold and the road surface was damp.

A list of information provided to the Audit Team has been included as Appendix A to this Report.

The following information was **not** made available to the Audit Team and as such any specific influence of these details on road user safety has not been considered by this audit:

- Departures from Standard
- Road profiles
- Cross sections
- Drainage
- Landscape
- Public utilities
- Traffic signals
- Traffic signs
- Street lighting
- Road markings
- Road restraint systems

It is understood that no previous road safety audits have been conducted on this scheme.

This audit has been undertaken in accordance with the Terms of Reference set out in TfL Procedure 'Road Safety Audit SQA-0170 – Issue 4'; and the Audit Team members meet the training and experience requirements set out therein. The Audit Team has examined and reported only on the road safety implications of the scheme as presented and has not examined or verified the compliance of the design to any other criteria. However, to clearly explain a problem or recommendation the Audit Team may occasionally refer to design standards without engaging in technical audit.

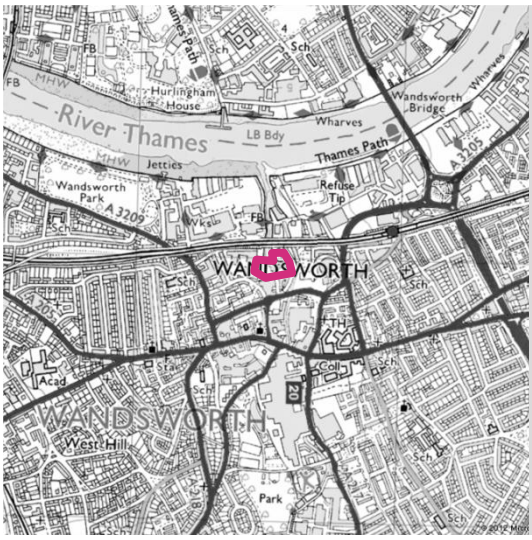
All problems and recommendations identified by this audit are referenced to the design drawings and the locations have been indicated on the attached plan.

Other issues, including safety issues identified during the Audit but excluded from this report by the Terms of Reference, which the Audit Team wishes to draw to the attention of the Audit Project Sponsor are set out in separate correspondence.

Road Safety Audit is based upon a qualitative risk assessment process and there is no measure of the success achieved by any recommendations given herein. Road

Safety Audit cannot guarantee the safe operation of the scheme under consideration in this report as accidents are rare and random events and are largely caused by factors outside the Audit Team's influence, such as driving behaviour and, to a lesser extent, vehicle condition.

1.1 Site Description



Scheme Location

The Dormay Street Site is located in an industrial area north-west of Wandsworth town centre. The site is situated between a railway on the north side and the A3Armoury Way South Circular on the south side.

1.2 Scheme Description

The construction site would be located on an existing works depot to the north of Dormay Street and an existing works depot to the west of The Causeway. The two works depots are separated by Bell Lane Creek.

There will be two site accesses during construction; one on Dormay Street for large construction vehicles and one on The Causeway for smaller vehicles.

For the Dormay Street access; A new crossover would be created on Dormay Street for a new access road linking the site access to Dormay Street. These access arrangements would be in place for the duration of construction.

Pedestrian and cycle routes would not be significantly altered during construction.

2 Stage 1 Road Safety Audit

The Recommendations below are numbered as follows:

STAGE . AUDIT NUMBER . RECOMMENDATION NUMBER

2.1 Construction Layout

	Location:	Junction of Dormay Street with Armoury Way
	Summary:	Existing accident record for delivery route could be exacerbated by construction traffic.
	Description:	There is an existing accident risk relating to larger vehicles turning on and off Armoury Way from Dormay Street. The construction necessitates large numbers of HGV turning movements at this junction which may exacerbate the existing problems.
S1.1.1	**Recommendation:**	Traffic management layouts during construction should highlight the likelihood of HGV and plant movements at this location. Delivery drivers and site staff should be made aware of the likely increased risk of turning conflicts, particularly with vulnerable road users through inclusion in the site induction process and construction method statements.

	Location:	Dormay Street
	Summary:	Gulley at the temporary site access likely to be damaged by repeated over running leading to loss of control collisions.
	Description:	It is proposed to open a site access on the eastern side of Dormay Street during the construction phase. There is a drainage gulley located in the channel at the kerb, concurrent with the access.

IMG_8479.jpg

Repeated over-running of the gulley by construction traffic could result in damage which in turn could damage a tyre or wheel resulting in rapid deflation and loss of control.

S1.1.2 **Recommendation:** Relocate the gulley away from the access.

Location: Dormay Street

Summary: Construction access may result in vehicle conflict with lamp column.

Description: It is proposed to open a site access on the eastern side of Dormay Street during the construction phase. There is a lighting column located in the footway concurrent with the access.

IMG_8479.jpg

Street furniture with insufficient clearance to passing vehicles could be struck by a passing vehicle resulting in vehicle damage, or damage to the street furniture which could injure a passer-by.

S1.1.3 **Recommendation:** Relocate the lighting column without detriment to lighting levels on the surrounding carriageway.

Location: Dormay Street

Summary: Swept path shows HGV conflict with site hoarding.

Description: The swept path analysis for a 16.5m HGV entering the site from Dormay Street conflicts with the hoarding on the western side of the access.

Notwithstanding the damage to a vehicle caused by a collision with the gate and hoarding, if the movement cannot be completed without conflict, it will be necessary for HGV drivers to reverse back to complete their manoeuvre placing other road users at risk from a collision as a result of reduced rearward visibility.

S1.1.4 **Recommendation:** Widen the site entrance to accommodate the movement allowing HGVs to enter the site in a forward gear.

2.2 Permanent Layout

	Location:	Dormay Street
	Summary:	Removal of highway restricts turning area resulting in conflicts with other road users.
	Description:	It is proposed to stop-up the northern end of Dormay Street removing the existing turning head, between the depot accesses. Without a turning facility a vehicle entering the street in error would need to reverse along the full length of Dormay Street to turn at the junction with The Causeway. This could bring the vehicle into conflict with other road users.
S1.1.5	**Recommendation:**	Provide a turning head at the north end of Dormay Street as part of the permanent highway layout.

End of list of problems identified and recommendations offered in this Stage 1 Road Safety Audit.

3 Road Safety Audit Statement

I certify that this audit has been carried out in accordance with HD19/03.

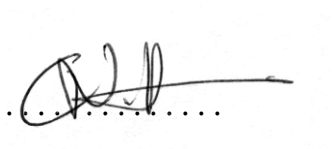
Audit Team Leader

Mr C van Lottum MEng (Hons), MCIHT, MSoRSA

Senior Engineer

Arup

Central Square, Forth Street,
Newcastle upon Tyne, NE1 3PL



13 February 2013

Audit Team Member

Mr T Corke BEng (Hons), MSc, CEng, MICE, MCIHT, MSoRSA

Senior Engineer

Arup

The Arup Campus, Blythe Gate, Blythe Valley Park,
Solihull, B90 8AE

Figures

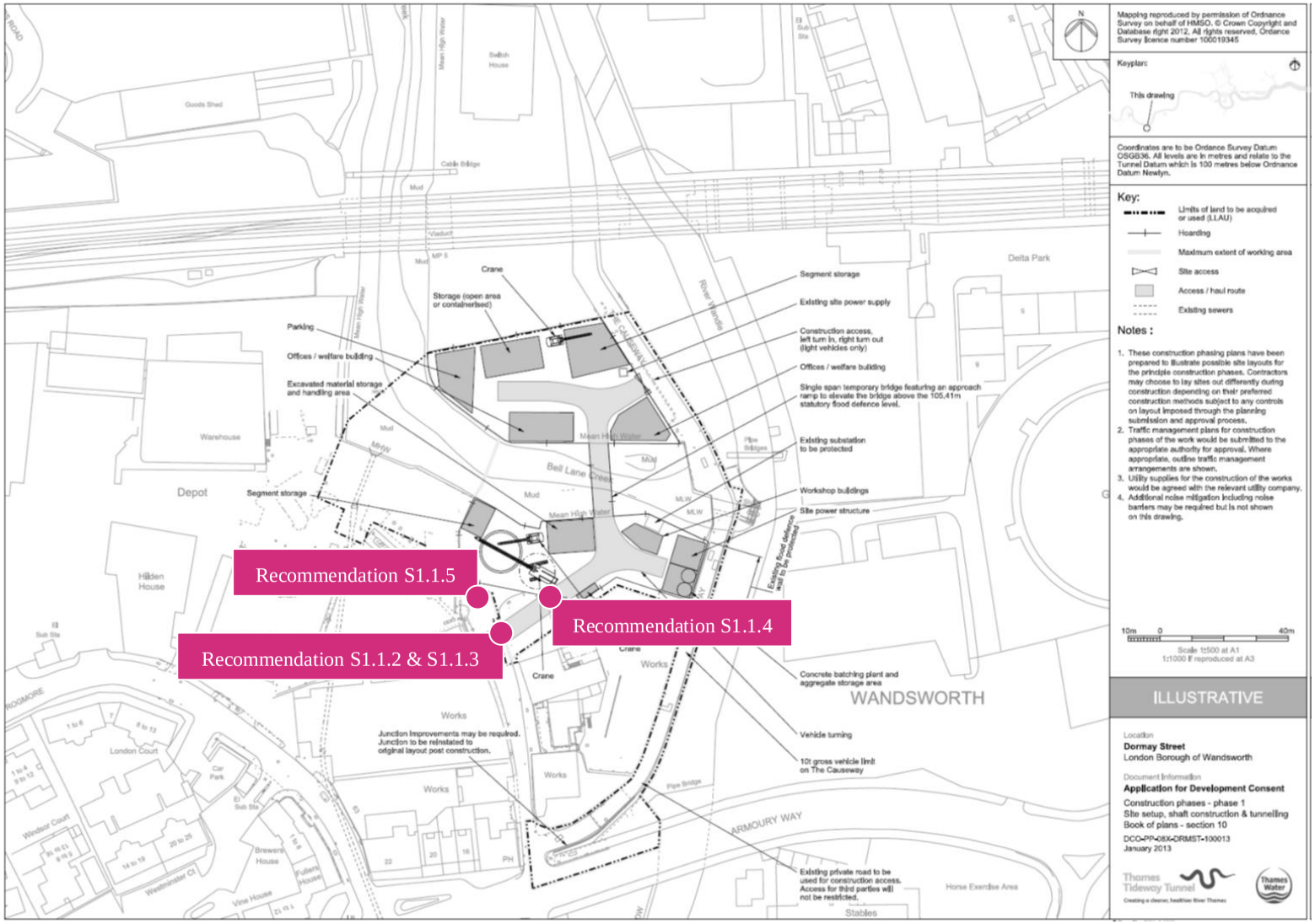


Figure 1 Location of Recommendations

Appendix A

Documents and Drawings

A1 Documents and Drawings

The following documents and drawings were supplied to the Audit Team by the Designer and have been examined in the course of conducting this audit.

A1.1 Documents

Title	Reference	Revision
Road Safety Audit Brief	-	10/12/2012
Road Accident Data	-	-

A1.2 Drawings

Title	Reference	Revision
Transport - site location plan	1PL03-TT-50708	Jan 2013
Transport - construction traffic routes	1PL03-TT-50700	Jan 2013
Transport - accident locations	1PL03-TT-50764	Jan 2013
Construction phases - phase 1 – Site setup, shaft construction & tunnelling	DCO-PP-08X-DRMST-100013	Jan 2013
Highway layout during construction	DCO-PP-08X-DRMST-100018	Jan 2013
Permanent highway layout	DCO-PP-08X-DRMST-100019	Jan 2013
Highway layout during construction – Vehicle swept path analysis	DCO-PP-08X-DRMST-100020	Jan 2013
Highway layout during construction – Vehicle swept path analysis	DCO-PP-08X-DRMST-100021	Jan 2013
Permanent highway layout – Vehicle swept path analysis	DCO-PP-08X-DRMST-100022	Jan 2013

TECHNICAL NOTE

Peter Brett Associates LLP
16 Brewhouse Yard, Clerkenwell,
London, EC1V 4LJ
T: +44 (0)20 7025 7100
E: london@peterbrett.com

Job Name	**Thames Tideway Tunnel – Dormay Street**	
Job No.	22104	
Note No.	001	
Date	15nd February 2013	
Subject	Stage 1 Road Safety Audit – Designer's Response	
Prepared by	L Harney	**Reviewed:** B Kemp

1 Introduction

1.1 Arup was appointed by Thames Water to conduct a Stage 1 Road Safety Audit on proposals to create a construction access and egress for works associated with the Thames Tideway Tunnel at Dormay Street within the London Borough of Wandsworth.

1.2 This technical note provides the Designer's Response to the Stage 1 Audit for this site.

2 Stage 1 Road Safety Audit

2.1 Location: Junction of Dormay Street with Armoury Way

Summary: Existing accident record for delivery route could be exacerbated by construction traffic.

Description: There is an existing accident risk relating to larger vehicles turning on and off Armoury Way from Dormay Street.

The construction necessitates large numbers of HGV turning movements at this junction which may exacerbate the existing problems.

S1.1.1 Recommendation: Traffic management layouts during construction should highlight the likelihood of HGV and plant movements at this location. Delivery drivers and site staff should be made aware of the likely increased risk of turning conflicts, particularly with vulnerable road users through inclusion in the site induction process and construction method statement.

Recommendation Accepted – Delivery drivers and site staff will be made aware of the likely increased risk of turning conflicts, particularly with vulnerable road users, as part of the site induction. This will be included in the Code of Construction Practice at Stage 2 (Detailed Design).

2.2 Location: Dormay Street

Summary: Gulley at the temporary site access likely to be damaged by repeated over running leading to loss of control collisions.

Description: It is proposed to open a site access on the eastern side of Dormay Street during the construction phase. There is a drainage gulley located in the channel at the kerb, concurrent with the access.

Repeated over running of the gulley by construction traffic could result in damage which in turn could damage a tyre or wheel resulting in rapid deflation and loss of control.

S1.1.2 Recommendation: Relocate the gulley away from the access.

Recommendation Accepted – The need to relocate the gulley will be examined at Stage 2 (Detailed Design).

2.3 Location: Dormay Street

Summary: Construction access may result in vehicle conflict with lamp column.

Description: It is proposed to open a site access on the eastern side of Dormay Street during the construction phase. There is a lighting column located in the footway concurrent with the access.

Street furniture with insufficient clearance to passing vehicles could be struck by a passing vehicle resulting in vehicle damage, or damage to the street furniture which could injure a passer-by.

S1.1.3 Recommendation: Relocate the lighting column without detriment to lighting levels on the surrounding carriageway.

Recommendation Accepted – The relocation of the lighting column will be detailed at Stage 2 (Detailed Design).

2.4 Location: Dormay Street

Summary: Swept path shows HGV conflict with site hoarding.

Description: The swept path analysis for a 16.5m HGV entering the site from Dormay Street conflicts with the hoarding on the western side of the access.

Notwithstanding the damage to a vehicle caused by a collision with the gate and hoarding, if the movement cannot be completed without conflict, it will be necessary for HGV drivers to reverse back to complete their manoeuvre placing other road users at risk from a collision as a result of reduced rearward visibility.

S1.1.4 Recommendation: Widen the site entrance to accommodate the movement allowing HGVs to enter the site in a forward gear.

Recommendation Accepted – The width of the site access and the alignment of the hoarding line with be reviewed at Stage 2 (Detailed Design).

3 Response to Comments provided in addition to the Stage 1 Road Safety Audit

3.1 Additional Comments

There are two accesses which would become blocked by the stopping-up of the northern end of Dormay Street. The designer should ensure an appropriate, safe permanent access is provided for the adjacent sites following the completion of the construction works.

Comment Response – The final layout is subject to confirmation and will be reviewed at Stage 2 (Detailed Design).

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Thames Tideway Tunnel
Thames Water Utilities Limited

Application for Development Consent

Application Reference Number: WWO10001

Transport Assessment

Doc Ref: **7.10.05**

Dormay Street

Figures

APFP Regulations 2009: Regulation **5(2)(q)**

Hard copy available in

Box **50** Folder **A**
January 2013

Thames Tideway Tunnel

Creating a cleaner, healthier River Thames

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Thames Tideway Tunnel

Transport Assessment

Section 8: Dormay Street figures

List of contents

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Plans

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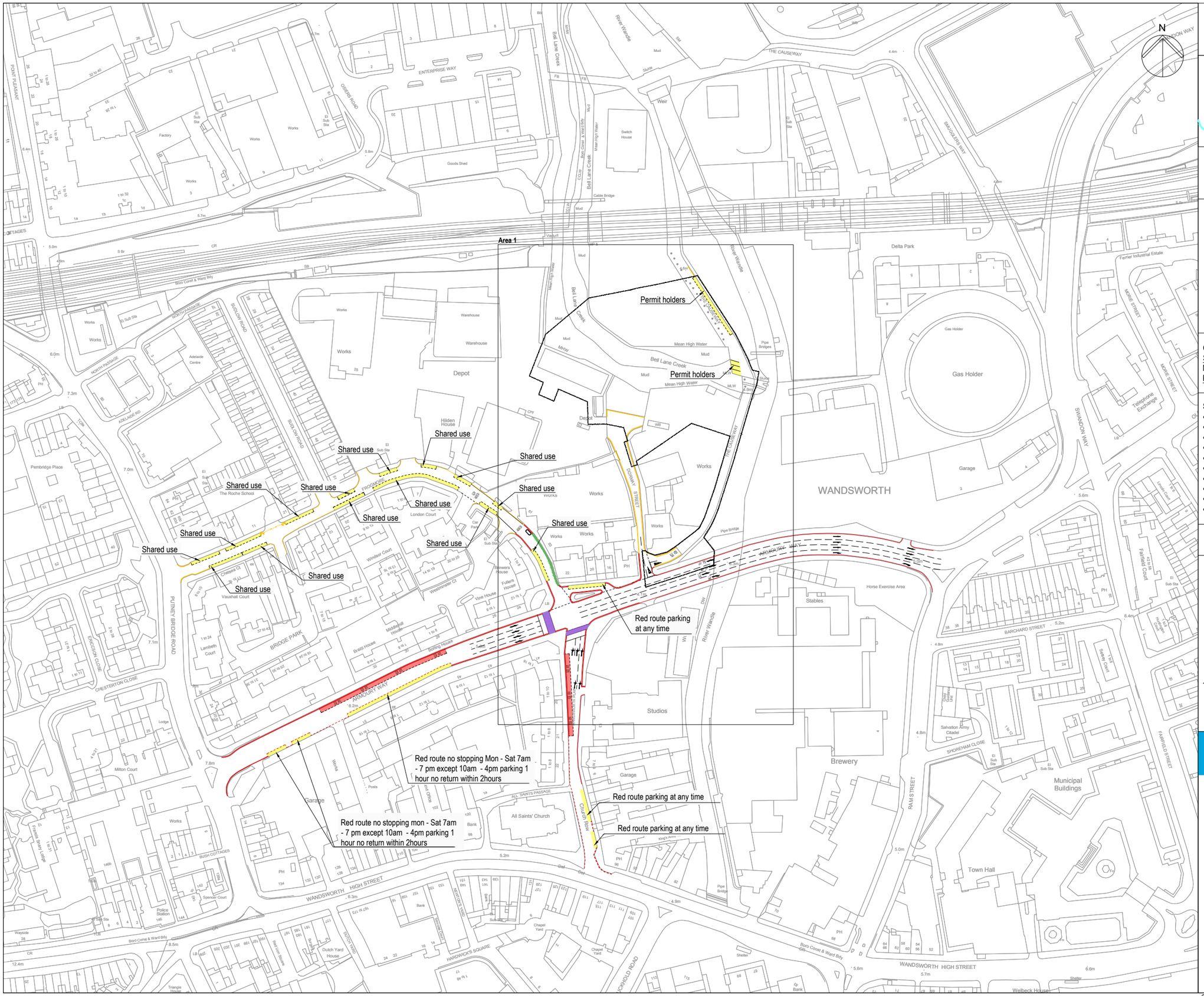
Dormay Street

THAMES TIDEWAY TUNNEL - SCHEDULE OF ASSOCIATED HIGHWAY WORKS

Drawing Number	Works Reference	Location	Item of Work	Date of Implementation
DCO-PP-08X-DRMST-100018	PWH7X_C01	Dormay Street	Provision of gated construction side access, on eastern site of Dormay Street	TBC
	PWH7X_C02	The Causeway - South of Bell Lane Creek	Provision of double yellow lines on both sides of The Causeway	TBC
	PWH7X_C03	The Causeway - North of Bell Lane Creek	Provision of gated construction site access	TBC
	PWH7X_C04	The Causeway	Suspension of approximately 21m of private parking, on eastern side of The Causeway	
	PWH7X_C05	Dormay Street	Possible modification to junction of Dormay Street and Armoury Way.	TBC
DCO-PP-08X-DRMST-100019	PWH7X_P01	Dormay Street	Removal of construction site access	TBC
	PWH7X_P02	The Causeway	Removal of construction site access	TBC
	PWH7X_P03	The Causeway	Removal of double yellow lines as implemented for construction phase and outlined in PWH7X_C02	TBC
	PWH7X_P04	Dormay Street	Provision of permanent site access.	TBC
	PWH7X_P05	Dormay Street	Area of highway to be permanently stopped up.	TBC
	PWH7X_P06	The Causeway	Reinstatement of approximately 21m of private parking	TBC



Keyplan:

Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

Key

Existing

- Red route
- Parking restrictions
- On street parking
- Bus stop / stand
- Pedestrian crossing
- Cycle lane
- Bollards

Revised

- Limit of land to be acquired or used (LLAU)

On Street Parking

Shared use - W1 permit holder or pay & display max stay 4hrs
Mon - Fri 9:30am - 4:30pm
Permit holders - Private land, permit holders only

Standards

- Design Manual for Roads and Bridges, Dft, 1992
- Traffic Signs Regulations & General Directions, Tso, 2002
- Traffic Signs Manual, Dft, 2006
- Manual for Streets, Dft, 2007
- Manual for Streets 2, CIHT, 2010
- Designing for Deliveries, Fta, 1998
- Cycle Infrastructure Design Ltn 2/08, Dft, 2008
- Design of Pedestrian Crossings Ltn 2/95, Dft, 1995
- Guidance on the use of Tactile Paving Surfaces, Dft, 1998
- Accessible Bus Stop Design Guidance, TfL, 2006

Stage

Existing & construction base case

10m 0 100m

Scale 1:1000 at A1
1:2000 if reproduced at A3

FOR INFORMATION

Location

Dormay Street
London Borough of Wandsworth

Document Information

Application for Development Consent

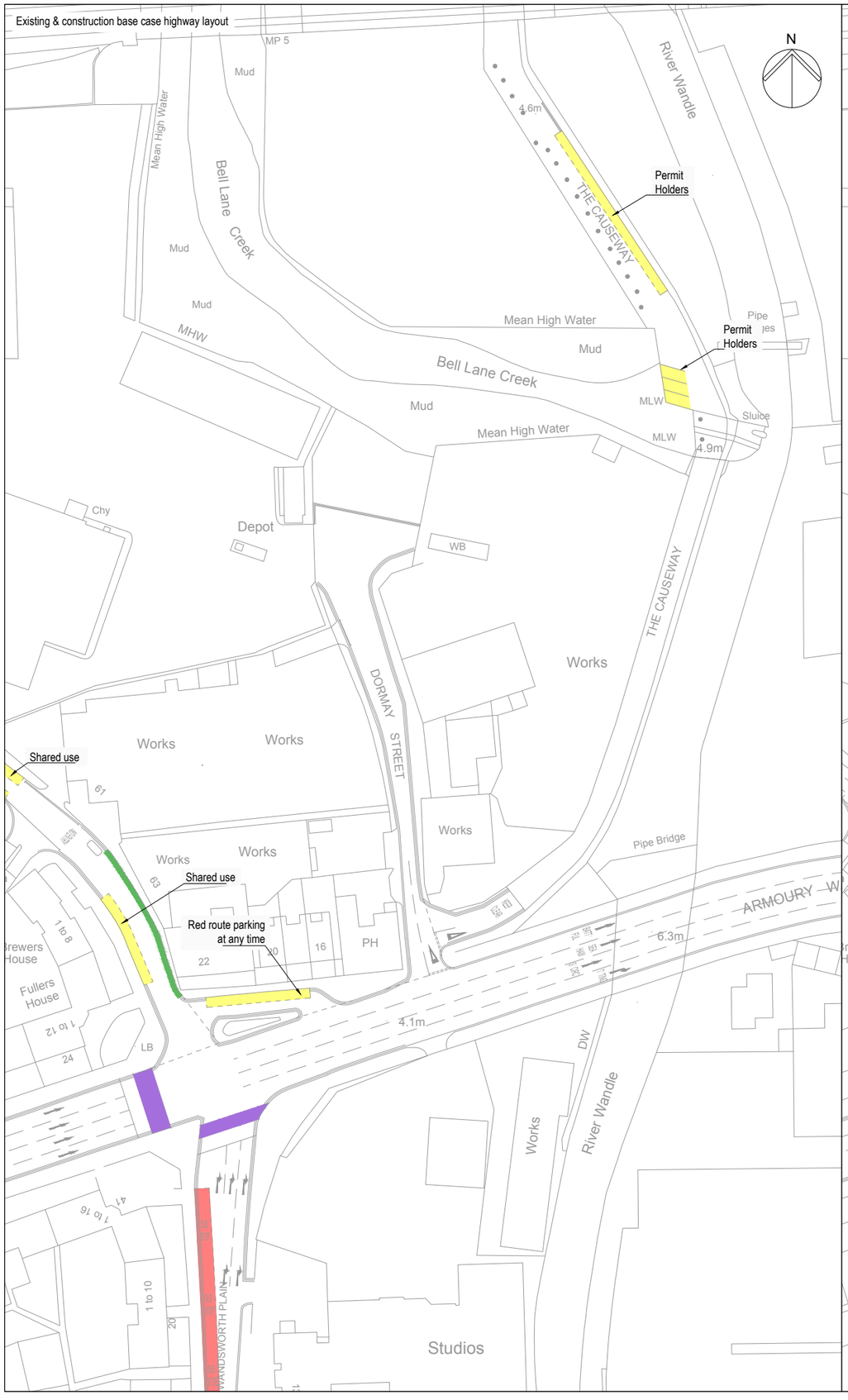
Existing highway layout

DCO-PP-08X-DRMST-100017
January 2013

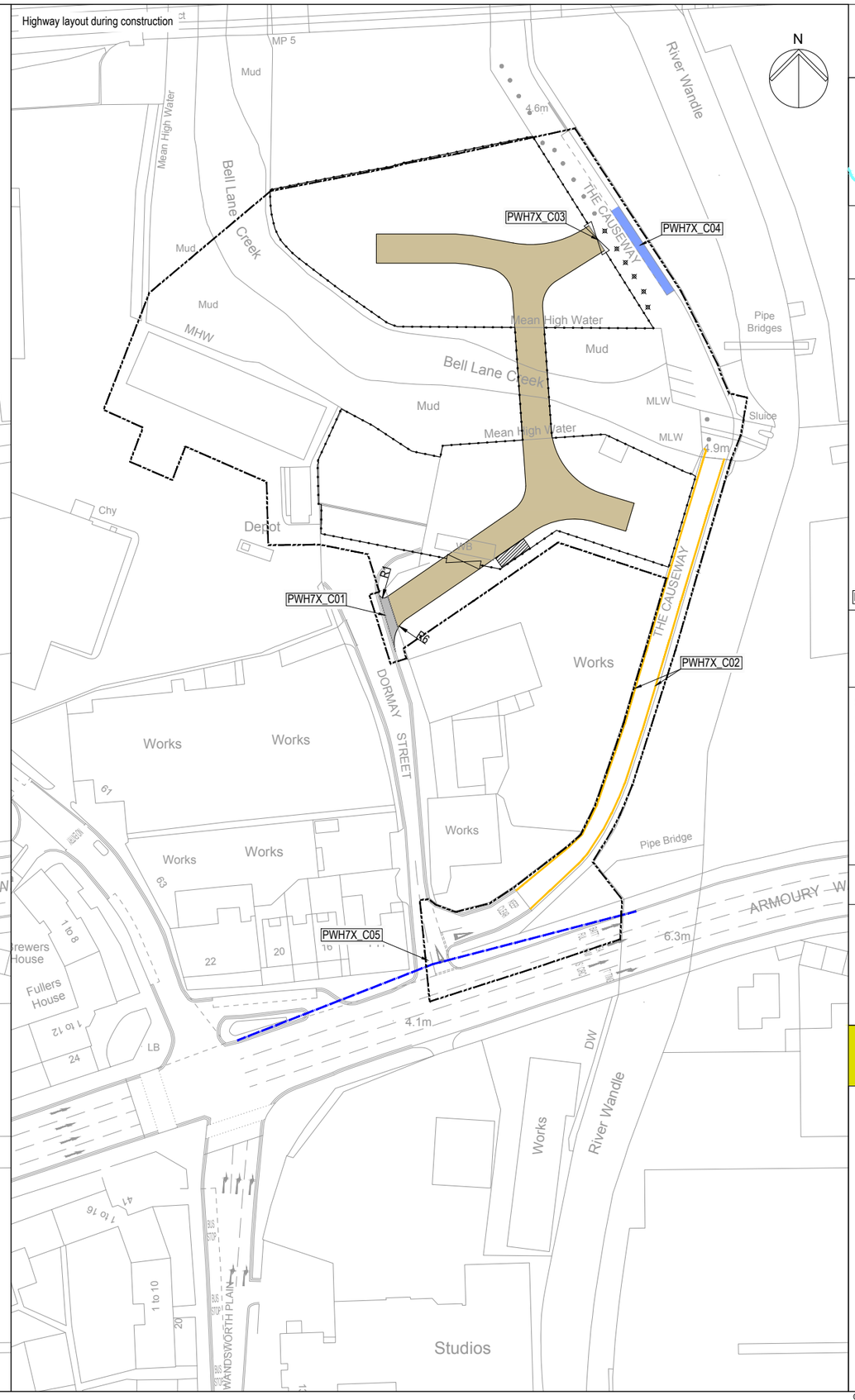
Thames Tideway Tunnel
Creating a cleaner, healthier River Thames

Thames Water

Existing & construction base case highway layout



Highway layout during construction



Keyplan:

Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

Key

Existing
- Parking restrictions
- On street parking
- Bus stop / stand
- Pedestrian crossing
- Cycle Lane
- Bollards

Revised
- Parking restrictions
- Suspended on street parking
- Removal of footway
- Illustrative on-site manoeuvring zone
- Site hut
- Site hoarding
- Access gate
- Visibility splay - 2.4m x 43m (ssd adjust for bonnet length)
- Limit of land to be acquired or used (LLAU)
- Removed bollards
- PWH1X_C00 See schedule of works

On Street Parking

Shared use - W1 permit holder or pay & display max stay 4hrs Mon - Fri 9:30am - 4:30pm

Permit holders - Private land, permit holders only

Standards
- Design Manual for Roads and Bridges, Dft, 1992
- Traffic Signs Regulations & General Directions, Tso, 2002
- Traffic Signs Manual, Dft, 2006
- Manual for Streets, Dft, 2007
- Manual for Streets 2, CIHT, 2010
- Designing for Deliveries, Fta, 1998
- Cycle Infrastructure Design Ltn 2/08, Dft, 2008
- Design of Pedestrian Crossings Ltn 2/95, Dft, 1995
- Guidance on the use of Tactile Paving Surfaces, Dft, 1998
- Accessible Bus Stop Design Guidance, TfL, 2006

Stage
Phases 1 & 2

10m 0 40m

Scale 1:500 at A1
1:1000 if reproduced at A3

ILLUSTRATIVE

Location

Dormay Street
London Borough of Wandsworth

Document Information

Application for Development Consent

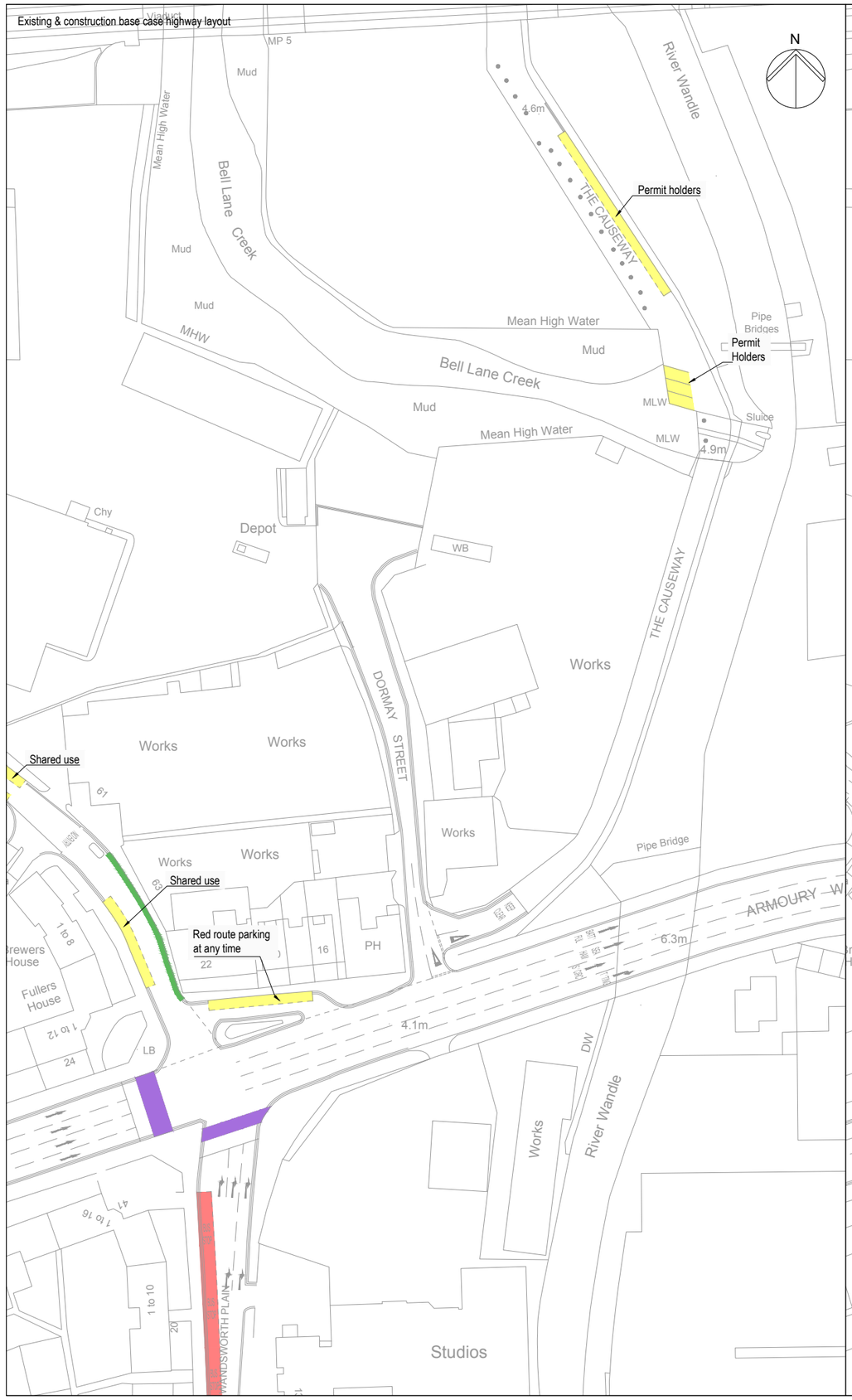
Highway layout during construction

DCO-PP-08X-DRMST-100018
January 2013

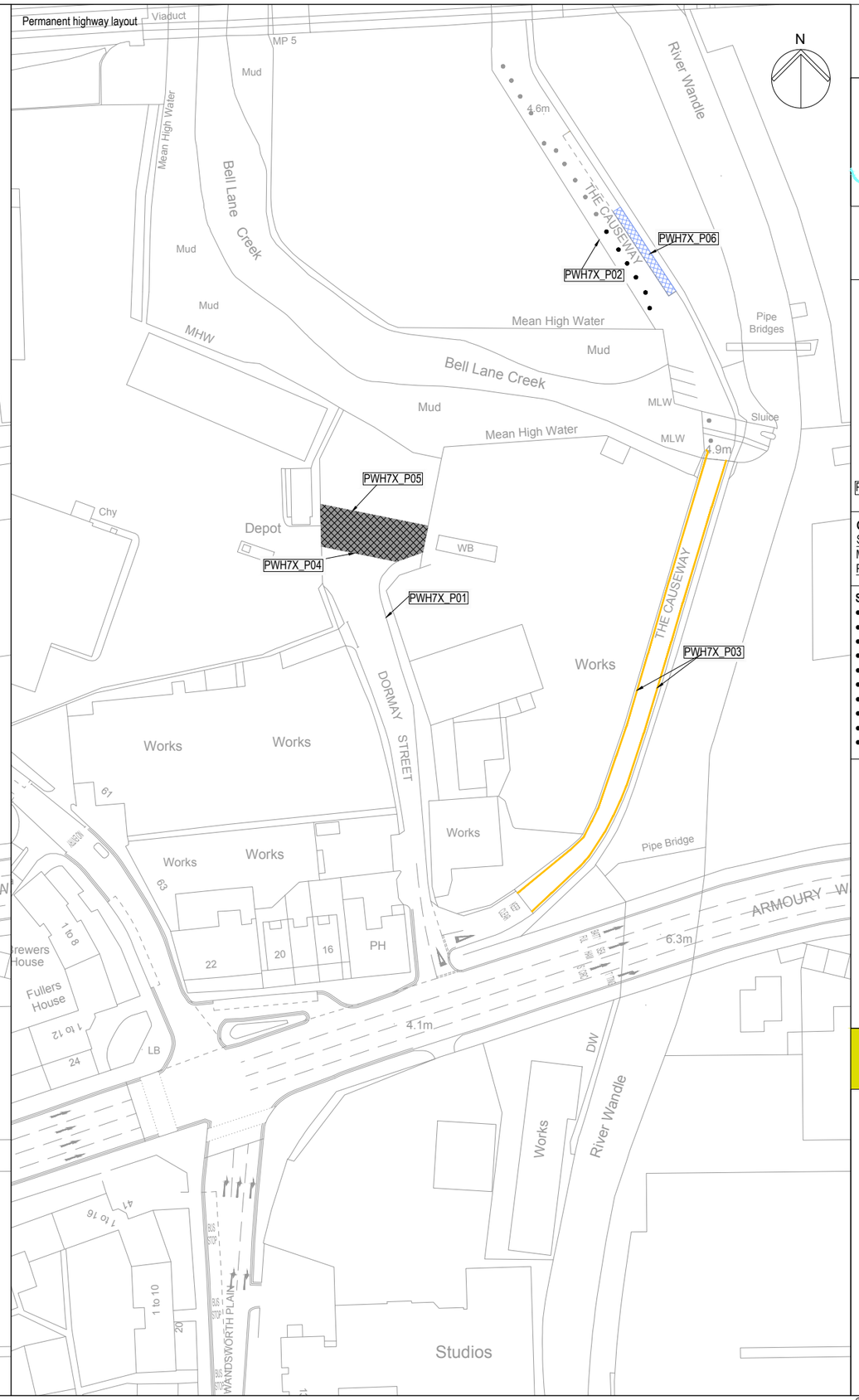
Thames Tideway Tunnel
Creating a cleaner, healthier River Thames

Thames Water

Existing & construction base case highway layout



Permanent highway layout



Keyplan:

Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

Key

Existing
- On street parking
- Bus stop / stand
- Pedestrian crossing
- Cycle Lane
- Bollards

Revised
- Parking restrictions
- Reinstated parking
- Reinstated bollards
- Area of highway to be permanently stopped up
- PWH1X_P01 See schedule of works

On Street Parking

Shared use - W1 permit holder or pay & display max stay 4hrs
Mon - Fri 9:30am - 4:30pm
Permit holders - Private land, permit holders only

Standards
- Design Manual for Roads and Bridges, Dft, 1992
- Traffic Signs Regulations & General Directions, Tso, 2002
- Traffic Signs Manual, Dft, 2006
- Manual for Streets, Dft, 2007
- Manual for Streets 2, CIHT, 2010
- Designing for Deliveries, Fta, 1998
- Cycle Infrastructure Design Ltn 2/08, Dft, 2008
- Design of Pedestrian Crossings Ltn 2/95, Dft, 1995
- Guidance on the use of Tactile Paving Surfaces, Dft, 1998
- Accessible Bus Stop Design Guidance, TfL, 2006

10m 0 40m

Scale 1:500 at A1
1:1000 if reproduced at A3

ILLUSTRATIVE

Location
Dormay Street
London Borough of Wandsworth

Document Information
Application for Development Consent
Permanent highway layout

DCO-PP-08X-DRMST-100019
January 2013

Thames Tideway Tunnel
Creating a cleaner, healthier River Thames

Thames Water

16.5m articulated vehicle

12m rigid vehicle

Keyplan:

Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

Key

Existing
- Parking restrictions
- On street parking
- Bus stop / stand
- Pedestrian crossing

Revised
- Removal of footway
- Suspended on street parking
- Illustrative on-site manoeuvring zone
- Site hut
- Site hoarding
- Bollards
- Removed bollards
- Access gate
- Limit of land to be acquired or used (LLAU)

Vehicle swept path analysis
- Vehicle body outlines
- Vehicle chassis outline
- Vehicle swept path

Standards
- Design Manual for Roads and Bridges, Dft, 1992
- Traffic Signs Regulations & General Directions, Tso, 2002
- Traffic Signs Manual, Dft, 2006
- Manual for Streets, Dft, 2007
- Manual for Streets 2, CIHT, 2010
- Designing for Deliveries, Fta, 1998
- Cycle Infrastructure Design Ltn 2/08, Dft, 2008
- Design of Pedestrian Crossings Ltn 2/95, Dft, 1995
- Guidance on the use of Tactile Paving Surfaces, Dft, 1998
- Accessible Bus Stop Design Guidance, TfL, 2006

Stage
Phases 1 & 2

10m 0 40m

Scale 1:500 at A1
1:1000 if reproduced at A3

ILLUSTRATIVE

Location
Dormay Street
London Borough of Wandsworth

Document Information
Application for Development Consent

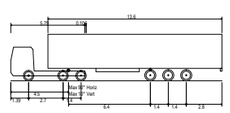
Highway layout during construction
Vehicle swept path analysis

DCO-PP-08X-DRMST-100020
January 2013

Thames Tideway Tunnel
Creating a cleaner, healthier River Thames

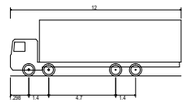
Thames Water

16.5m articulated vehicle



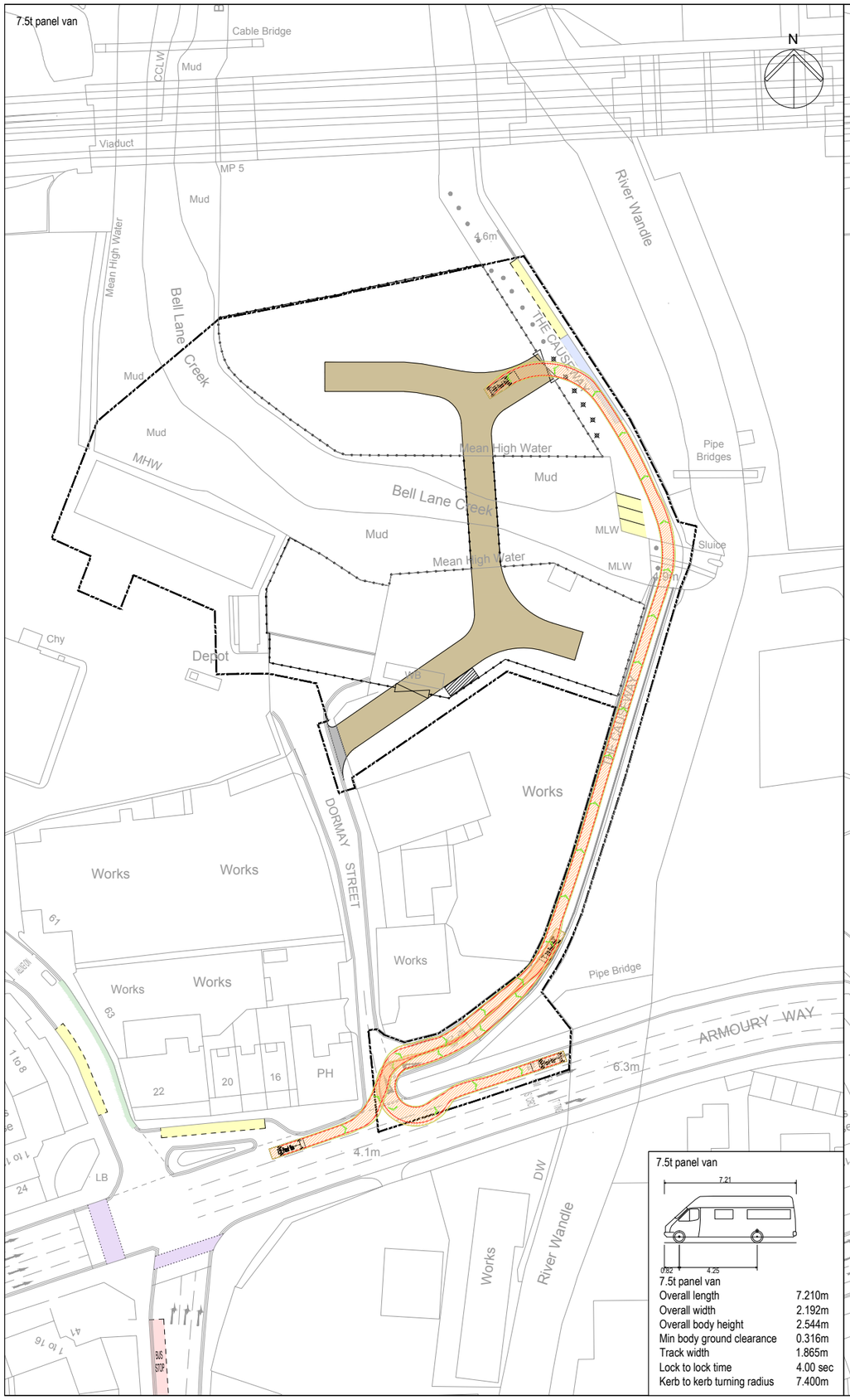
Max legal articulated vehicle (16.5m)	
Overall length	16.500m
Overall width	2.500m
Overall body height	3.632m
Min body ground clearance	0.396m
Max track width	2.500m
Lock to lock time	6.00 sec
Kerb to kerb turning radius	6.870m

12m rigid vehicle



Rigid truck	
Overall length	12.000m
Overall width	2.500m
Overall body height	3.928m
Min body ground clearance	0.412m
Track width	2.471m
Lock to lock time	6.00 sec
Kerb to kerb turning radius	11.900m

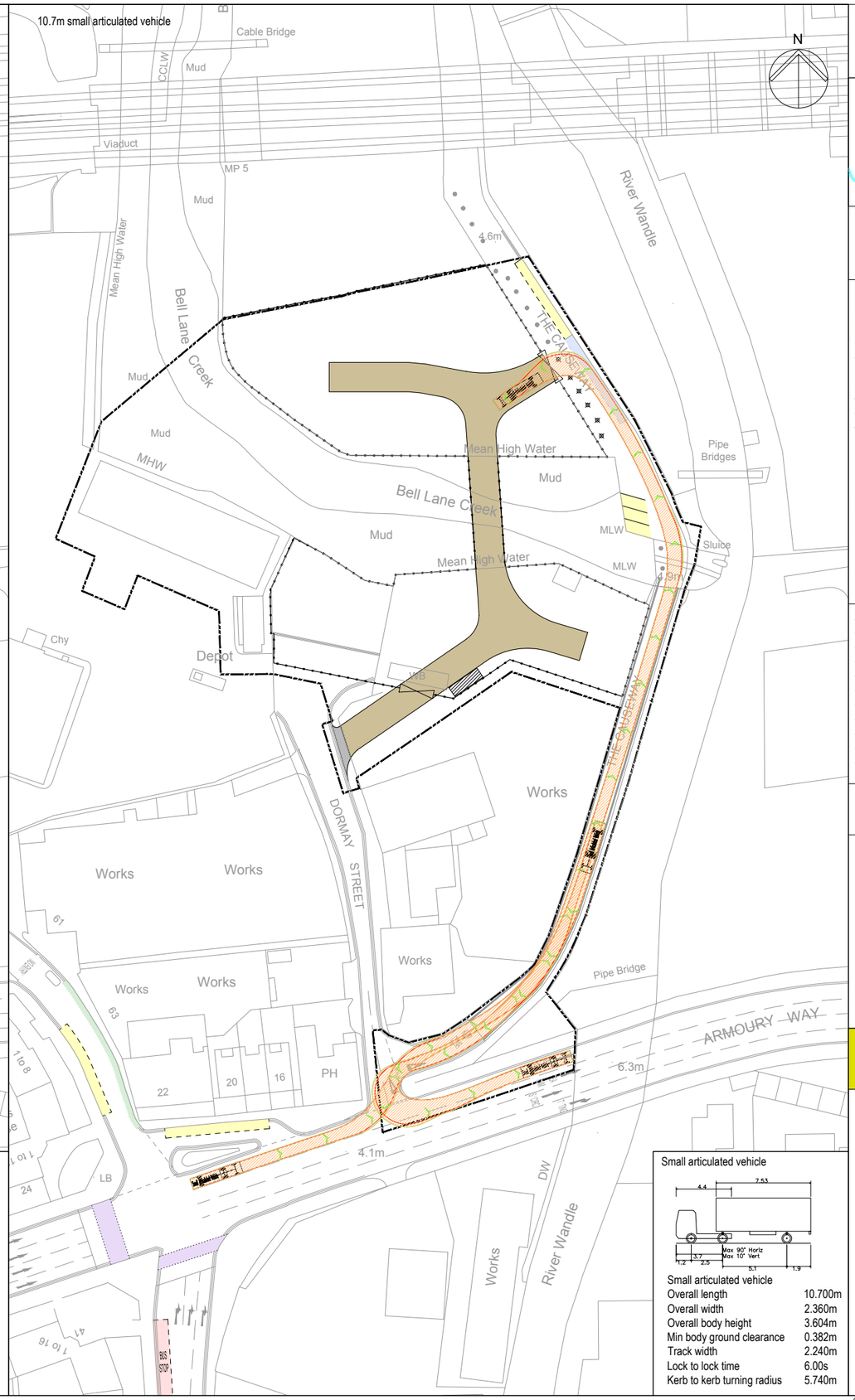
7.5t panel van



7.5t panel van

Overall length	7.210m
Overall width	2.192m
Overall body height	2.544m
Min body ground clearance	0.316m
Track width	1.865m
Lock to lock time	4.00 sec
Kerb to kerb turning radius	7.400m

10.7m small articulated vehicle



Small articulated vehicle

Overall length	10.700m
Overall width	2.360m
Overall body height	3.604m
Min body ground clearance	0.382m
Track width	2.240m
Lock to lock time	6.00s
Kerb to kerb turning radius	5.740m

Keyplan:

Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

Key

Existing
- Parking restrictions
- On street parking
- Bus stop / stand
- Pedestrian crossing

Revised
- Removal of footway
- Suspended on street parking
- Illustrative on-site manoeuvring zone
- Site hut
- Site hoarding
- Bollards
- Removed bollards
- Access gate
- Limit of land to be acquired or used (LLAU)

Vehicle swept path analysis
- Vehicle body outlines
- Vehicle chassis outline
- Vehicle swept path

Standards
- Design Manual for Roads and Bridges, Dft, 1992
- Traffic Signs Regulations & General Directions, Tso, 2002
- Traffic Signs Manual, Dft, 2006
- Manual for Streets, Dft, 2007
- Manual for Streets 2, CIHT, 2010
- Designing for Deliveries, Fta, 1998
- Cycle Infrastructure Design Ltn 2/08, Dft, 2008
- Design of Pedestrian Crossings Ltn 2/95, Dft, 1995
- Guidance on the use of Tactile Paving Surfaces, Dft, 1998
- Accessible Bus Stop Design Guidance, TfL, 2006

Stage
Phases 1 & 2

10m 0 40m

Scale 1:500 at A1
1:1000 if reproduced at A3

ILLUSTRATIVE

Location
Dormay Street
London Borough of Wandsworth

Document Information
Application for Development Consent

Highway layout during construction
Vehicle swept path analysis

DCO-PP-08X-DRMST-100021
January 2013

Thames Tideway Tunnel
Creating a cleaner, healthier River Thames

Thames Water

10.7m small articulated vehicle

10.0m rigid vehicle

11.36m liebherr ltm 1055-3.1 mobile crane

Keyplan:

Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

Key

Existing
- On street parking
- Bus stop / stand
- Redestrian crossing
- Bollards

Vehicle swept path analysis
- Vehicle body outlines
- Vehicle chassis outline
- Vehicle swept path

Standards
- Design Manual for Roads and Bridges, Dft, 1992
- Traffic Signs Regulations & General Directions, Tso, 2002
- Traffic Signs Manual, Dft, 2006
- Manual for Streets, Dft, 2007
- Manual for Streets 2, CIHT, 2010
- Designing for Deliveries, Fta, 1998
- Cycle Infrastructure Design Ltn 2/08, Dft, 2008
- Design of Pedestrian Crossings Ltn 2/95, Dft, 1995
- Guidance on the use of Tactile Paving Surfaces, Dft, 1998
- Accessible Bus Stop Design Guidance, TfL, 2006

Stage
Permanent phase

10m 0 40m

Scale 1:500 at A1
1:1000 if reproduced at A3

ILLUSTRATIVE

Location

Dormay Street
London Borough of Wandsworth

Document Information

Application for Development Consent

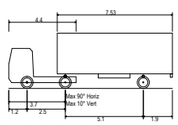
Permanent highway layout
Vehicle swept path analysis

DCO-PP-08X-DRMST-100022
January 2013

Thames Tideway Tunnel
Creating a cleaner, healthier River Thames

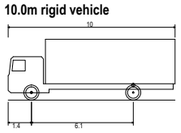
Thames Water

10.7m small articulated vehicle



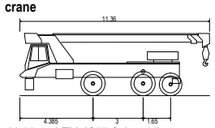
Small articulated vehicle	
Overall length	10.700m
Overall width	2.360m
Overall body height	3.604m
Min body ground clearance	0.382m
Track width	2.240m
Lock to lock time	6.00 sec
Kerb to kerb turning radius	5.740m

10.0m rigid vehicle



FTA design hg rigid vehicle (1998)	
Overall length	10.000m
Overall width	2.500m
Overall body height	3.645m
Min body ground clearance	0.440m
Track width	2.470m
Lock to lock time	3.00 sec
Kerb to kerb turning radius	11.000m

11.36m liebherr ltm 1055-3.1 mobile crane



Liebherr LTM 1055-3.1 mobile crane	
Overall length	11.360m
Overall width	2.820m
Overall body height	3.733m
Min body ground clearance	0.353m
Track width	2.820m
Lock to lock time	4.00 sec
Wall to wall turning radius	8.170m

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Transport assessment figures

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Keyplan:

Key

- TFL road network
- Strategic road network
- Limits of Land to be Acquired or Used
- Local authority boundary

110 55 0 110 m

Scale 1 : 7,500 at A3

FOR INFORMATION

Location

Dormay Street
London Borough of Wandsworth

Document Information

Transport Assessment

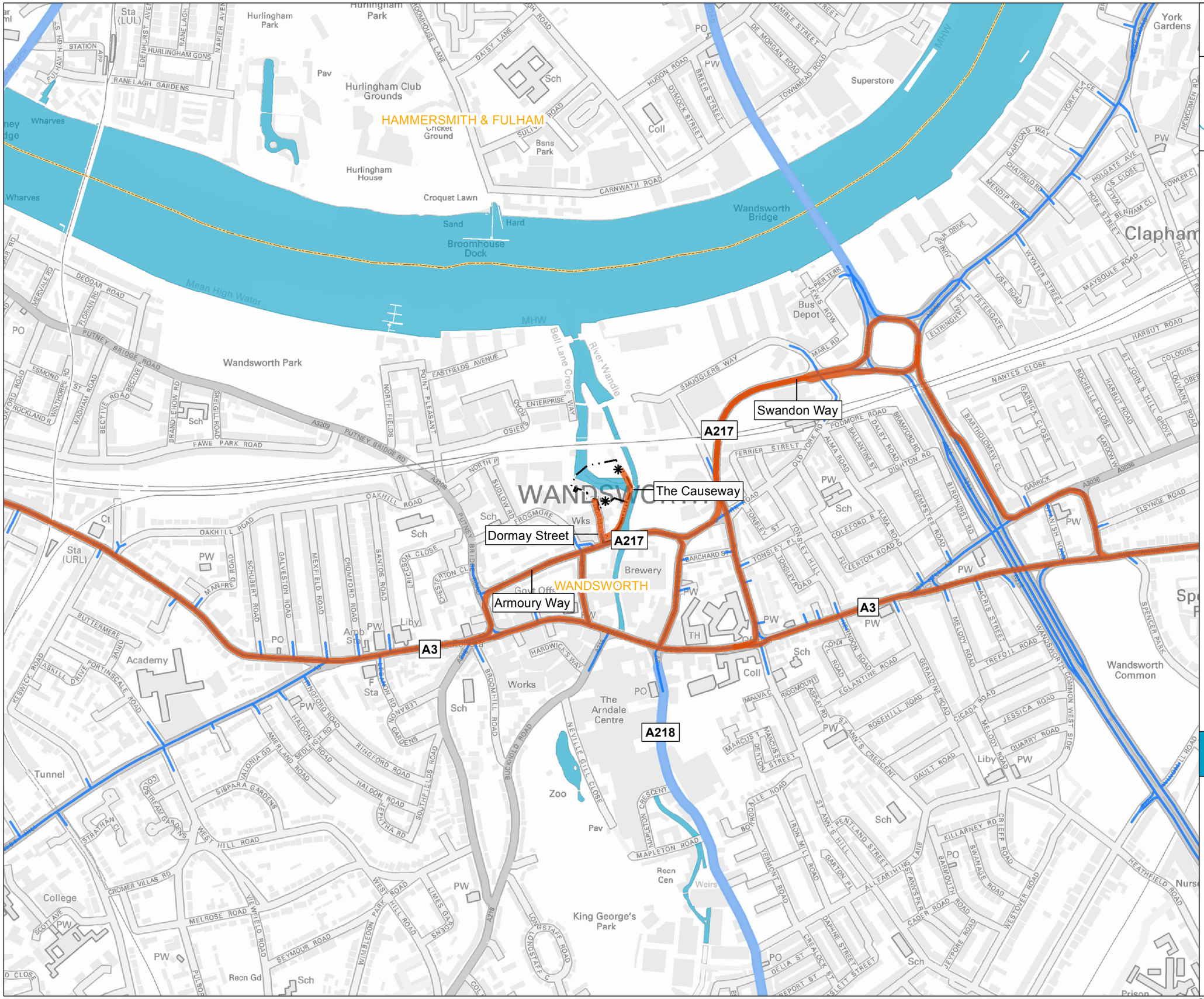
Transport - site location plan

Figure 8.2.1

1PL03-TT-50708
January 2013

Thames Tideway Tunnel
Creating a cleaner, healthier River Thames

Thames Water



Keyplan:

Key

- Site access
- TFL road network
- Strategic road network
- Primary construction route
- Limits of Land to be Acquired or Used
- Local authority boundary

110 55 0 110 m

Scale 1 : 7,500 at A3

FOR INFORMATION

Location

Dormay Street
London Borough of Wandsworth

Document Information

Transport Assessment

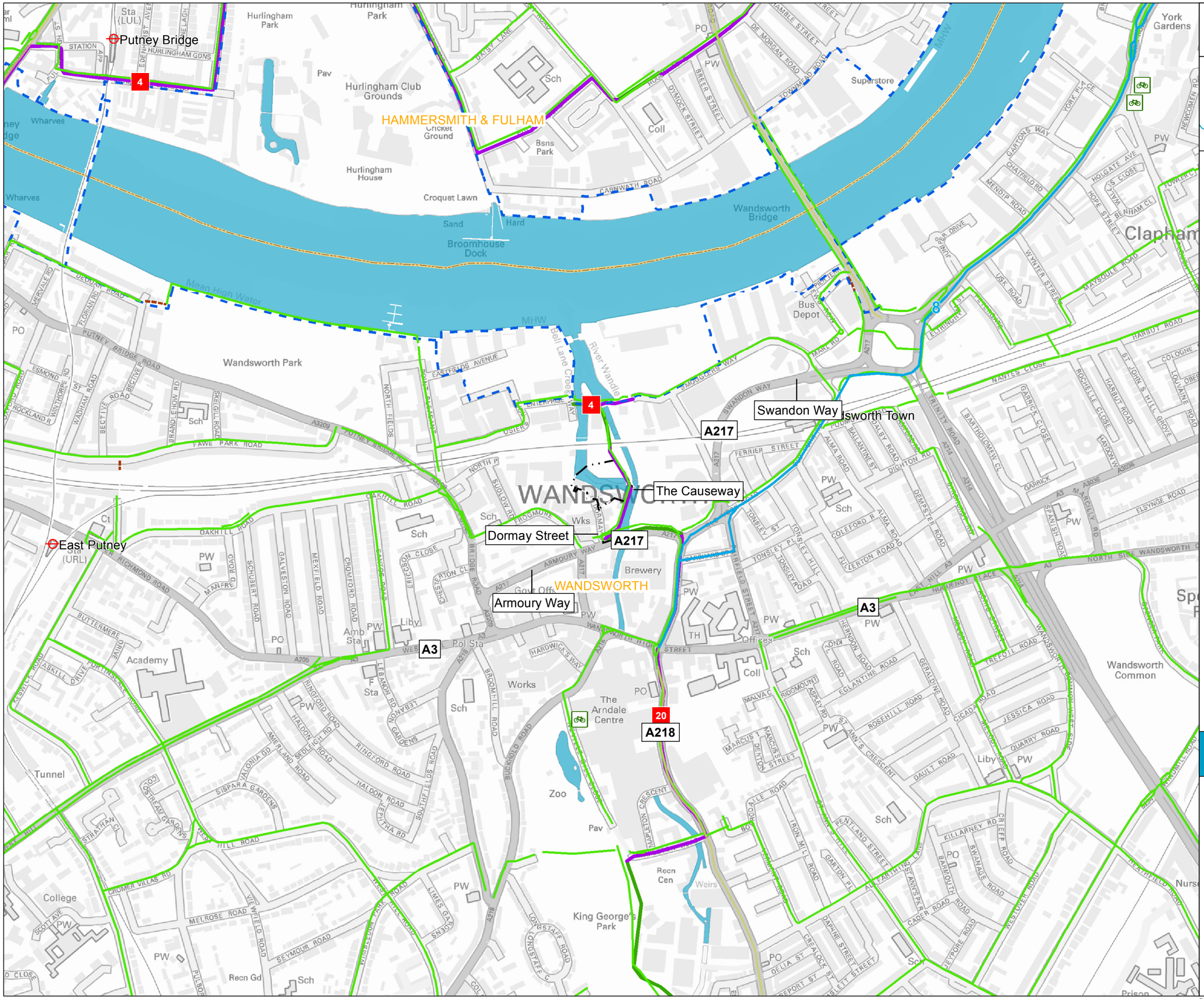
Transport - construction traffic routes

Figure 8.2.2

1PL03-TT-50700
January 2013

Thames Tideway Tunnel
Creating a cleaner, healthier River Thames

Thames Water



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Keyplan:

Key

- Cycle Parking
- National rail stations with cycle parking
- Underground stations with cycle parking
- Cycle superhighway (open)
- TFL strategic walk network
- Thames path
- London cycle routes
- Pedestrian routes

National cycle network

Route Type

- Open Traffic Free
- Open on-road
- Limits of Land to be Acquired or Used
- Local authority boundary

110 55 0 110 m

Scale 1 : 7,500 at A3

FOR INFORMATION

Location

Dormay Street
London Borough of Wandsworth

Document Information

Transport Assessment

Transport - pedestrian and cycle network

Figure 8.4.1

1PL03-TT-50716
January 2013

Thames Tideway Tunnel
Creating a cleaner, healthier River Thames

Thames Water

Keyplan:

Key

- TFL bus stops
- Pier locations
- National rail stations
- London underground stations
- TfL bus routes
- Limits of Land to be Acquired or Used
- Local authority boundary

110 55 0 110 m

Scale 1 : 7,500 at A3

FOR INFORMATION

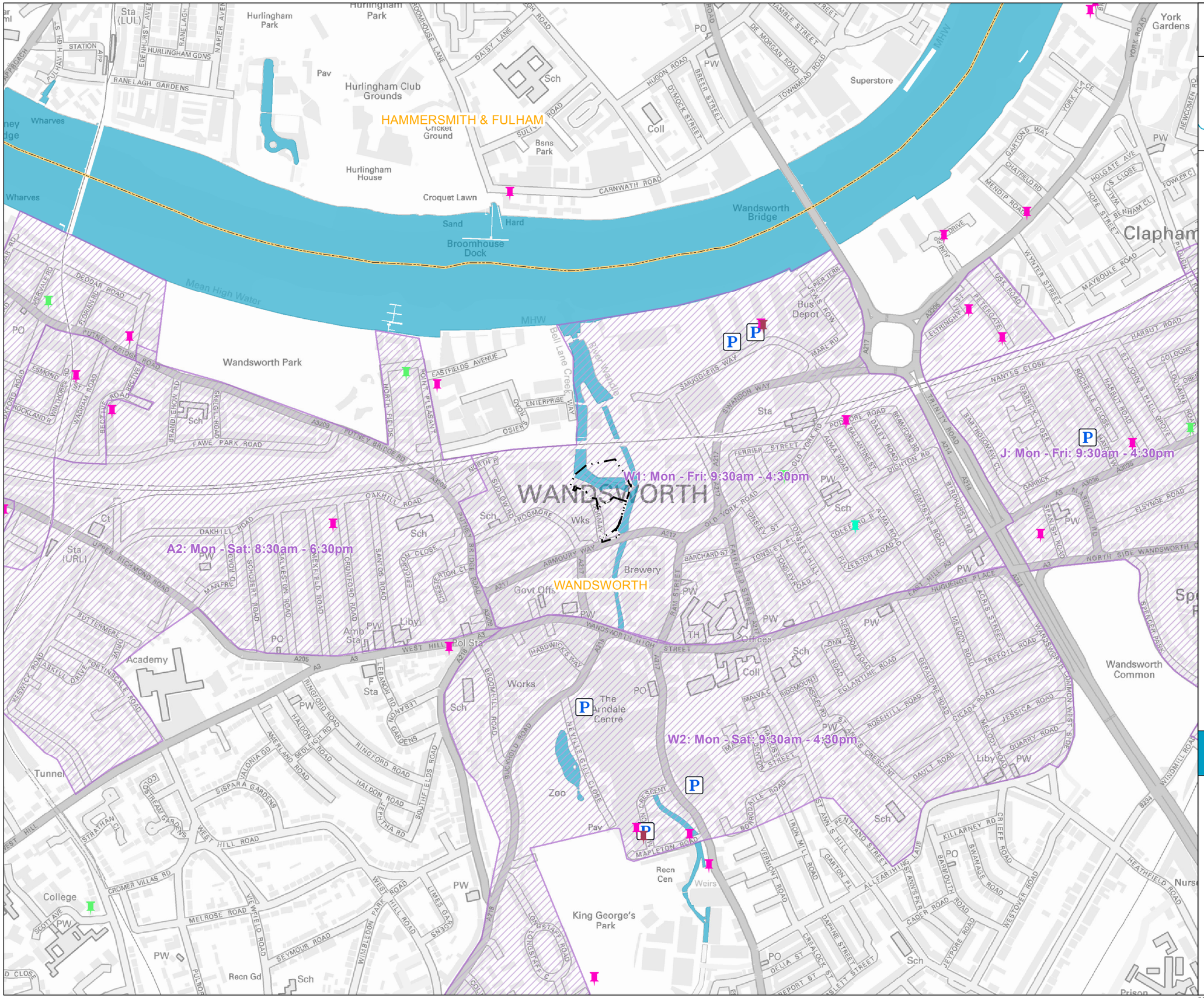
Location
Dormay Street
London Borough of Wandsworth

Document Information
Transport Assessment
Transport - public transport

Figure 8.4.2
1PL03-TT-50724
January 2013

Thames Tideway Tunnel
Creating a cleaner, healthier River Thames

Thames Water



Keyplan:

Key

- Private car parking
- City Car
- Green Wheels
- Hertz on Demand
- Zip Car
- Controlled Parking Zones and Hours of Operation
- Limits of Land to be Acquired or Used
- Local authority boundary

110 55 0 110 m

Scale 1 : 7,500 at A3

FOR INFORMATION

Location
Dormay Street
London Borough of Wandsworth

Document Information
Transport Assessment
Transport - parking

Figure 8.4.3
1PL03-TT-50732
January 2013

Thames Tideway Tunnel
Creating a cleaner, healthier River Thames

Thames Water

Keyplan:

Key

- Automatic traffic count surveys
- Pedestrian and cycle surveys
- Junction surveys
- Parking surveys
- Limits of Land to be Acquired or Used
- Local authority boundary

60 30 0 60 m

Scale 1 : 4,000 at A3

FOR INFORMATION

Location
Dormay Street
London Borough of Wandsworth

Document Information
Transport Assessment
Transport - survey locations

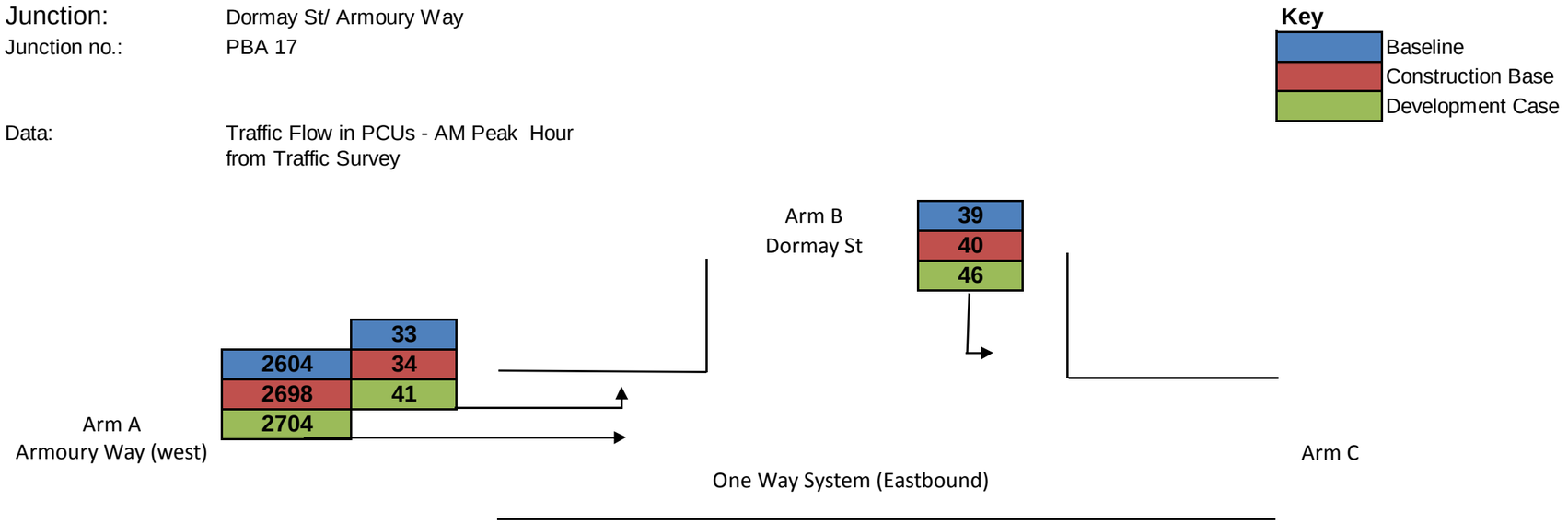
Figure 8.4.4
1PL03-TT-50740
January 2013

Thames Tideway Tunnel
Creating a cleaner, healthier River Thames

Thames Water

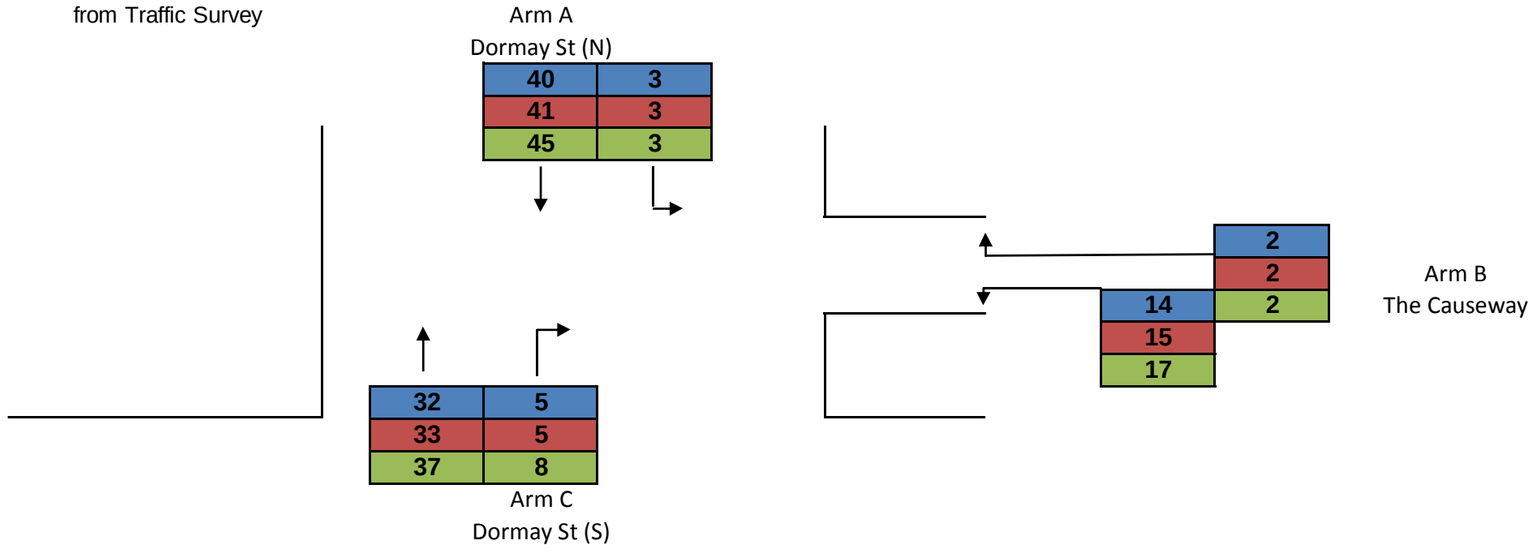
Site: Dormay St
Borough: Wandsworth
Junction: Dormay St/ Armoury Way
Junction no.: PBA 17

Data: Traffic Flow in PCUs - AM Peak Hour from Traffic Survey



Site: Dormay St
Borough: Wandsworth
Junction: Dormay St/ The Causeway
Junction no.: PBA 33

Data: Traffic Flow in PCUs - AM Peak Hour from Traffic Survey



FOR INFORMATION

Location
Dormay Street
London Borough of Wandsworth

Document Information
Transport Assessment

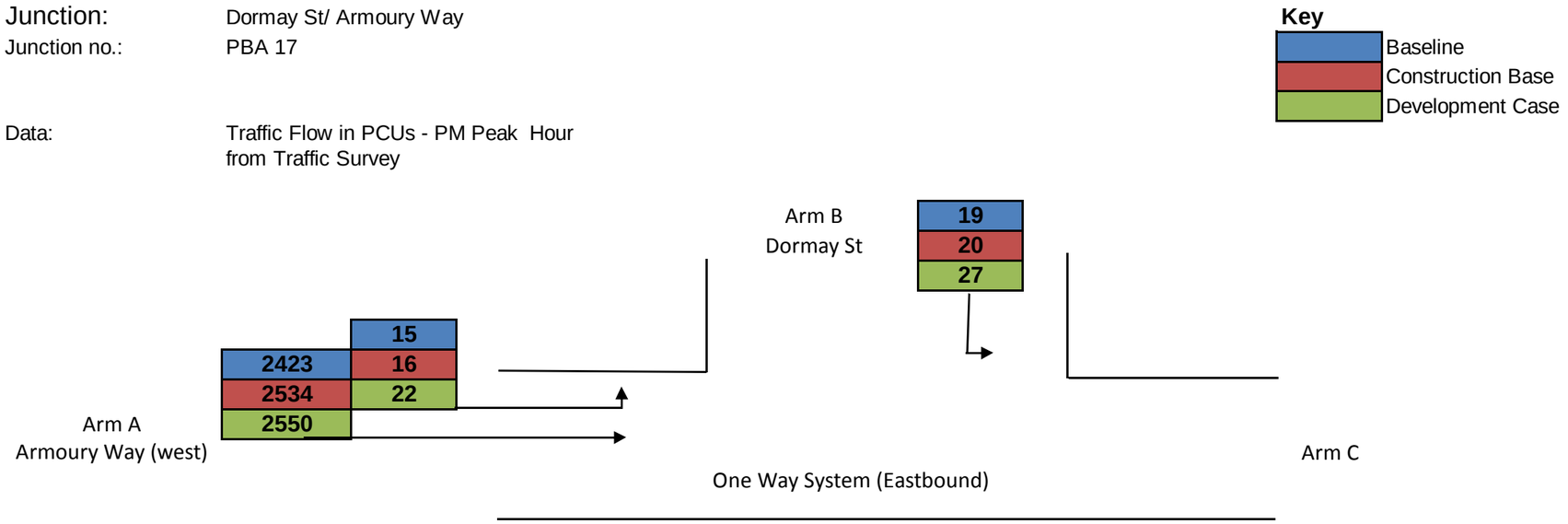
Baseline, Construction and Development case traffic flow (AM peak hour)

Figure 8.4.5
1PL03-TT-50919
January 2013

Thames Tideway Tunnel
Creating a cleaner, healthier River Thames
Thames Water

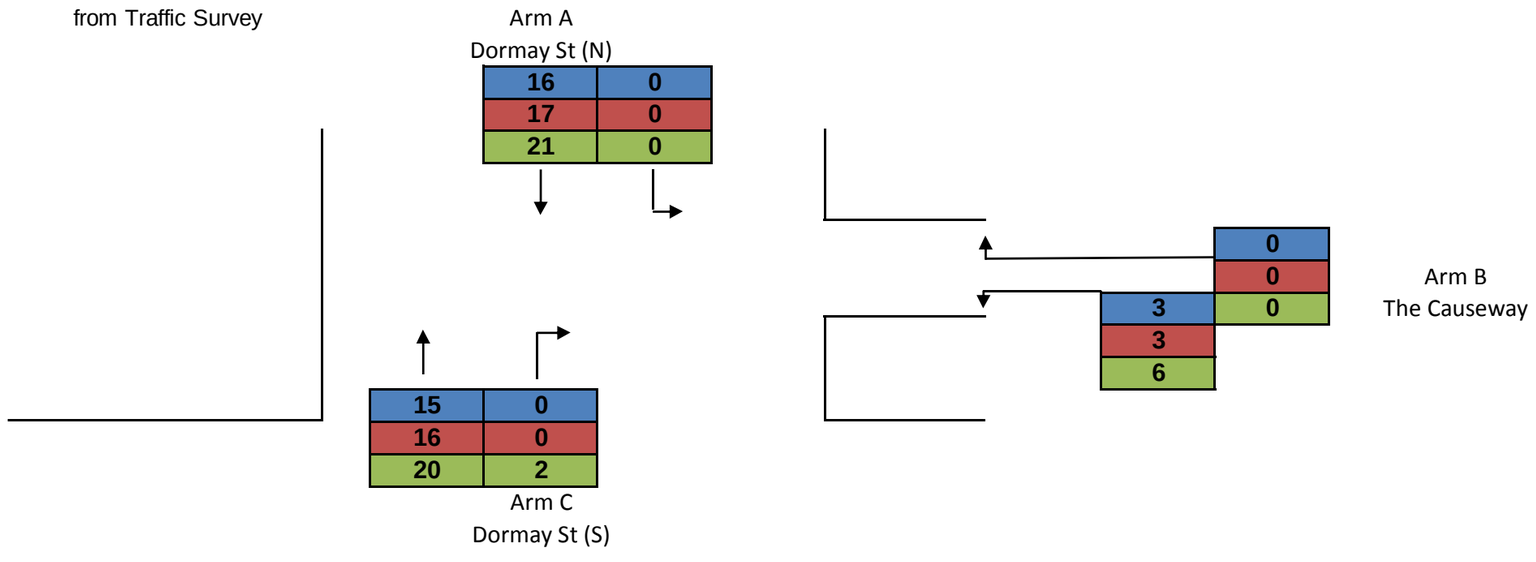
Site: Dormay St
Borough: Wandsworth
Junction: Dormay St/ Armoury Way
Junction no.: PBA 17

Data: Traffic Flow in PCUs - PM Peak Hour from Traffic Survey



Site: Dormay St
Borough: Wandsworth
Junction: Dormay St/ The Causeway
Junction no.: PBA 33

Data: Traffic Flow in PCUs - PM Peak Hour from Traffic Survey



FOR INFORMATION

Location
Dormay Street
London Borough of Wandsworth

Document Information
Transport Assessment

Baseline, Construction and Development case traffic flow (PM peak hour)

Figure 8.4.6
1PL03-TT-50943
January 2013

Thames Tideway Tunnel
Creating a cleaner, healthier River Thames
Thames Water

Keyplan:

Key

- Slight
- Serious
- Fatal
- Limits of Land to be Acquired or Used
- Local authority boundary

110 55 0 110 m

Scale 1 : 7,500 at A3

FOR INFORMATION

Location

Dormay Street
London Borough of Wandsworth

Document Information

Transport Assessment

Transport - accident locations

Figure 8.4.7

1PL03-TT-50764
January 2013

Thames Tideway Tunnel
Creating a cleaner, healthier River Thames

Thames Water

Keyplan:

Key

Accidents

(Severity, Mode of travel)

- Slight, Pedestrian
- Slight, Pedal Cycle
- Serious, Pedestrian
- Serious, Pedal Cycle
- Limits of Land to be Acquired or Used
- Local authority boundary

110 55 0 110 m

Scale 1 : 7,500 at A3

FOR INFORMATION

Location

Dormay Street
London Borough of Wandsworth

Document Information

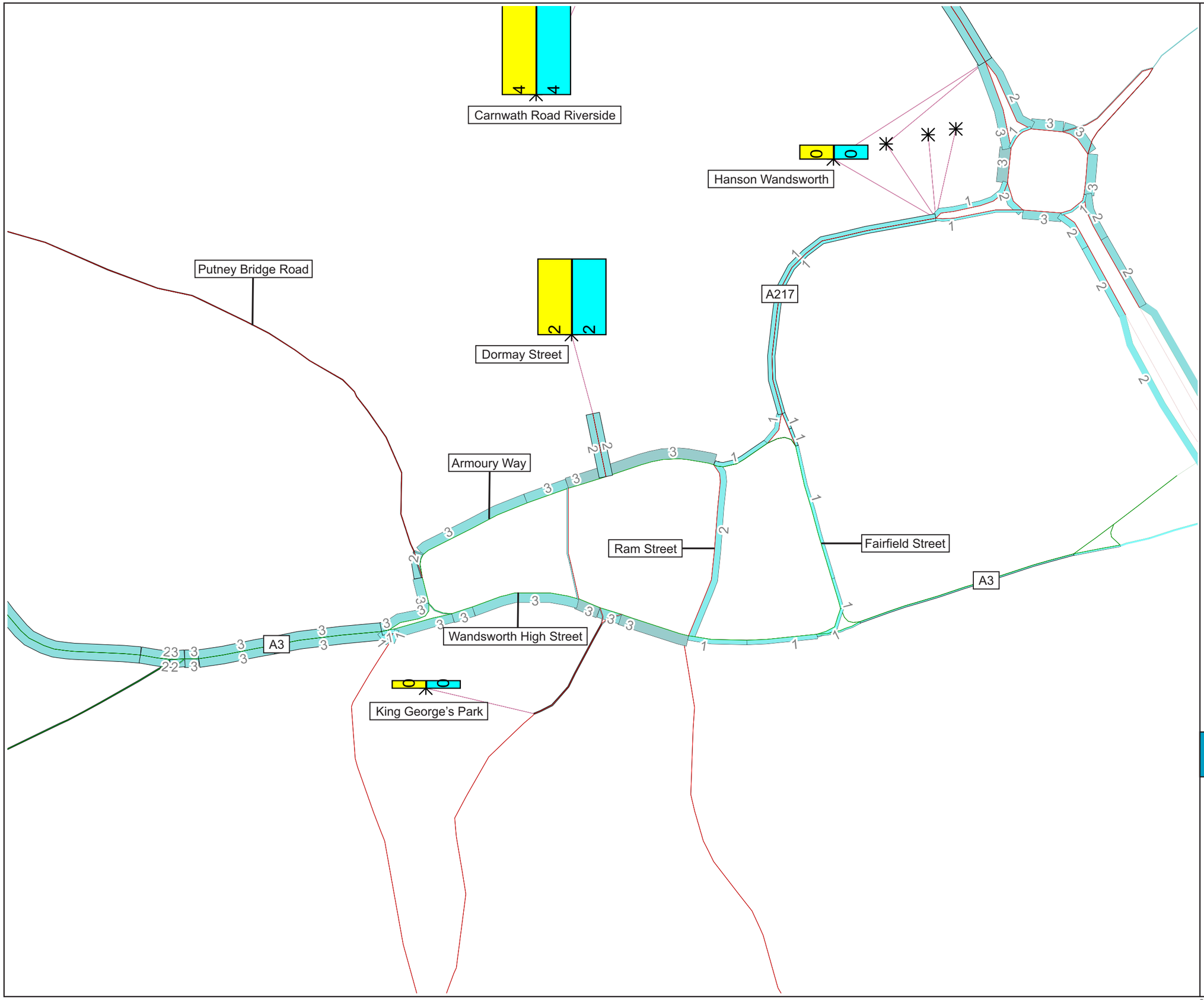
Transport Assessment

Transport - pedestrian and cyclist accidents by severity
Figure 8.4.8

1PL03-TT-50847
January 2013

Thames Tideway Tunnel
Creating a cleaner, healthier River Thames

Thames Water



Hourly construction lorries arrivals and departures

- Arrivals
- Departures

Hourly construction lorries movements

- 0 - 1
- 1 - 2
- 2 - 3
- 3 - 4
- 4 - 5
- 5 - 6
- 6 - 7
- 7 - 8
- 8 - 9
- 9 - 10
- 10 - 11
- 11 - 12
- 12 - 13
- 13 - 14
- 14 - 15
- > 15

Note: Construction vehicle flows include all Thames Tideway Tunnel sites on this network during this period.

FOR INFORMATION

Location

Dormay Street
London Borough of Wandsworth

Document Information

Transport Assessment
Hourly Construction Lorry Movements - Site Year 2 of Construction

Figure 8.5.1

1PL03-TT-50883

Thames Tideway Tunnel
Creating a cleaner, healthier River Thames

Thames Water

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Thames Water Utilities Limited
Clearwater Court, Vastern Road, Reading RG1 8DB

DCO-DT-000-ZZZZZ-071005