



Development Consent Order

Application Reference Number: WW010001

Documents for Certification September 2014

We, Lindsay Speed and Sarah Fairbrother hereby certify that this is a true copy of the environmental statement referred to in Article 61 (1) (f) of the Thames Water Utilities Limited (Thames Tideway Tunnel) Order 2014.

Lindsay Speed

Sarah Fairbrother

September 2014

**Thames
Tideway Tunnel**



Creating a cleaner, healthier River Thames

Thames Tideway Tunnel
Thames Water Utilities Limited



Application for Development Consent

Application Reference Number: WWO10001

Environmental Statement

Doc Ref: **6.2.20**

Volume 20: Chambers Wharf figures

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

Hard copy available in
Box **68** Folder **A**
January 2013

Thames
Tideway Tunnel 
Creating a cleaner, healthier River Thames

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Thames Tideway Tunnel

Environmental Statement

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Thames Tideway Tunnel

Environmental Statement

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Thames Tideway Tunnel

Environmental Statement

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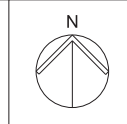
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1 Plans from the Book of Plans

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Table 1

Above ground permanent structure	Maximum height above finished ground level (Minimum heights are in brackets where applicable)
Ventilation column(s) serving the shaft	8.0m (4.0m)
Electrical and control kiosk(s)	2.5m



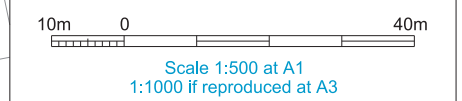
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Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

- Key:
- Limits of land to be acquired or used (LLAU)
 - Zone within which all permanent site structures would be located
 - Zone within which the shaft would be located
 - Zone within which permanent above ground structures would be located (those listed in Table 1)
 - Maximum extent of top of river/parapet wall
 - Maximum extent of temporary works platform.

- Notes:
1. All dimensions and levels are approximate.
 2. The Site Works Parameter Key Plan identifies each zone independently.
 3. The zone within which the shaft would be located would include all permanent works including shaft walls (including appropriate allowances for construction tolerances) and if applicable under-reaming. Shaft construction temporary works may be located within or outside this zone provided they are located within the Limits of land to be acquired or used.

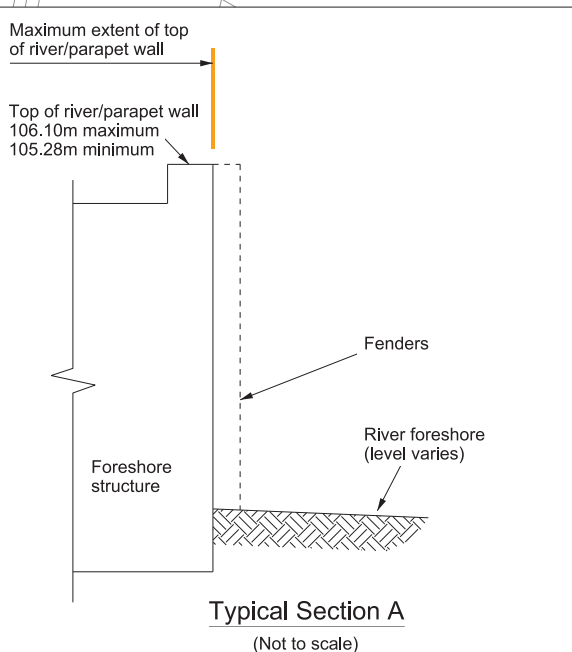
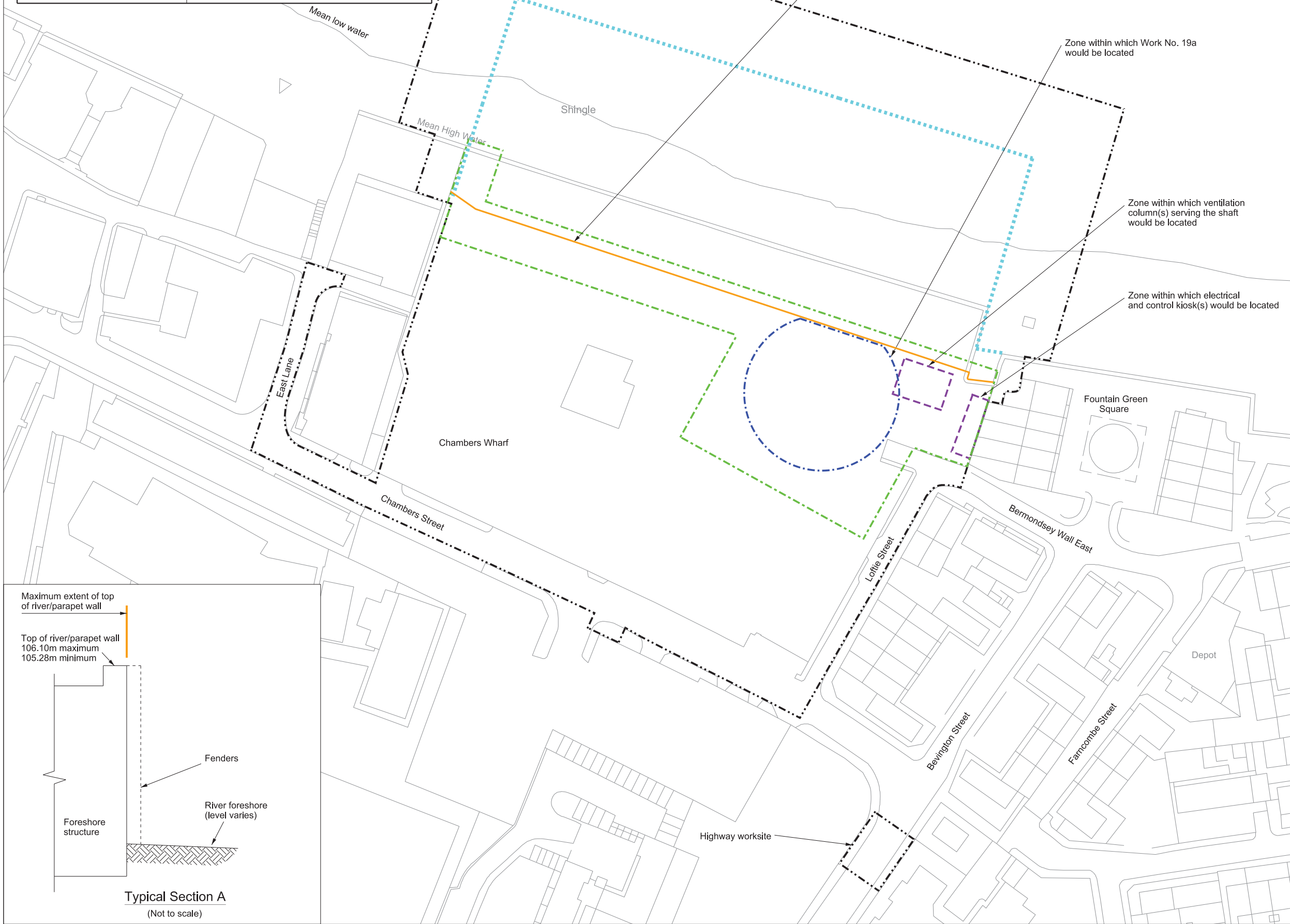


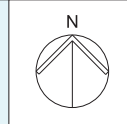
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Location
Chambers Wharf
 London Borough of Southwark

Document Information
Application for Development Consent
 Site works parameter plan

Book of plans - section 21
 DCO-PP-19X-CHAWF-210005
 January 2013





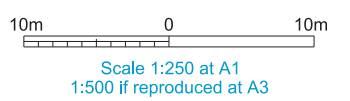
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- Key:**
- Limits of land to be acquired or used (LLAU)
 - Above ground structures to be removed
 - Below ground structures to be removed or infilled

- Notes:**
1. Minor items to be removed (e.g. barriers, bollards etc.) are not shown.
 2. General activities of site clearance such as removal of hardstanding and foundations, stripping of topsoil and clearance of minor vegetation not shown.



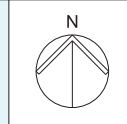
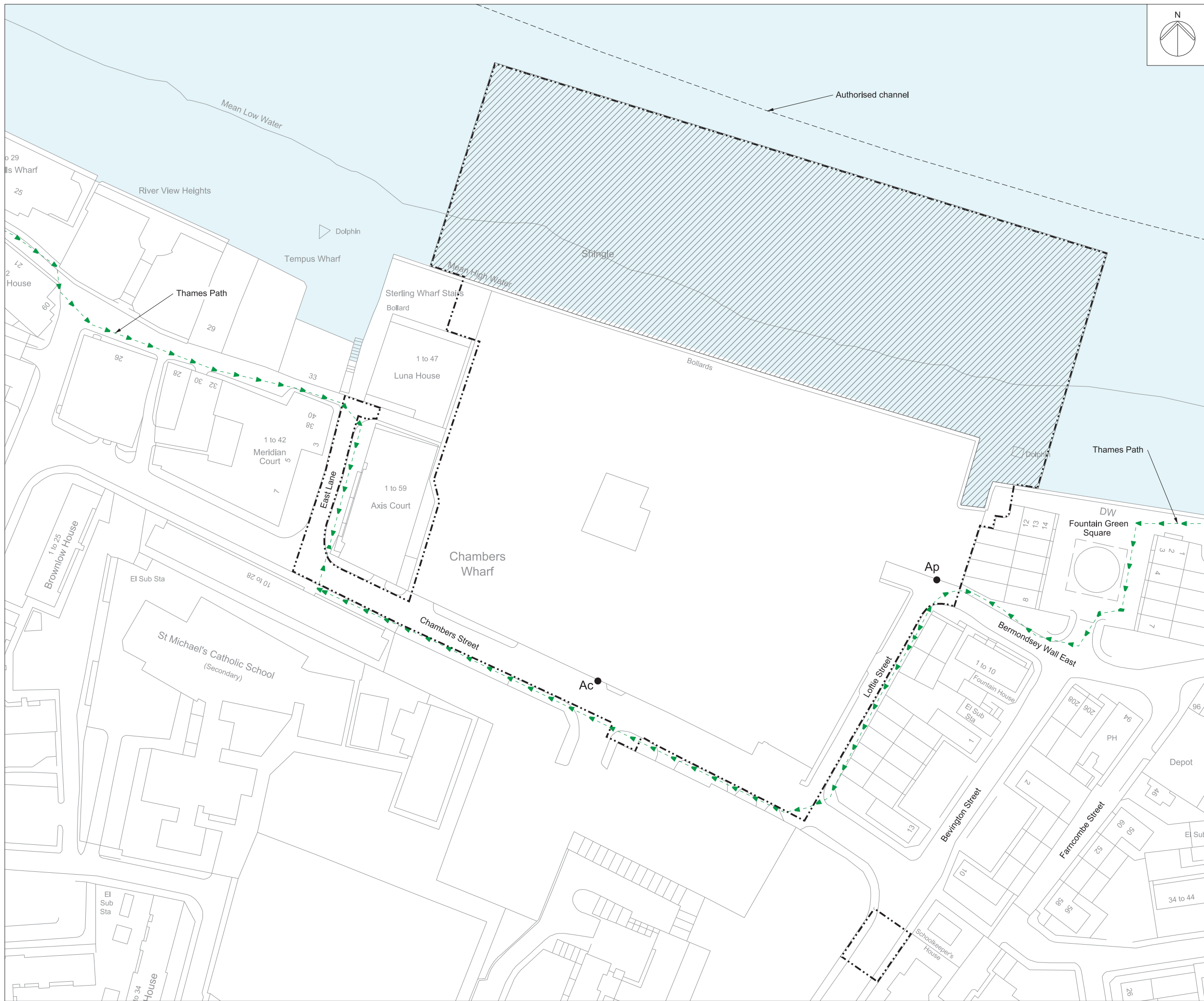
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Location
Chambers Wharf
 London Borough of Southwark

Document Information
Application for Development Consent
 Demolition and site clearance

Book of plans - section 21
 DCO-PP-19X-CHAWF-210004
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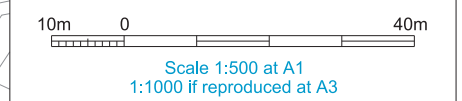
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- Key:**
- Limits of land to be acquired or used (LLAU)
 - Existing public right of way
 - Area of temporary suspension of public rights of navigation
 - Ap** ● Access to permanent works
 - Ac** ● Access to construction works

- Notes:**
1. This plan does not show stopping up and diversions of limited duration (eg hoarding erection, minor utility diversions and minor highway works).
 2. Only rights of way in or close to worksites are shown. The full extents of rights of way are not shown where they cease to be relevant to the project.
 3. Access along the Thames Path route would be available at all times.



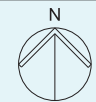
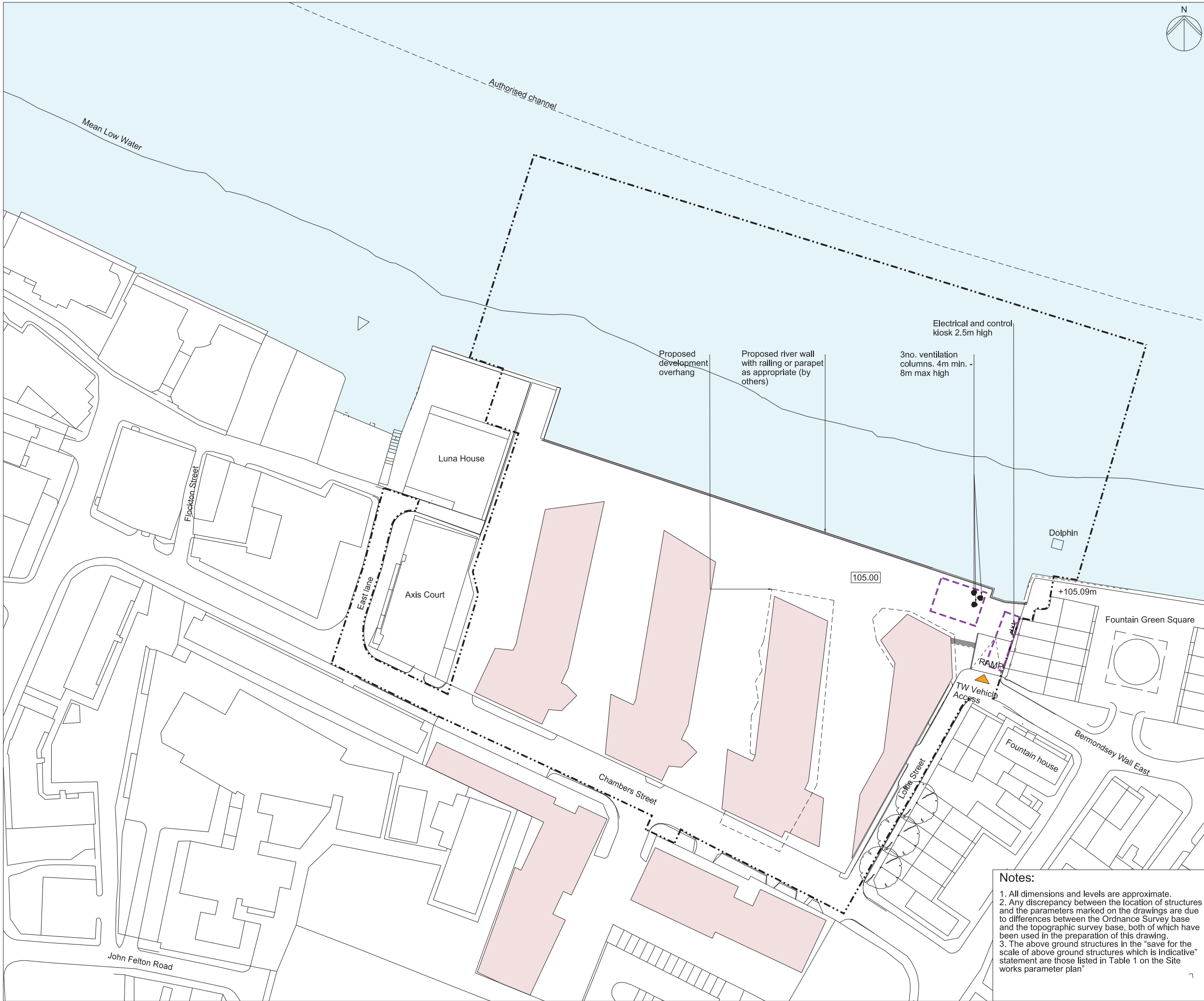
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Location
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 London Borough of Southwark

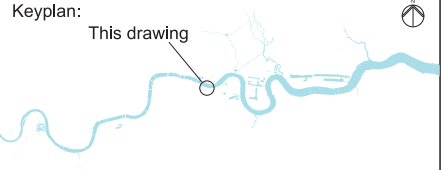
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 Access plan

Book of plans - section 21
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- Key:**
- Limits of land to be acquired or used (LLAU)
 - Zone within which permanent above ground structures would be located
 - Authorised channel
 - + 105.40m Existing levels (shown in metres above tunnel datum)
 - Proposed levels (shown in metres above tunnel datum)
 - Consented development footprint (by others)
 - Existing trees within surveyed area (trunk sizes vary)
 - Thames Water access



ILLUSTRATIVE
Save for the scale of above ground structures which is indicative

Location
Chambers Wharf
London Borough of Southwark

Document Information
Application for Development Consent

Notes:

1. All dimensions and levels are approximate.
2. Any discrepancy between the location of structures and the parameters marked on the drawings are due to differences between the Ordnance Survey base and the topographic survey base, both of which have been used in the preparation of this drawing.
3. The above ground structures in the "save for the scale of above ground structures which is indicative" statement are those listed in Table 1 on the Site works parameter plan"

Proposed
Site features - overall
Book of plans - section 21
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Keyplan:

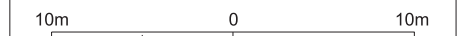
This drawing



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:

- Limits of land to be acquired or used (LLAU)
- Zone within which permanent above ground structures would be located
- + 105.40m Existing levels (shown in metres above tunnel datum)
- Proposed levels (shown in metres above tunnel datum)
- Consented development footprint (by others)
- Existing trees within surveyed area (trunk sizes vary)
- Hoarding



Scale 1:200 at A1
1:400 if reproduced at A3

ILLUSTRATIVE

Save for the scale of above ground structures which is indicative

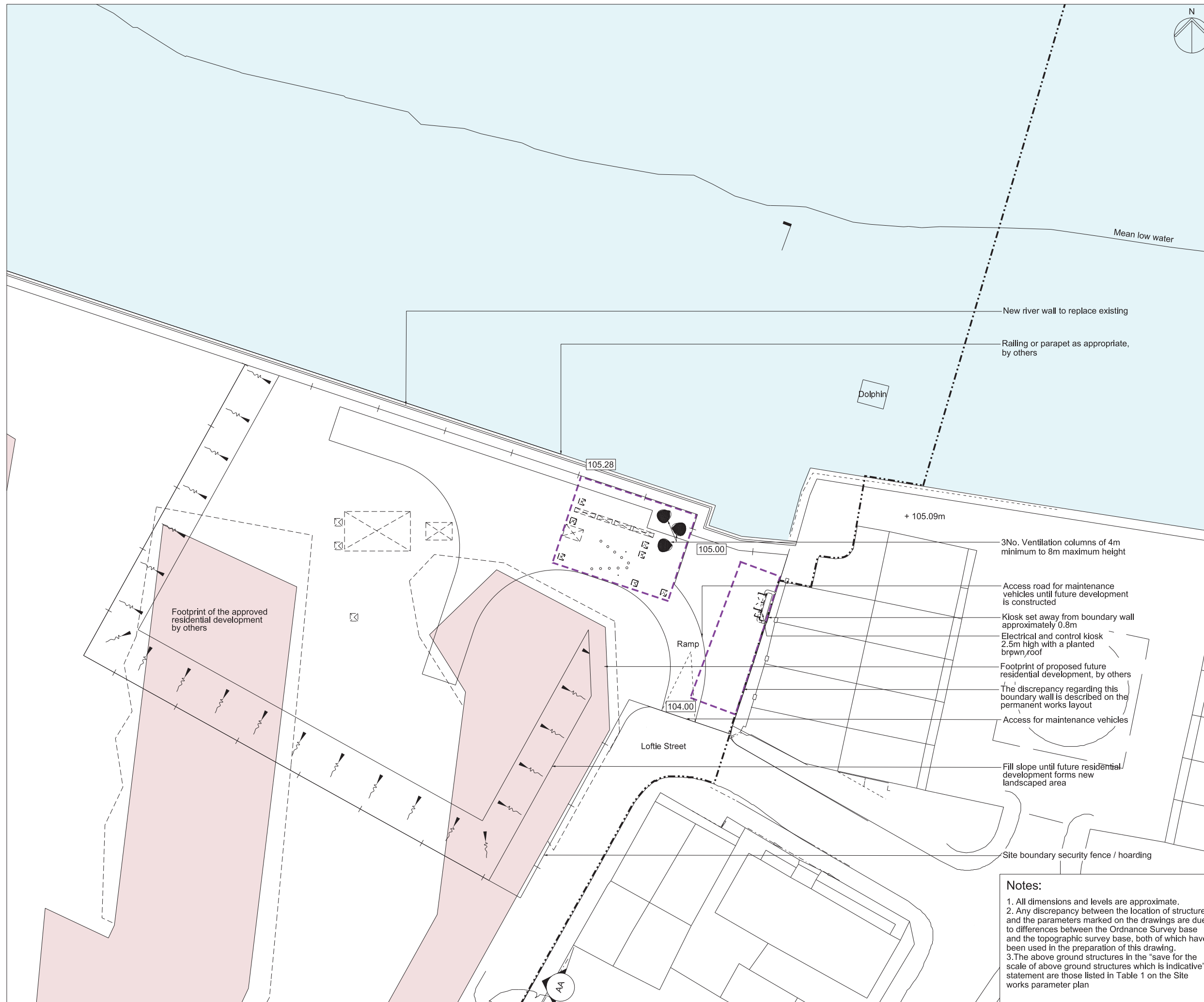
Location

Chambers Wharf
London Borough of Southwark

Document Information

Application for Development Consent

Proposed
Site features plan - shaft area
Book of plans - section 21
DCO-PP-19X-CHAWF-210010
January 2013



New river wall to replace existing
Railing or parapet as appropriate, by others

3No. Ventilation columns of 4m minimum to 8m maximum height

Access road for maintenance vehicles until future development is constructed

Kiosk set away from boundary wall approximately 0.8m
Electrical and control kiosk 2.5m high with a planted brown roof

Footprint of proposed future residential development, by others
The discrepancy regarding this boundary wall is described on the permanent works layout

Access for maintenance vehicles

Fill slope until future residential development forms new landscaped area

Site boundary security fence / hoarding

Notes:

1. All dimensions and levels are approximate.
2. Any discrepancy between the location of structures and the parameters marked on the drawings are due to differences between the Ordnance Survey base and the topographic survey base, both of which have been used in the preparation of this drawing.
3. The above ground structures in the "save for the scale of above ground structures which is indicative" statement are those listed in Table 1 on the Site works parameter plan

Footprint of the approved residential development by others

Loftie Street

Ramp

Dolphin

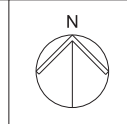
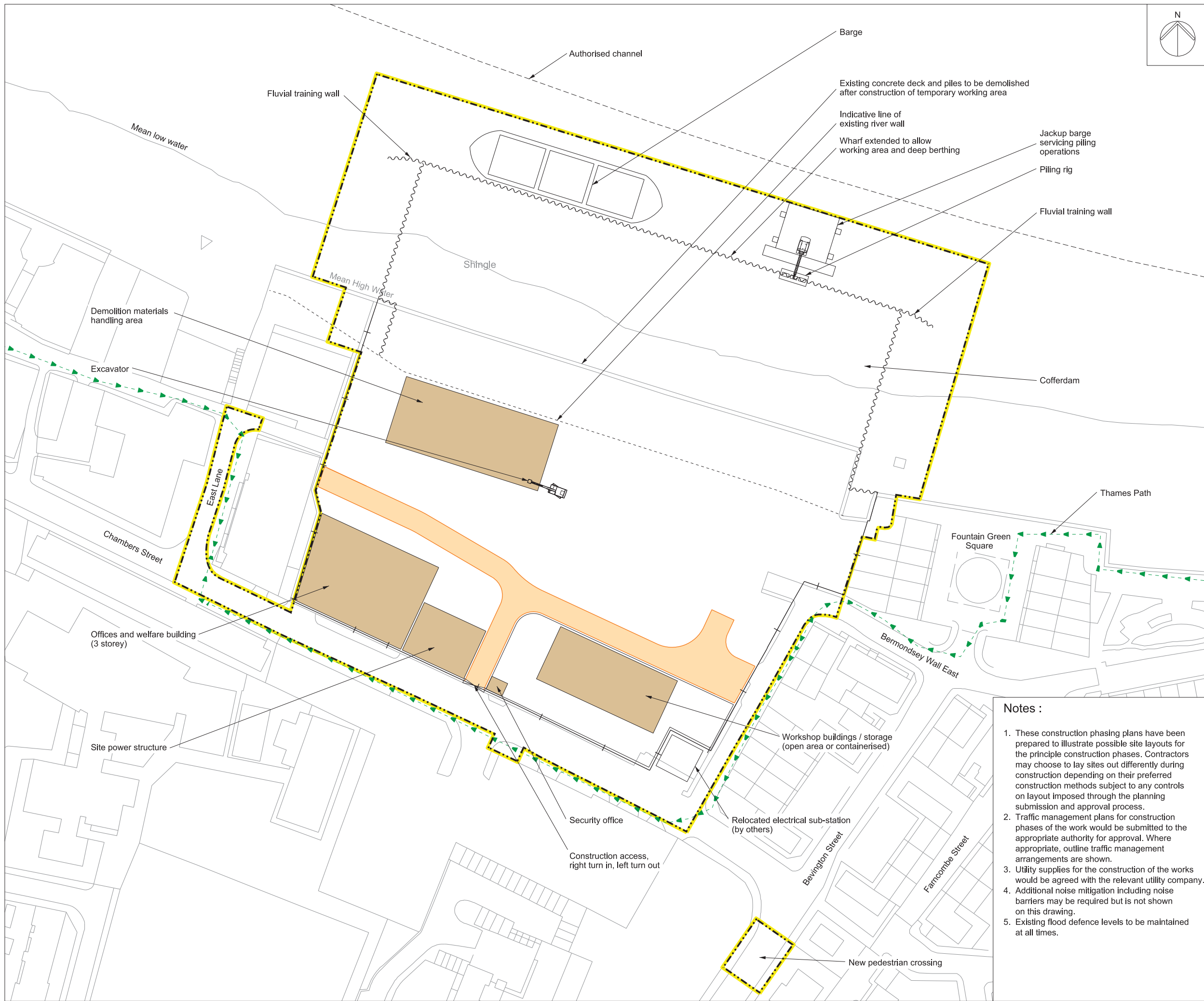
105.28

105.00

+ 105.09m

104.00

AA



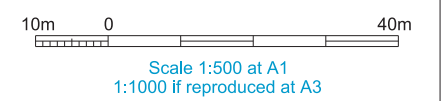
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Key:

	Limits of land to be acquired or used (LLAU)
	Hoarding
	Maximum extent of working area
	Existing public right of way
	Site access
	Access / haul route
	Sheet piles



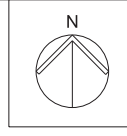
- Notes :**
1. These construction phasing plans have been prepared to illustrate possible site layouts for the principle construction phases. Contractors may choose to lay sites out differently during construction depending on their preferred construction methods subject to any controls on layout imposed through the planning submission and approval process.
 2. Traffic management plans for construction phases of the work would be submitted to the appropriate authority for approval. Where appropriate, outline traffic management arrangements are shown.
 3. Utility supplies for the construction of the works would be agreed with the relevant utility company.
 4. Additional noise mitigation including noise barriers may be required but is not shown on this drawing.
 5. Existing flood defence levels to be maintained at all times.

ILLUSTRATIVE

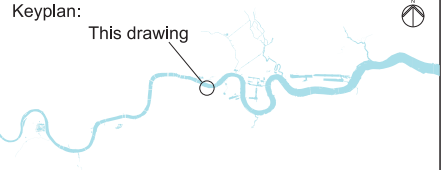
Location
Chambers Wharf
London Borough of Southwark

Document Information
Application for Development Consent
Construction phases - phase 1
Site setup
Book of plans - section 21
DCO-PP-19X-CHAWF-210014
January 2013





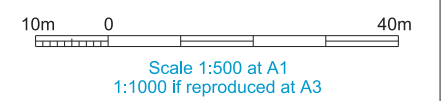
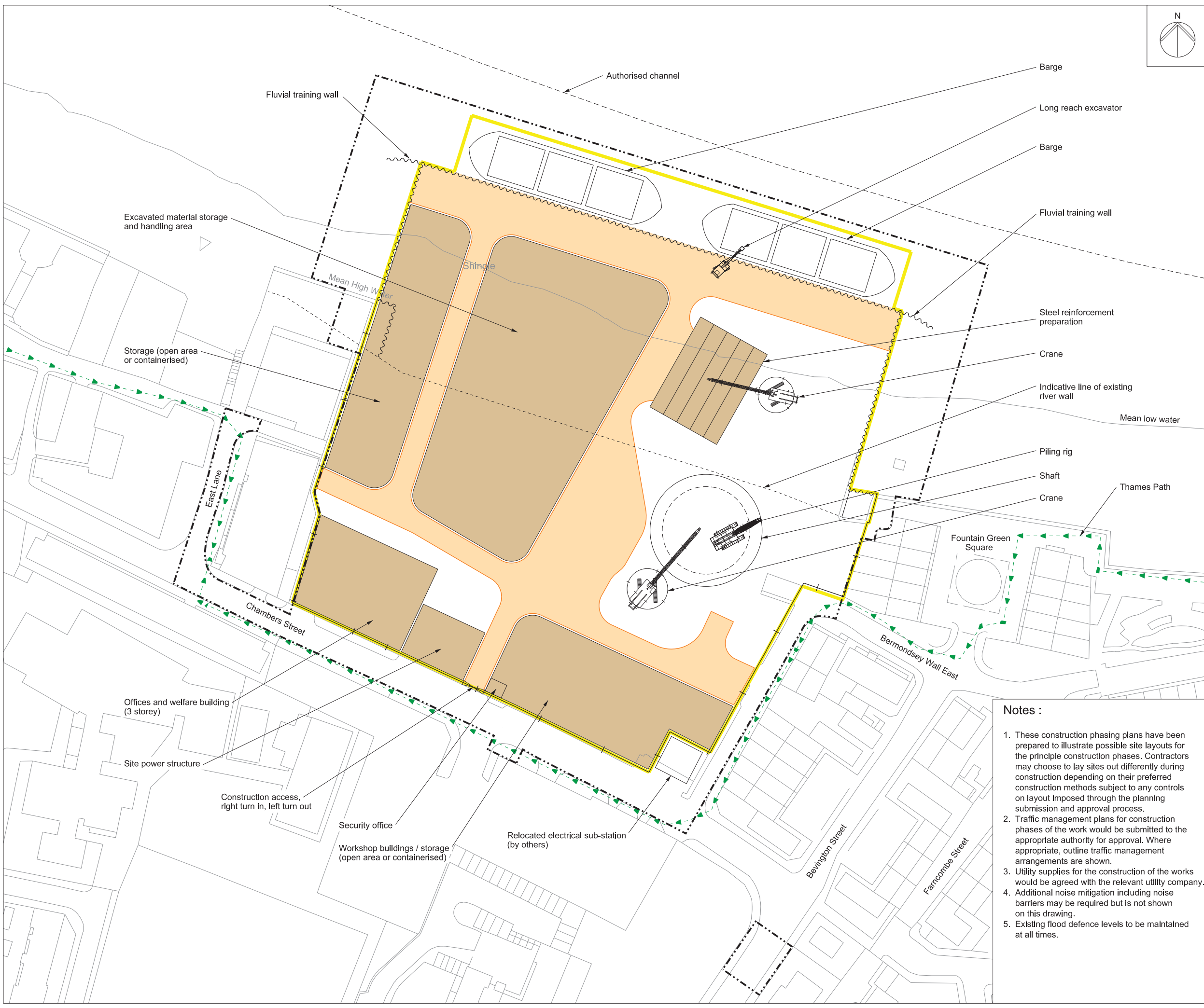
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	Hoarding
	Maximum extent of working area
	Existing public right of way
	Site access
	Access / haul route
	Sheet piles



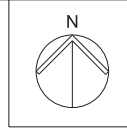
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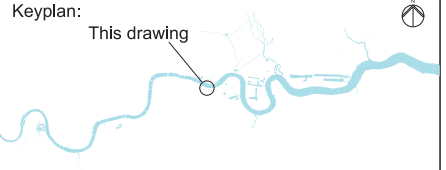
Location
Chambers Wharf
 London Borough of Southwark

Document Information
Application for Development Consent
 Construction phases - phase 2
 Shaft construction
 Book of plans - section 21
 DCO-PP-19X-CHAWF-210015
 January 2013





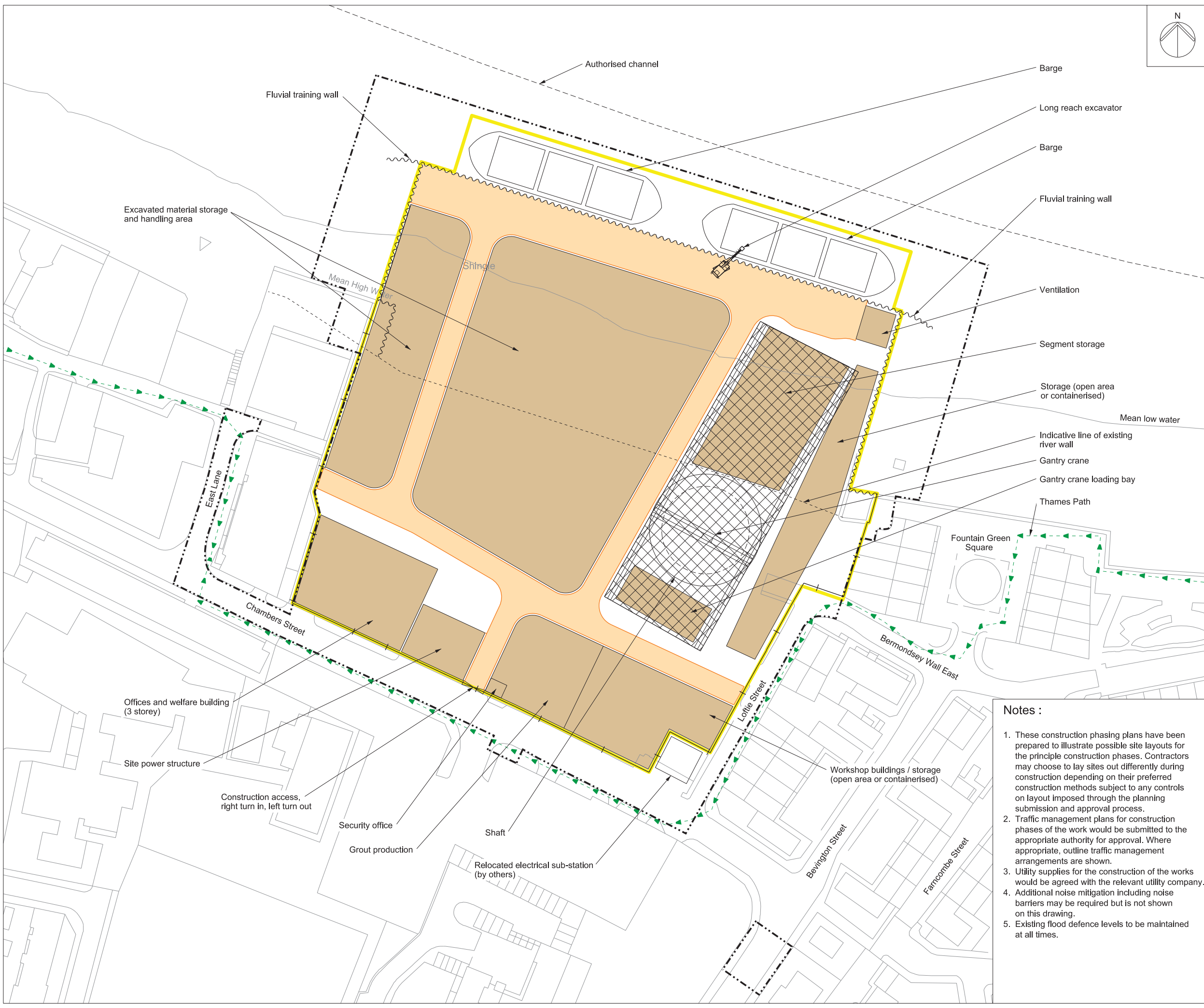
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Key:

	Limits of land to be acquired or used (LLAU)
	Hoarding
	Maximum extent of working area
	Existing public right of way
	Site access
	Access / haul route
	Sheet piles
	Noise enclosure over shaft and gantry crane



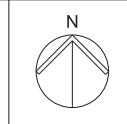
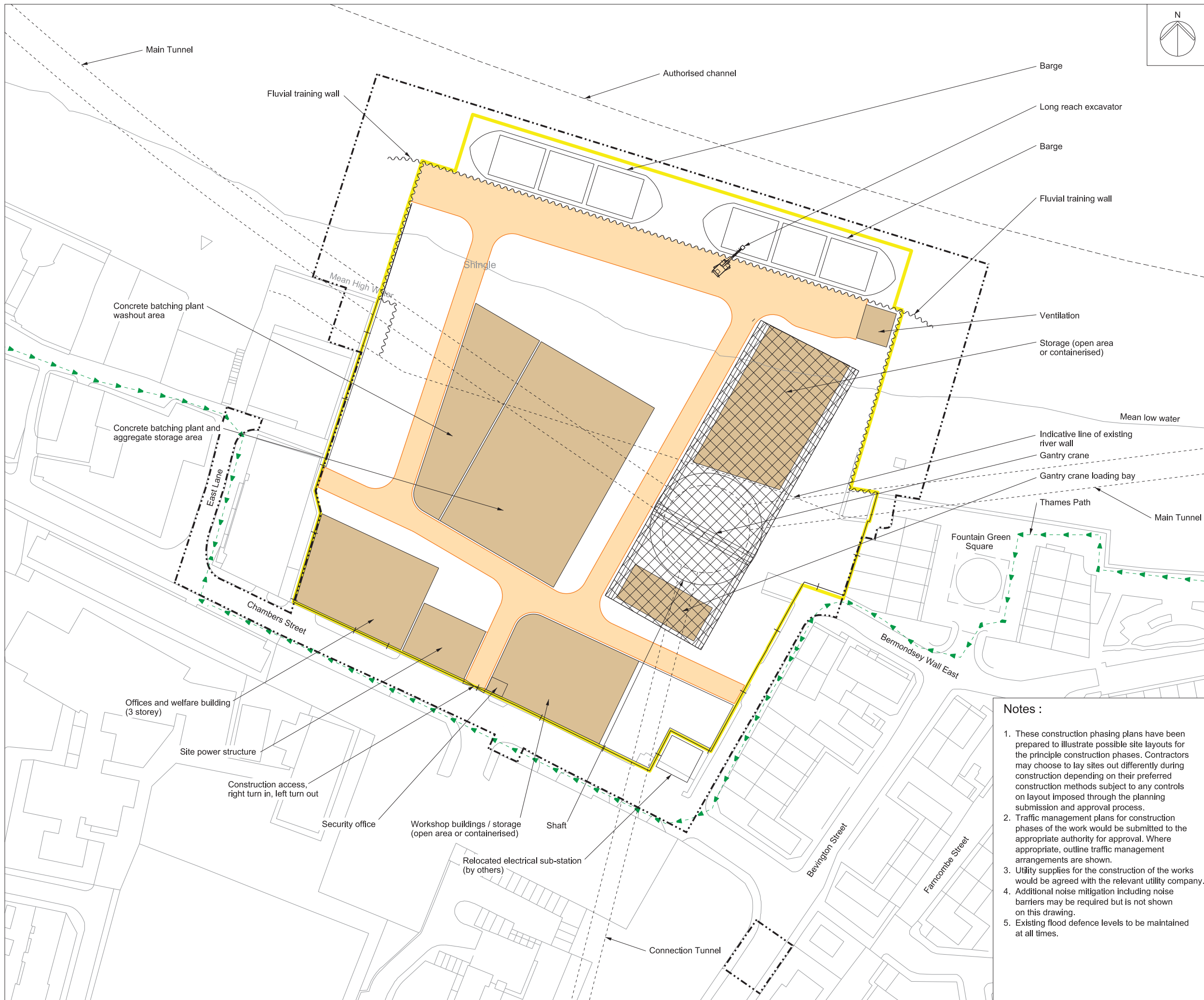
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 4. Additional noise mitigation including noise barriers may be required but is not shown on this drawing.
 5. Existing flood defence levels to be maintained at all times.

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Location
Chambers Wharf
London Borough of Southwark

Document Information
Application for Development Consent
Construction phases - phase 3
Tunnelling
Book of plans - section 21
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January 2013





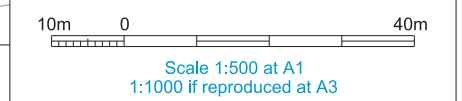
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	Maximum extent of working area
	Existing public right of way
	Site access
	Access / haul route
	Sheet piles
	Noise enclosure over shaft and gantry crane



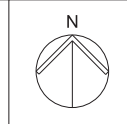
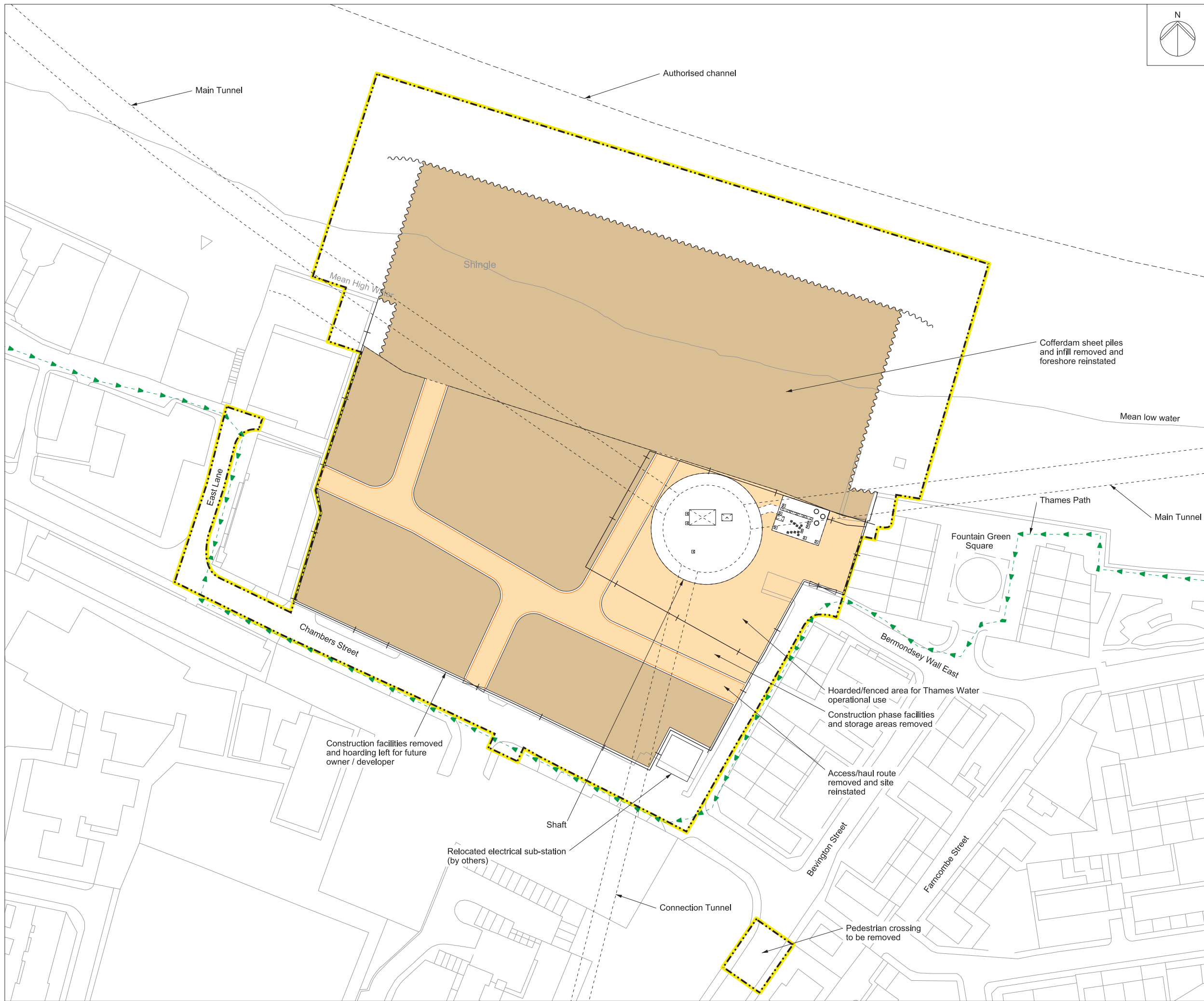
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ILLUSTRATIVE

Location
Chambers Wharf
London Borough of Southwark

Document Information
Application for Development Consent
Construction phases - phase 4
Secondary lining
Book of plans - section 21
DCO-PP-19X-CHAWF-210017
January 2013



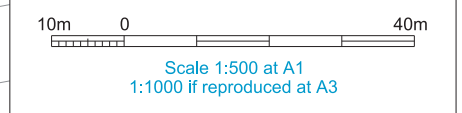


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Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

- Key:**
- Limits of land to be acquired or used (LLAU)
 - Hoarding
 - Maximum extent of working area
 - Existing public right of way
 - Site access
 - Access / haul route
 - Sheet piles

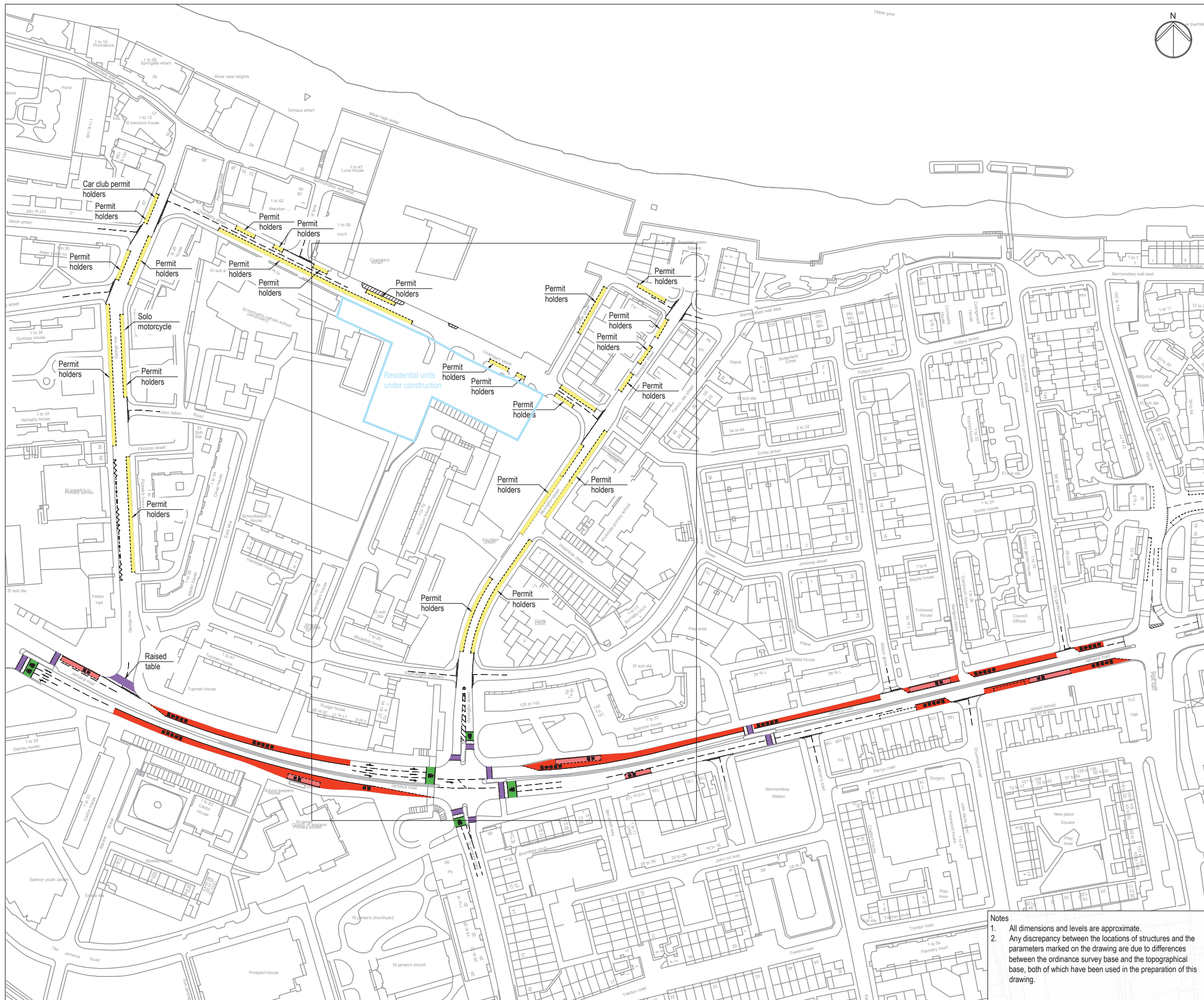


ILLUSTRATIVE

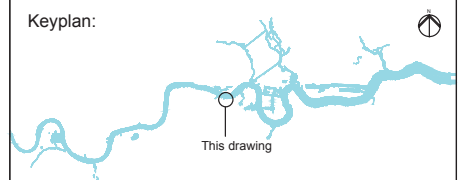
Location
Chambers Wharf
 London Borough of Southwark

Document Information
Application for Development Consent
 Construction phases - phase 5
 Site demobilisation
 Book of plans - section 18
 DCO-PP-19X-CHAWF-210018
 January 2013





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- Key**
- On street parking
 - Bus stop / stand
 - Bus lane
 - Pedestrian crossing
 - Cycle lane / advance stop line

On street parking
 Permit holder
 permit holders only mon - fri 8:30am - 6:30pm
 Solo motorcycle
 solo motorcycles only at all times
 Car club permit holders
 car club permit holders at all times

- 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 for the use of tactile paving, DfT, 1998
 - Accessible bus stop design guidance, TfL, 2006

Stage
 Existing

Scale 1:1000 at A1
 1:2000 if reproduced at A3

FOR INFORMATION

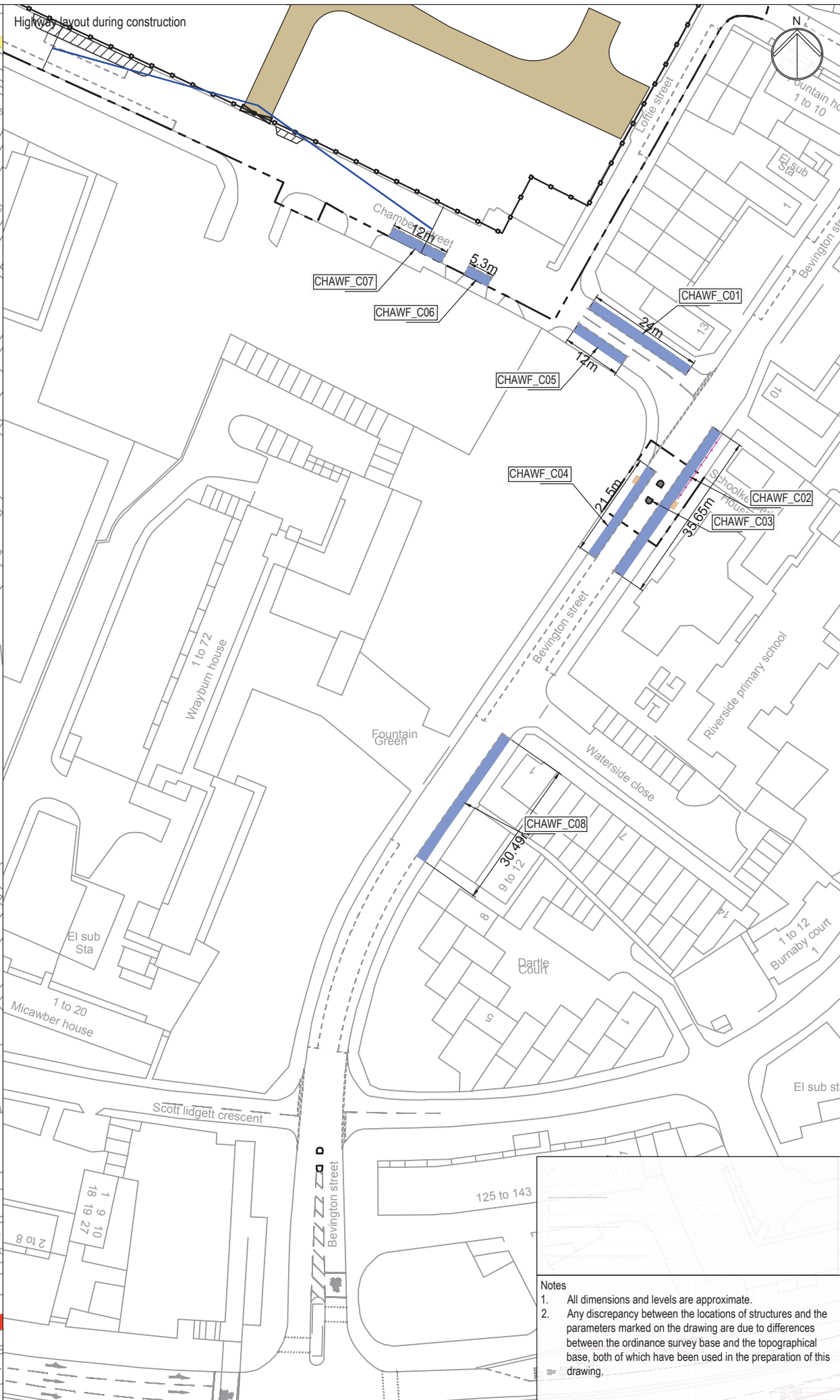
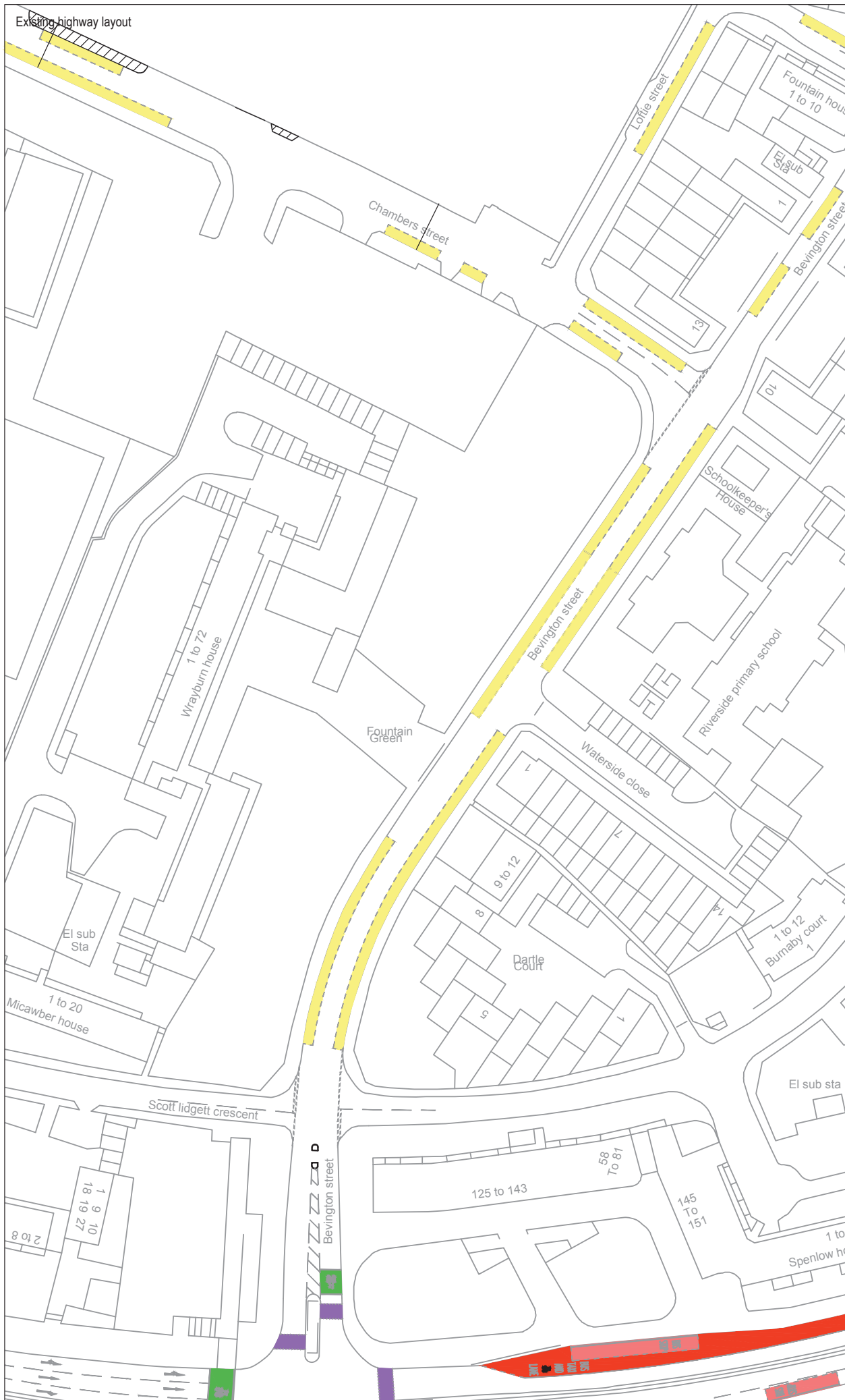
Location
 Chambers Wharf
 London Borough of Southwark

Document Information
 Application for Development Consent
 Existing highway layout

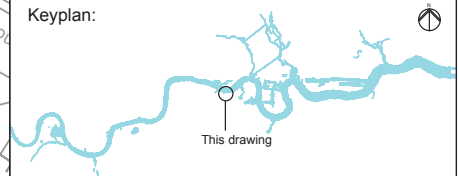
DCO-PP-19X-CHAWF-210022
 January 2013



Notes
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 2. Any discrepancy between the locations of structures and the parameters marked on the drawing are due to differences between the Ordnance Survey base and the topographical base, both of which have been used in the preparation of this drawing.



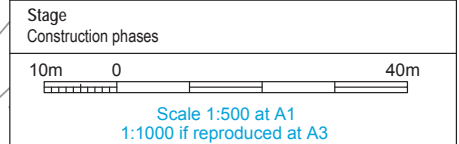
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Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

- Key**
- Existing**
- █ On street parking
 - █ Bus stop / stand
 - █ Bus lane
 - █ Pedestrian crossing
 - █ Cycle lane / advance stop line
- Revised**
- L.L.A.U.
 - Pedestrian refuge
 - Suspended on street parking
 - Temporary footway restrictions
 - Illustrative on-site manoeuvring zone
 - Tactile paving
 - Visibility splay - 2.4m x 43m (ssd adjust for bonnet length)
 - See schedule of works
 - Hoarding line
 - Site access
 - Guardrail

- 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 for the use of tactile paving, DfT, 1998
 - Accessible bus stop design guidance, TfL, 2006



ILLUSTRATIVE

Location
Chambers Wharf
London Borough of Southwark

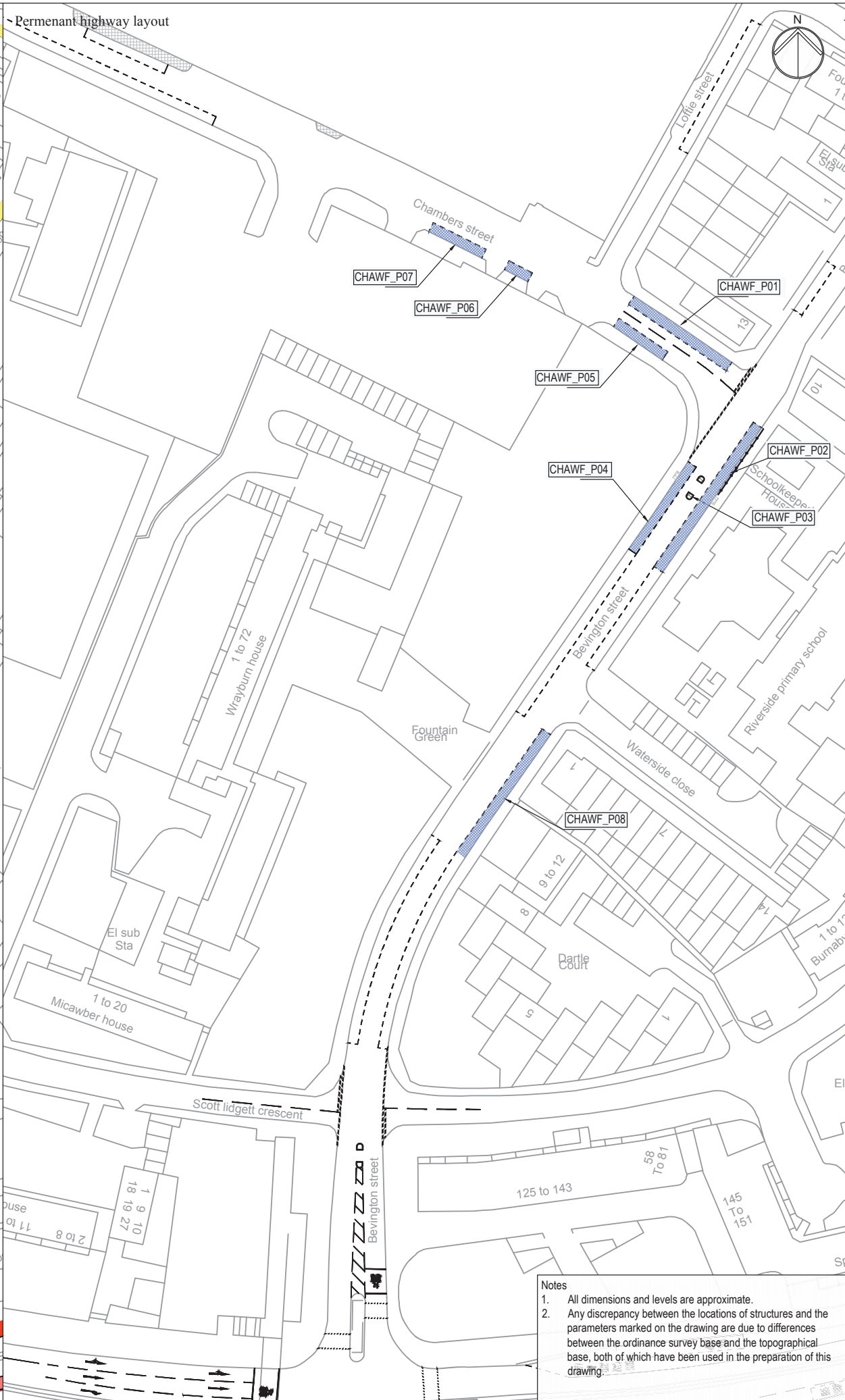
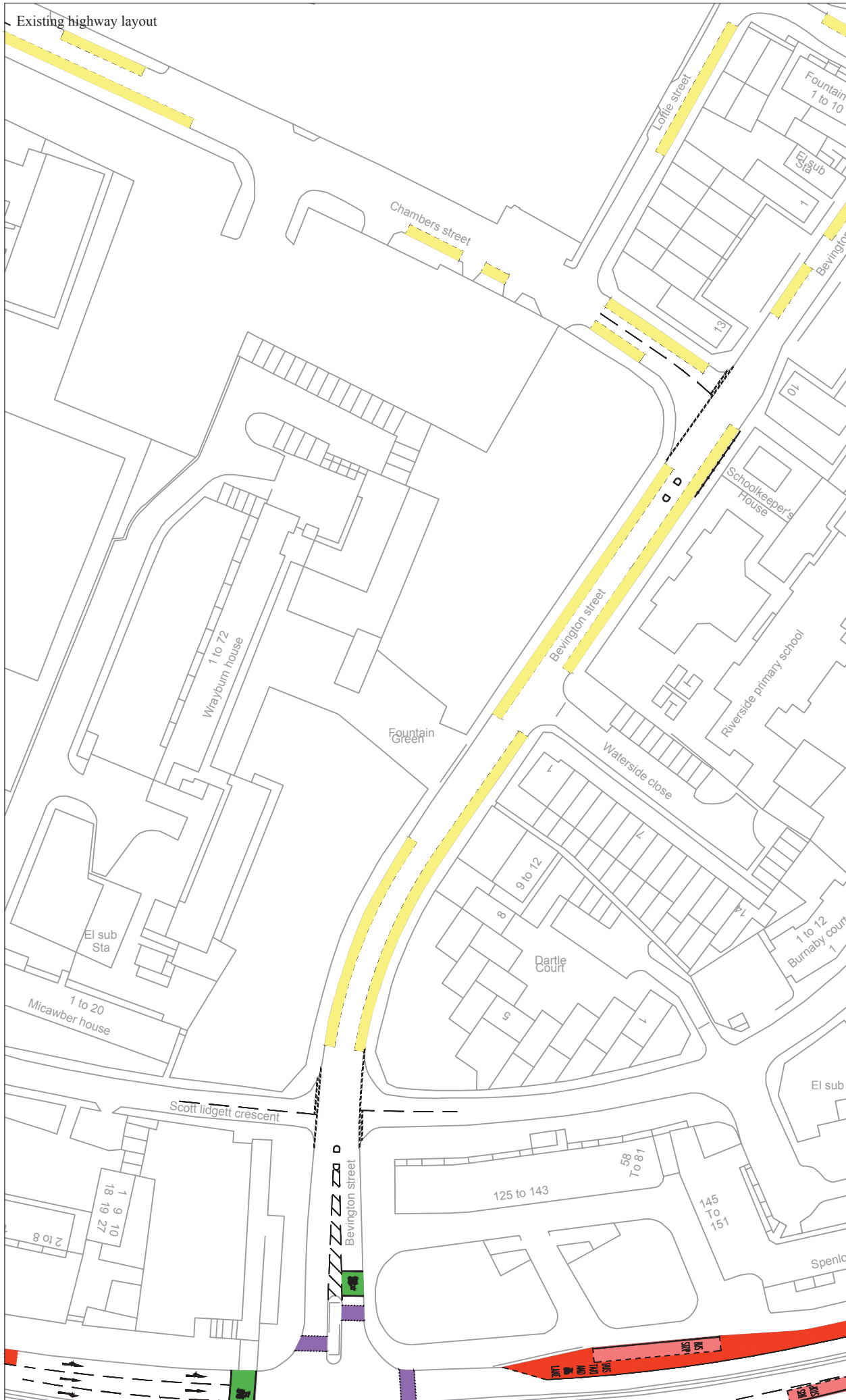
Document Information
Application for Development Consent
Highway layout during construction

DCO-PP-19X-CHAWF-210023
January 2013

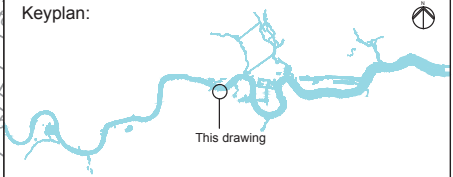


Notes

1. All dimensions and levels are approximate.
2. Any discrepancy between the locations of structures and the parameters marked on the drawing are due to differences between the ordnance survey base and the topographical base, both of which have been used in the preparation of this drawing.



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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
 - Bus lane
 - Pedestrian crossing
 - Cycle lane / advance stop line
 - Revised
 - Reinstated footway
 - Reinstated carriageway
 - Reinstated on street parking
 - Illustrative on-site manoeuvring zone
 - See schedule of works
 - Remove guardrail

On street parking

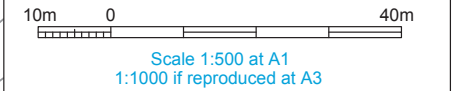
Permit holder
 permit holders only mon - fri 8:30am - 6:30pm

Solo motorcycle
 solo motorcycles only at all times

Car club permit holders
 car club permit holders at all times

- 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 for the use of tactile paving, DfT, 1998
 - Accessible bus stop design guidance, TfL, 2006

Stage
 Construction phases



ILLUSTRATIVE

Location
 Chambers Wharf
 London Borough of Southwark

Document Information
 Application for Development Consent
 Permanent highway layout

DCO-PP-19X-CHAWF-210024
 January 2013



Notes

1. All dimensions and levels are approximate.
2. Any discrepancy between the locations of structures and the parameters marked on the drawing are due to differences between the ordnance survey base and the topographical base, both of which have been used in the preparation of this drawing.

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2 Environmental impact assessment figures

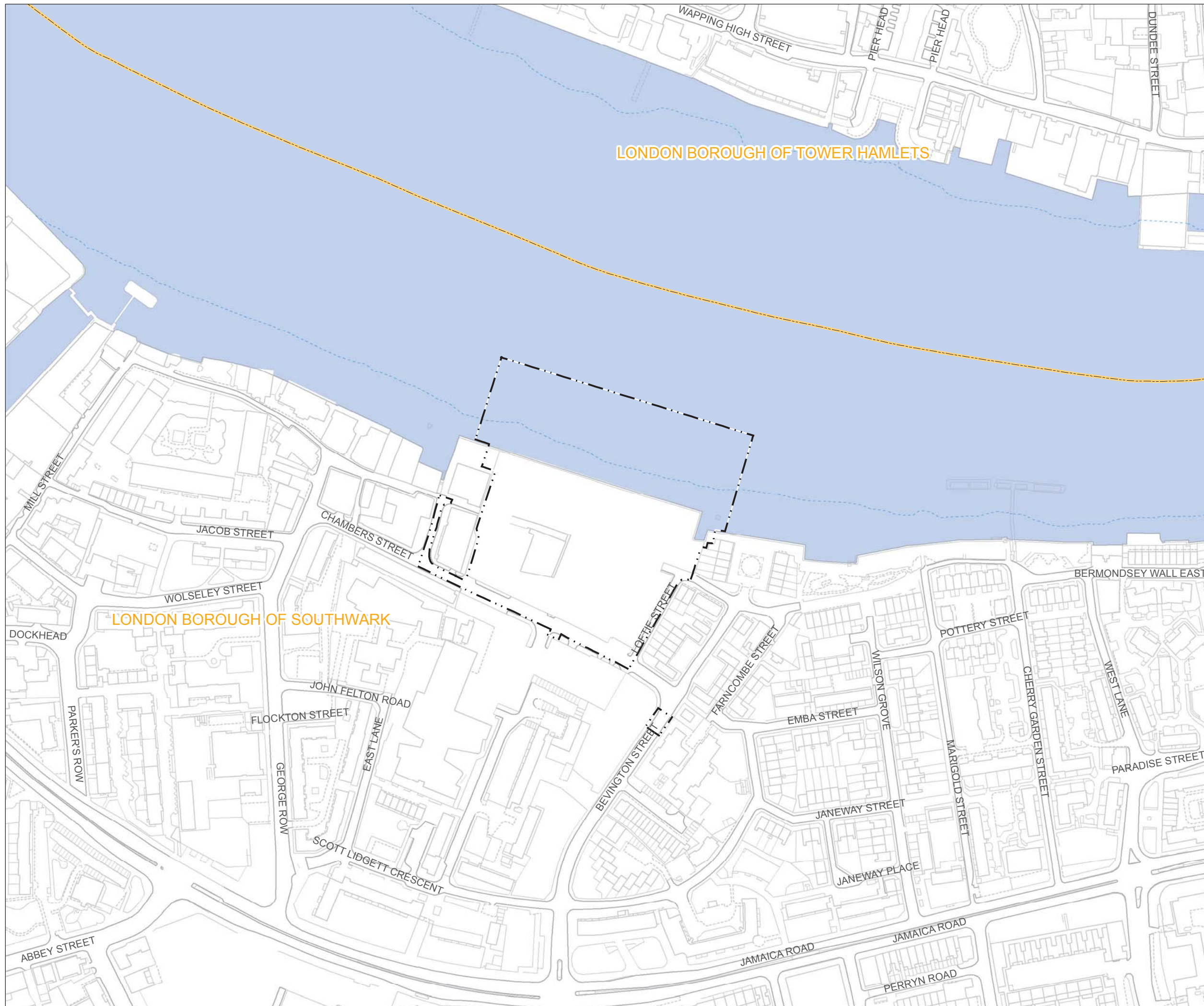
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Keyplan:



Key

- Limits of Land to be Acquired or Used
- Local Authority Boundary
- River Thames



Scale 1 : 2,500 at A3

FOR INFORMATION

Location

Chambers Wharf
London Borough of Southwark

Document Information

Environmental Statement

Site location plan
Vol. 20 Figure 2.1.1

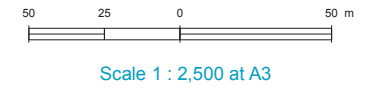
1PL03-MG-00712
January 2013

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Key

- Limits of Land to be Acquired or Used
- Local Authority Boundary
- Land Use**
- Class A1-A5 (Shops, Financial & Professional Services, Restaurants, Drinking Establishments and Hot Food Takeaways)
- Class B1 (Business (Offices except A2) Research and Development, Light Industry)
- Class C3-C4 (Dwelling Houses)
- Class D1-D2 (Non Residential Institutions (Community Facilities) and Assembly and Leisure)
- Mixed Use
- Other
- Open Space

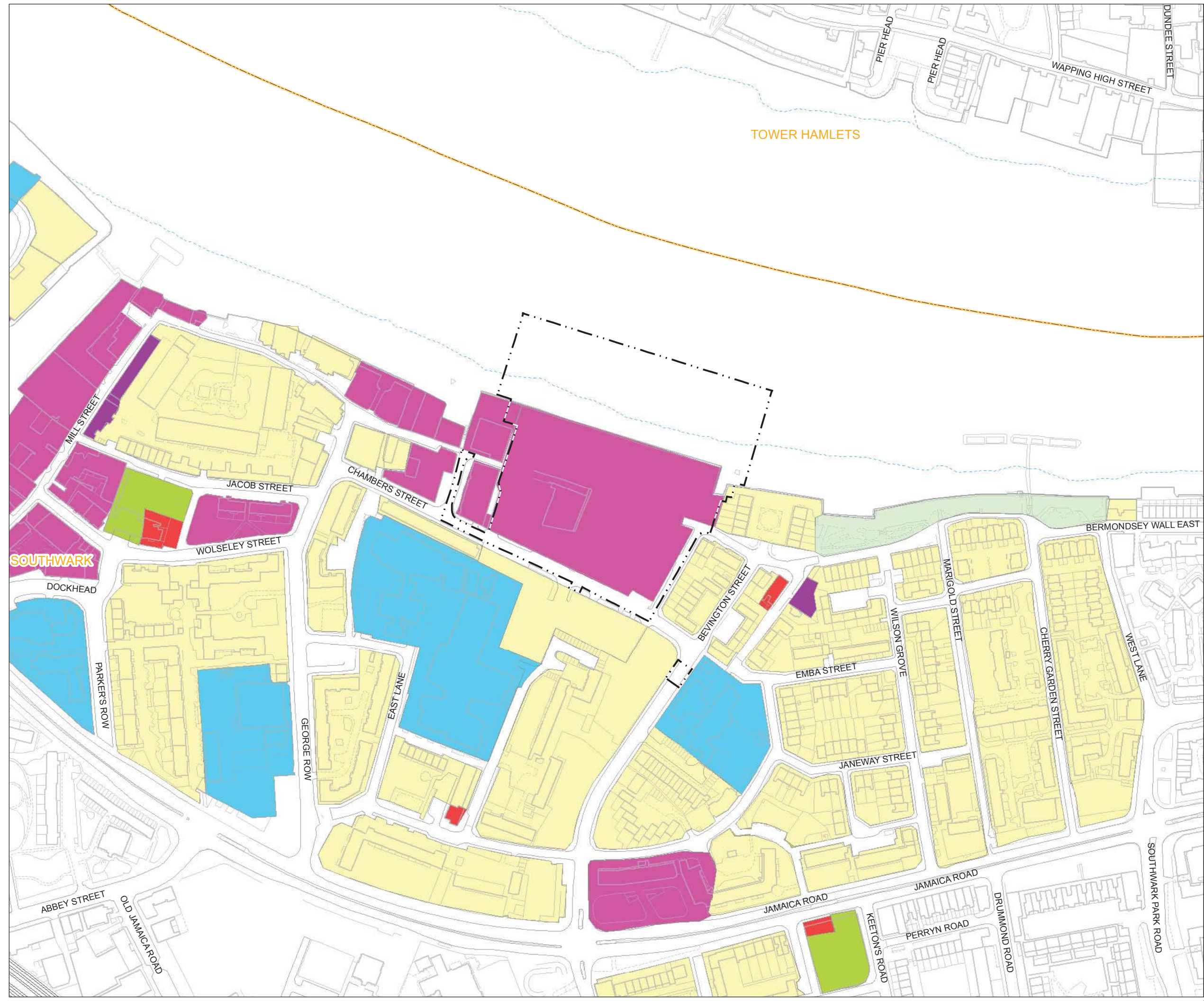


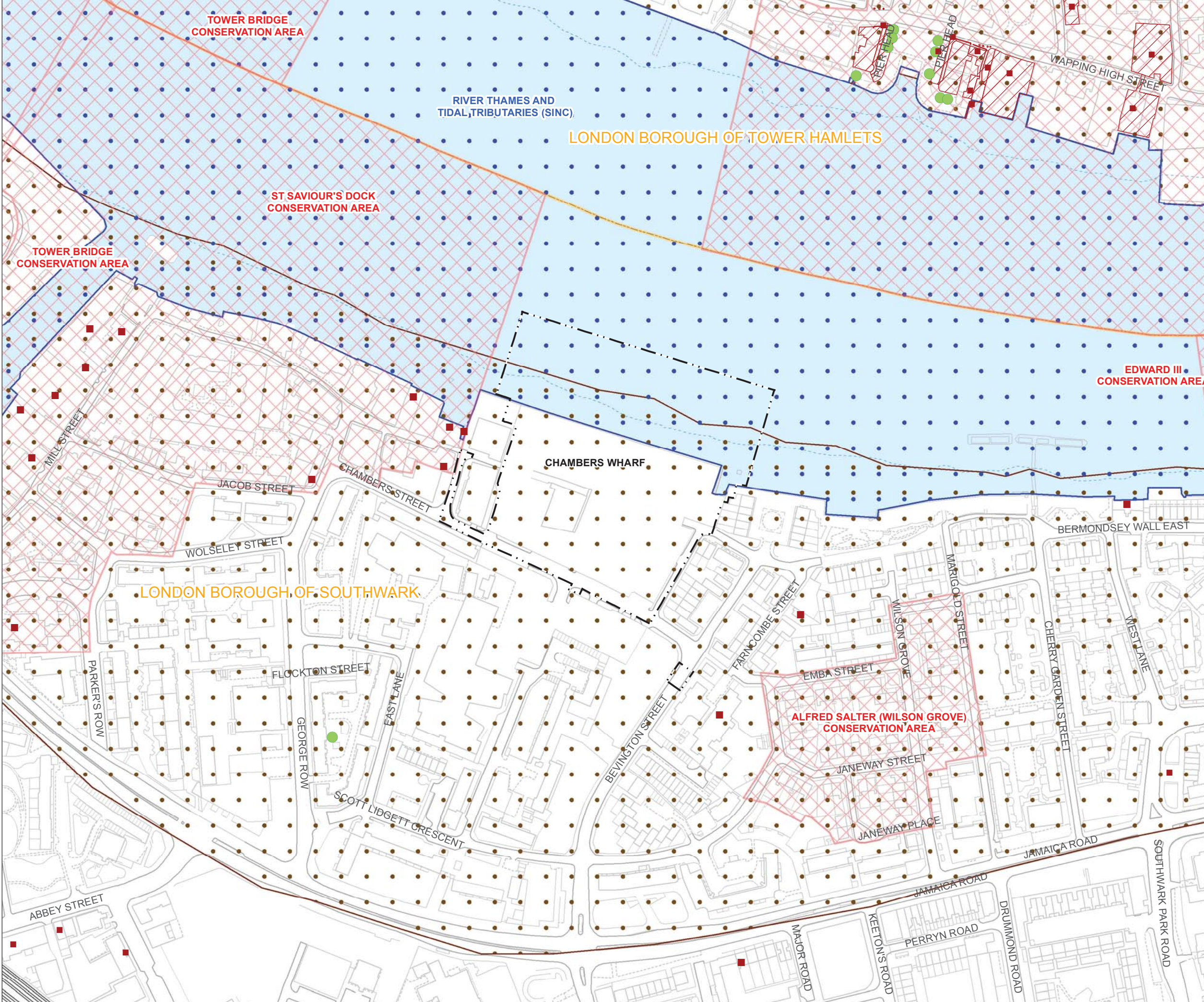
FOR INFORMATION

Location
Chambers Wharf
 London Borough of Southwark

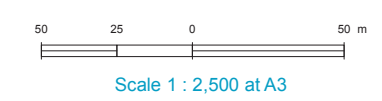
Document Information
Environmental Statement
 Land use
 Vol. 20 Figure 2.1.2

1PL03-MG-00755
 January 2013





- Key**
- Listed Building Point
 - Tree Preservation Order Point
 - - - Limits of Land to be Acquired or Used
 - ▨ Listed Building Area
 - ▧ LPA Conservation Area
 - ▩ LPA Archaeological Area
 - ▭ Local Authority Boundary
 - River Thames
- Sites of Importance for Nature Conservation (SINC)
- ▭ Metropolitan Importance



FOR INFORMATION

Location
Chambers Wharf
 London Borough of Southwark

Document Information
Environmental Statement
 Environmental setting
 Vol. 20 Figure 2.1.3

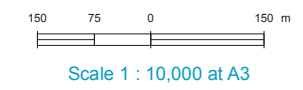
1PL03-MG-00680
 January 2013





- Key**
- Planning Application
 - Limits of Land to be Acquired or Used
 - Planning Application (1km Boundary)
 - Local Authority Boundary

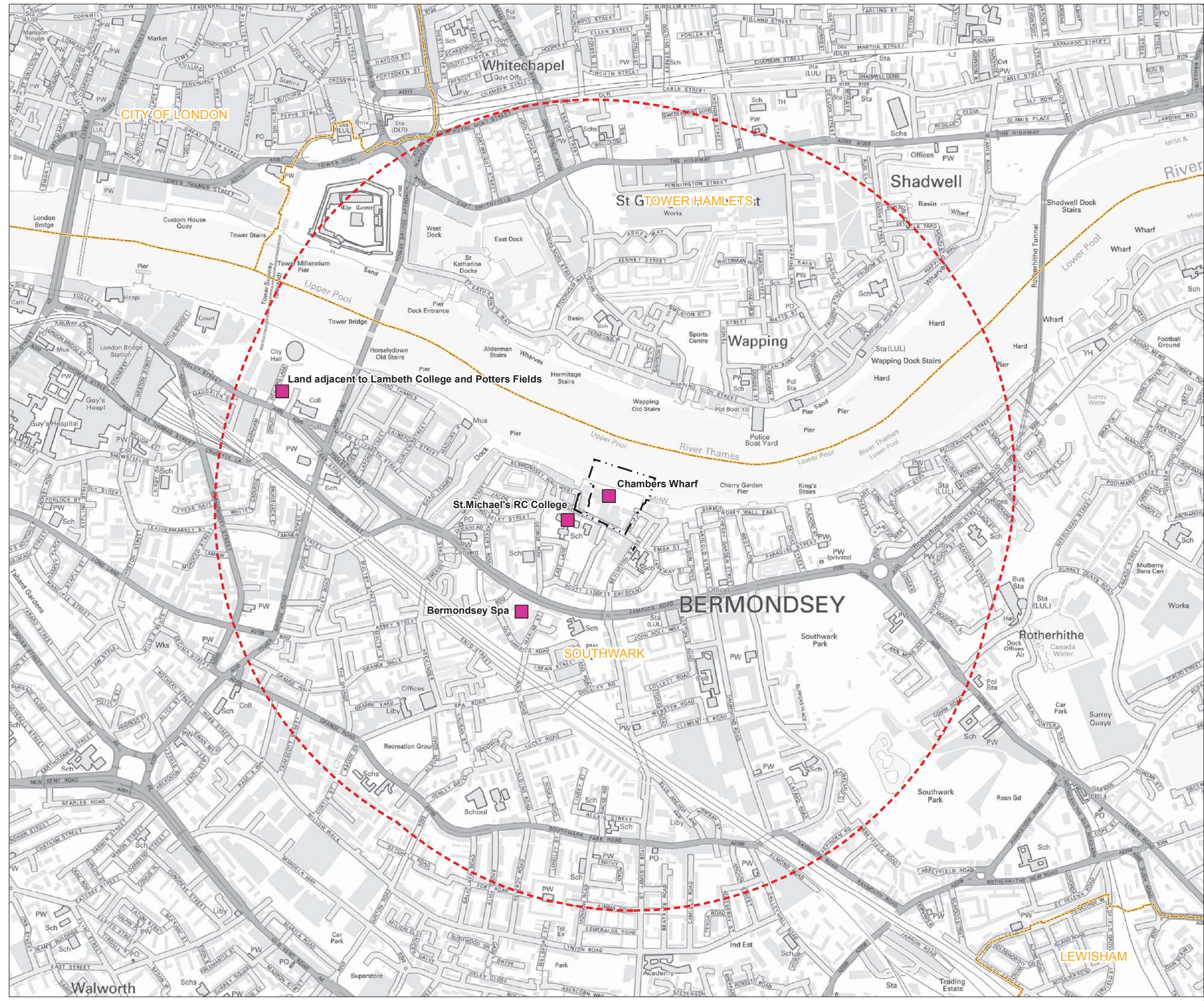
Note: This plan does not show the full extent for each planning application, but a single point within the application site.



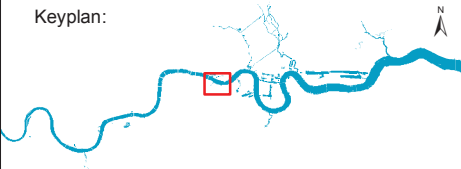
FOR INFORMATION

Location
Chambers Wharf
 London Borough of Southwark

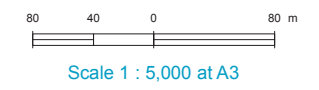
Document Information
Environmental Statement
 Base case and cumulative development projects
 Vol.20 Figure 3.5.1
 1PL03-MG-00736
 January 2013



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- Key
- Limits of Land to be Acquired or Used
 - Existing Local Authority Continuous Monitors
 - Existing Local Authority Diffusion Tubes
 - New Diffusion Tubes (Project)

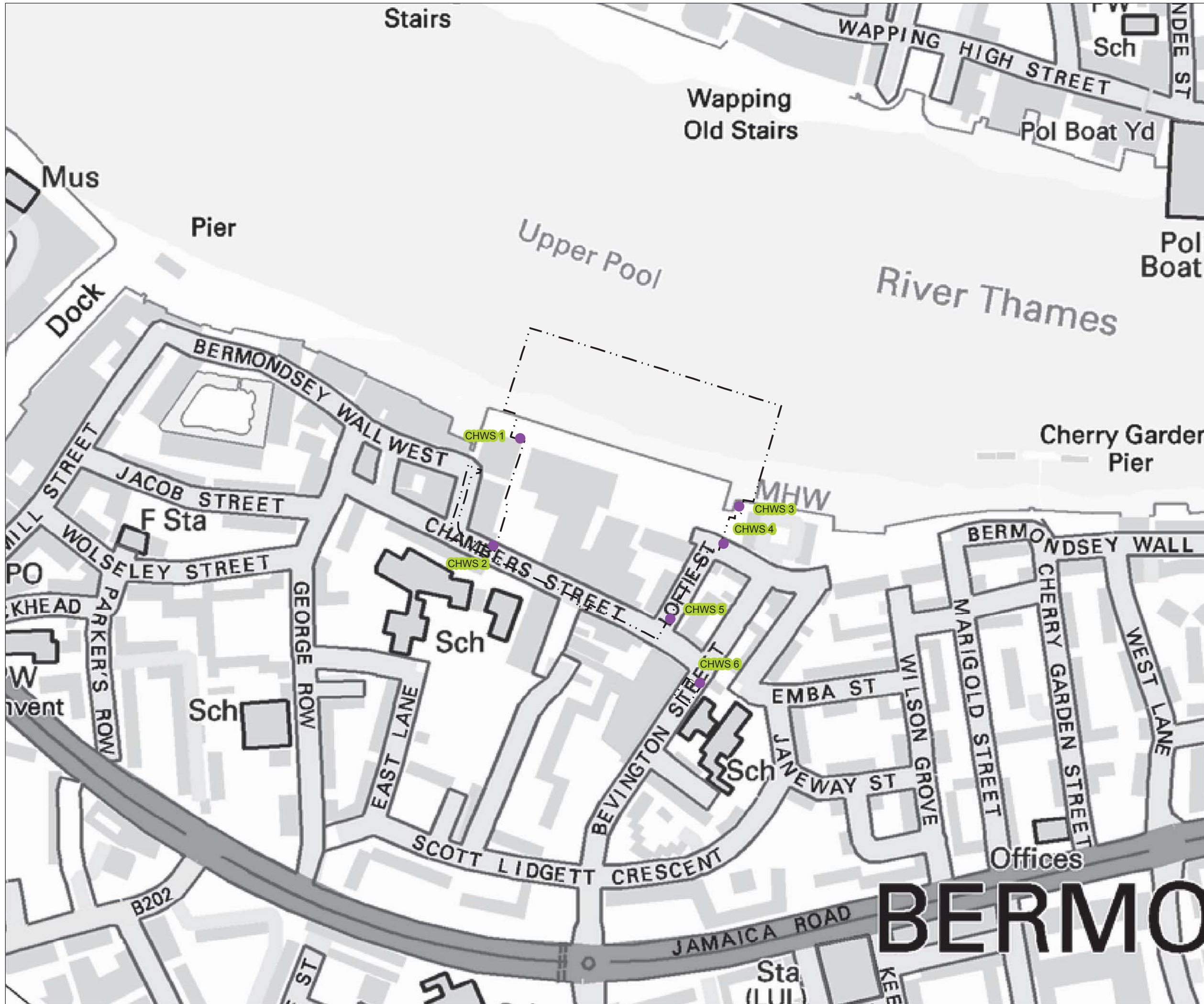


FOR INFORMATION

Location
Chambers Wharf
 London Borough of Southwark

Document Information
Environmental Statement
 Air quality and odour - air quality monitoring sites
 Vol.20 Figure 4.4.1
 1PL03-AQ-10838
 January 2013



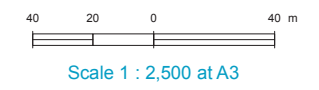


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Key

- Limits of Land to be Acquired or Used
- H₂S Monitoring Locations

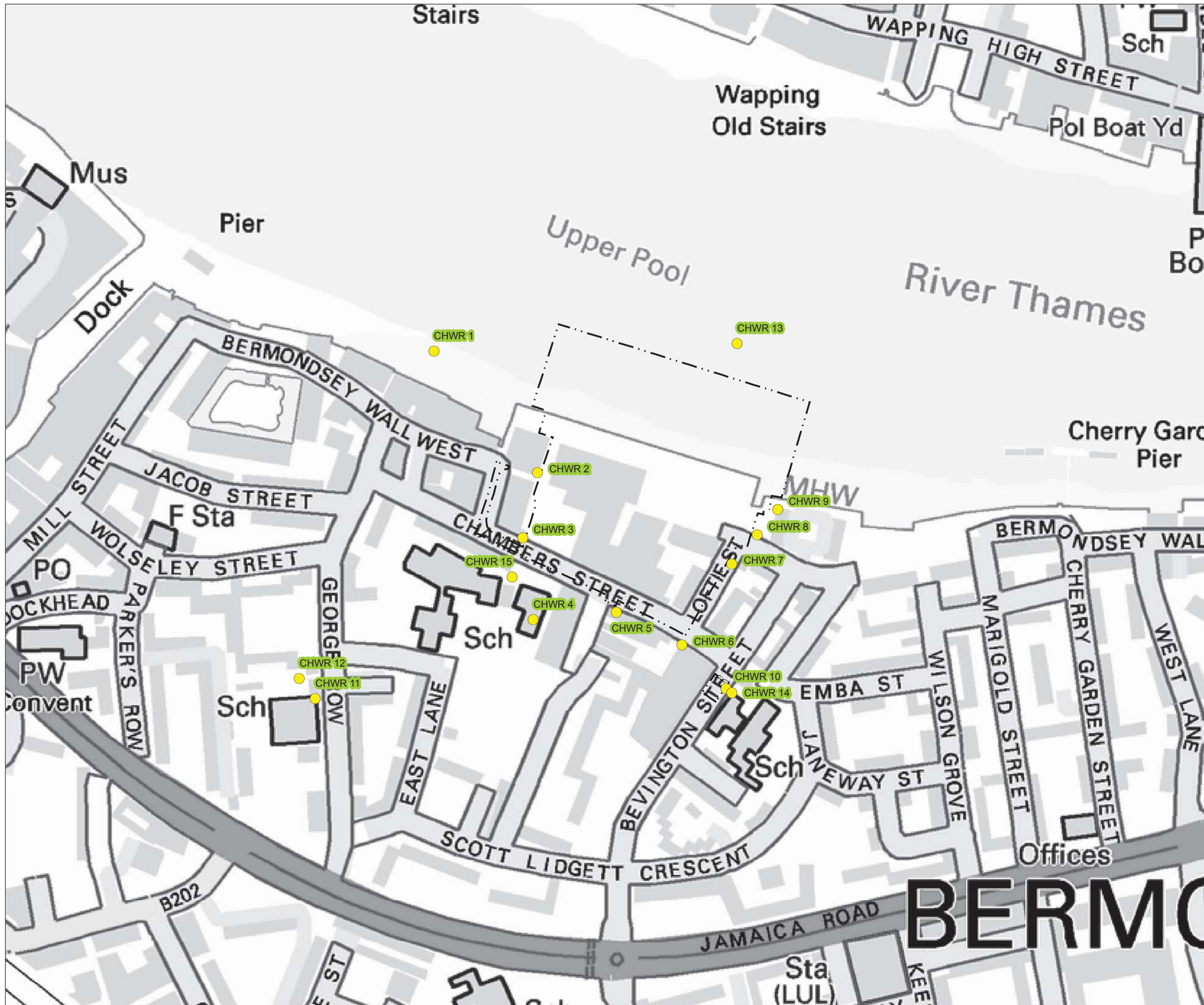


FOR INFORMATION

Location
Chambers Wharf
 London Borough of Southwark

Document Information
Environmental Statement
 Air quality and odour - H₂S monitoring locations
 Vol.20 Figure 4.4.2
 1PL03-AQ-10839
 January 2013





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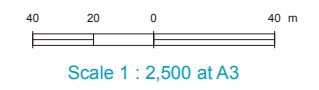


Key

- Limits of Land to be Acquired or Used
- Modelled Receptors

Note: The receptors are selected on the basis that they are representative of sensitive land uses closest to the site.

- CHWR 1 - Houseboats West of Chambers Wharf
- CHWR 2 - Luna House
- CHWR 3 - Axis Court
- CHWR 4 - St Michael's RC College Building (Proposed)
- CHWR 5 - Chambers Wharf (Proposed)
- CHWR 6 - Open Space South of Chambers Street
- CHWR 7 - 212 Bermondsey Wall East
- CHWR 8 - Thames Path
- CHWR 9 - Fountain Green Square
- CHWR 10 - Riverside Primary School Outdoor Teaching Area
- CHWR 11 - St Joseph's RC Primary School Building
- CHWR 12 - St Joseph's RC Primary School Playground
- CHWR 13 - River Thames
- CHWR 14 - Riverside Primary School Building
- CHWR 15 - St Michael's RC College Playground (Proposed)



FOR INFORMATION

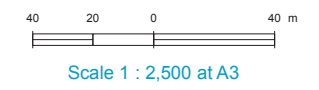
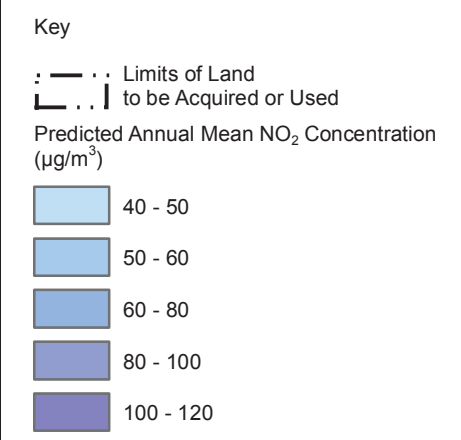
Location
Chambers Wharf
 London Borough of Southwark

Document Information
Environmental Statement
 Air quality and odour - modelled air quality receptors
 Vol.20 Figure 4.4.3
 1PL03-AQ-10840
 January 2013





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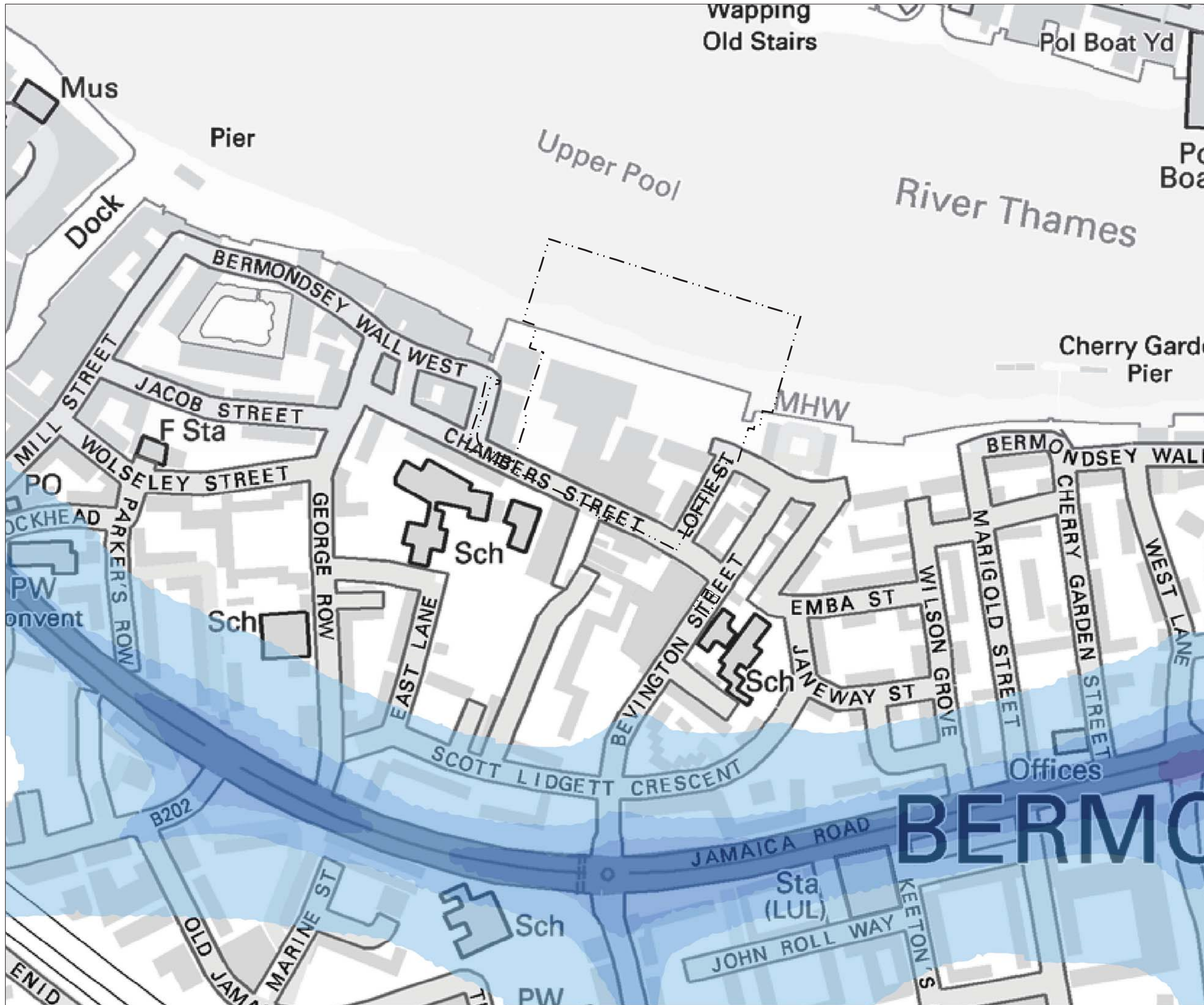


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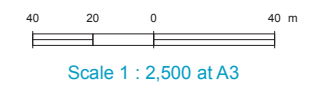
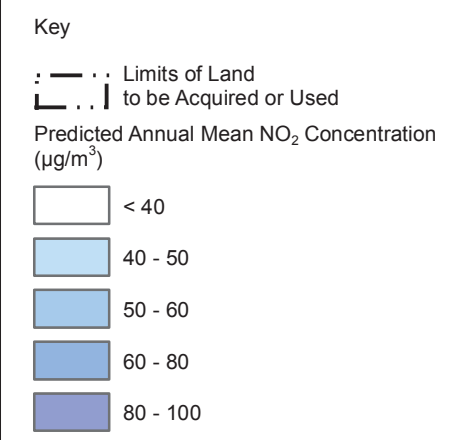
Location
Chambers Wharf
 London Borough of Southwark

Document Information
Environmental Statement
 Air quality and odour - annual mean NO₂ for 2010 baseline
 Vol.20 Figure 4.5.1
 1PL03-AQ-10841
 January 2013





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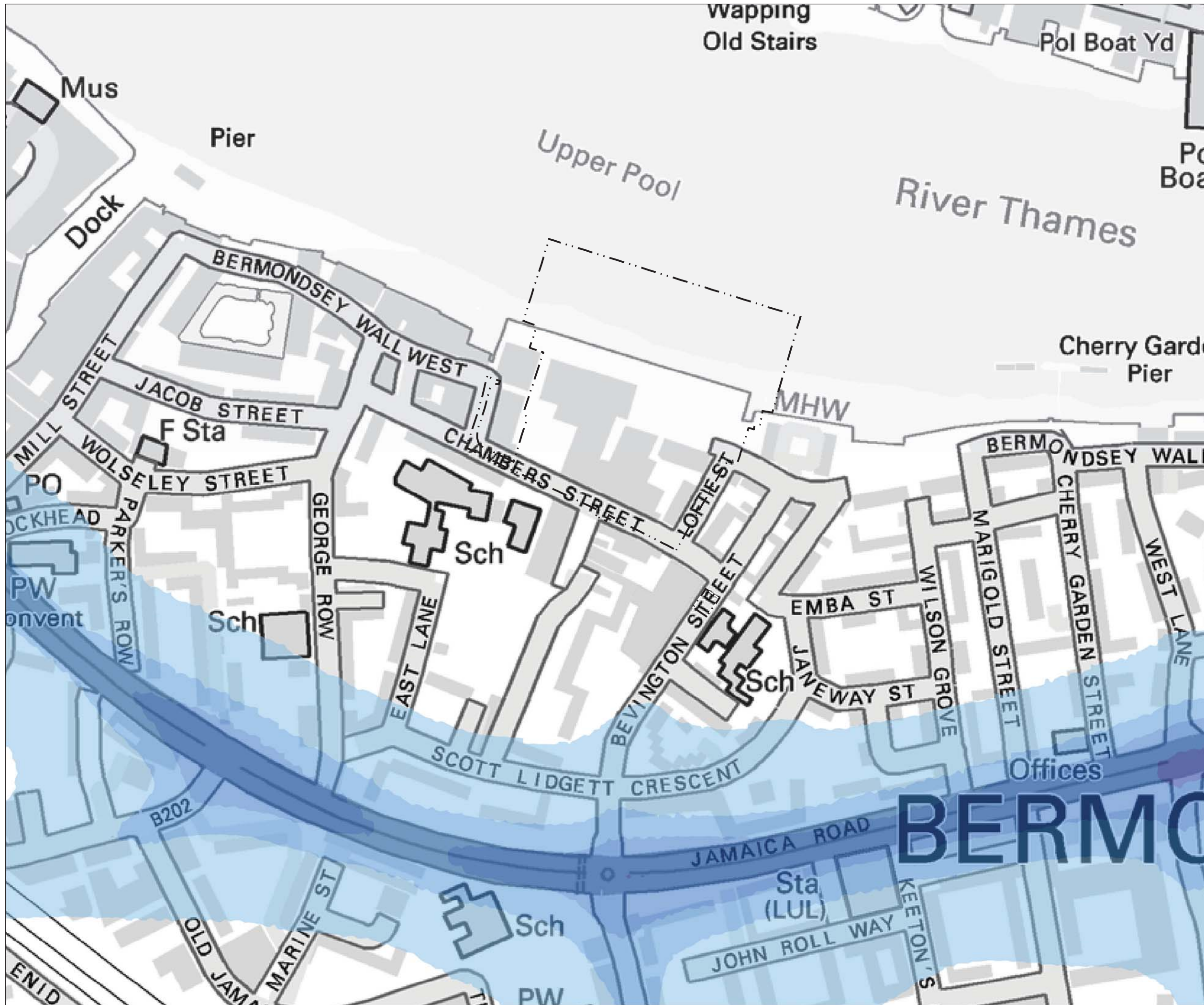


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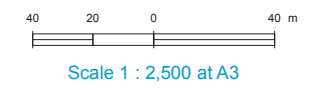
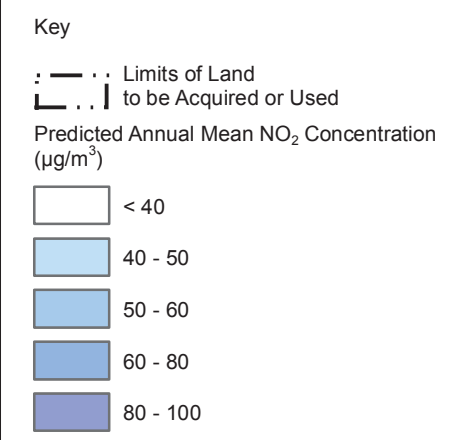
Location
Chambers Wharf
 London Borough of Southwark

Document Information
Environmental Statement
 Air quality and odour - annual mean NO₂ for peak construction year base case
 Vol.20 Figure 4.5.2
 1PL03-AQ-10842
 January 2013





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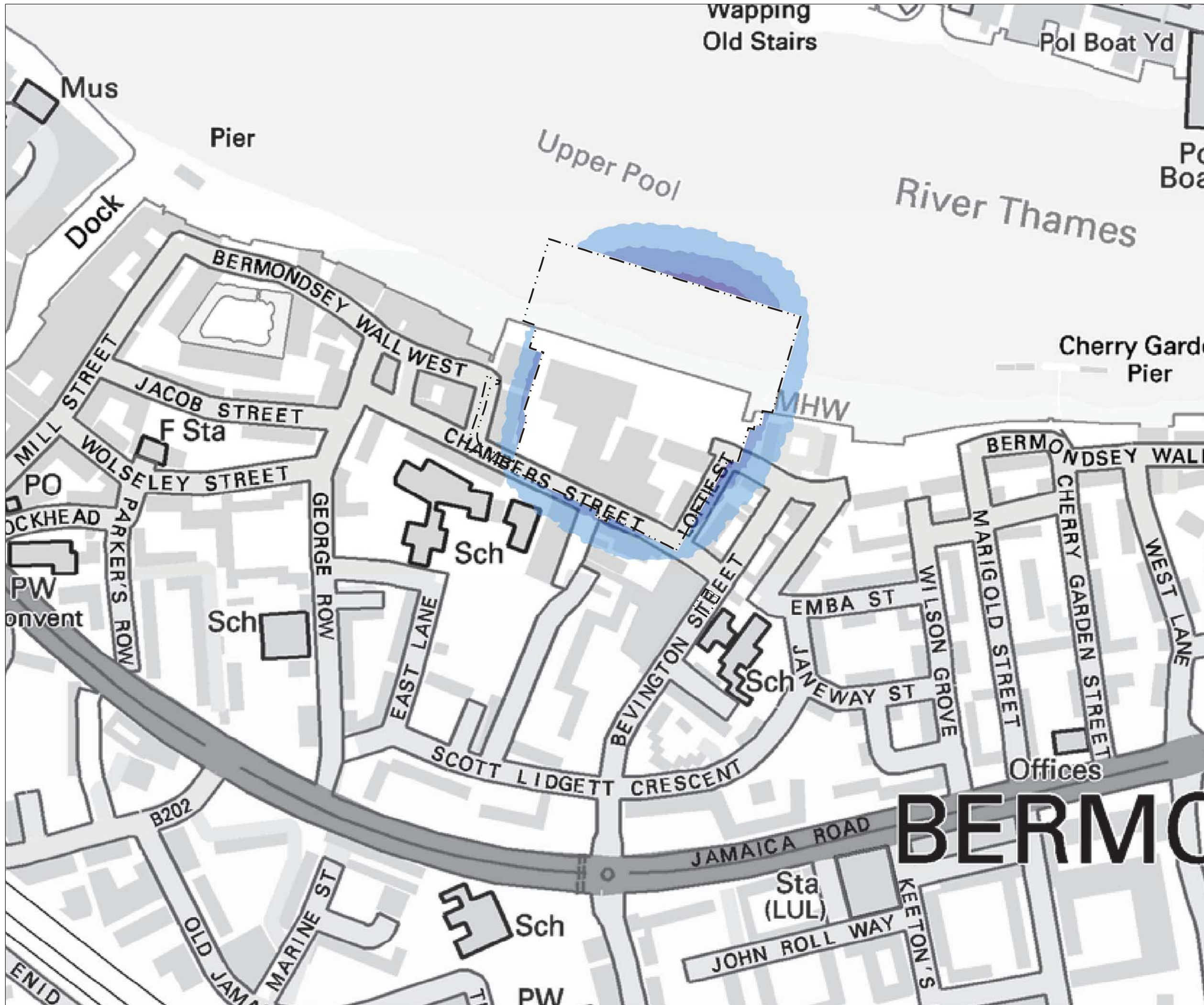


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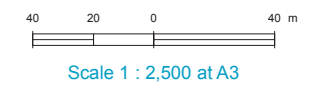
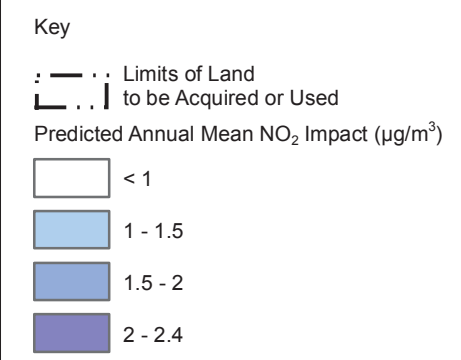
Location
Chambers Wharf
 London Borough of Southwark

Document Information
Environmental Statement
 Air quality and odour - annual mean NO₂ for peak construction year development case Vol.20 Figure 4.5.3
 1PL03-AQ-10843
 January 2013





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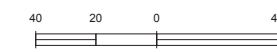
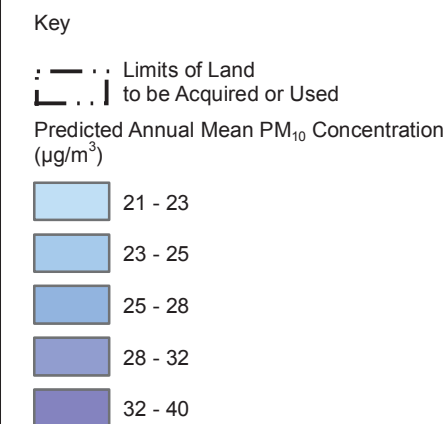
FOR INFORMATION

Location
Chambers Wharf
 London Borough of Southwark

Document Information
Environmental Statement
 Air quality and odour - annual mean NO₂ impact for peak construction year
 Vol.20 Figure 4.5.4
 1PL03-AQ-10844
 January 2013



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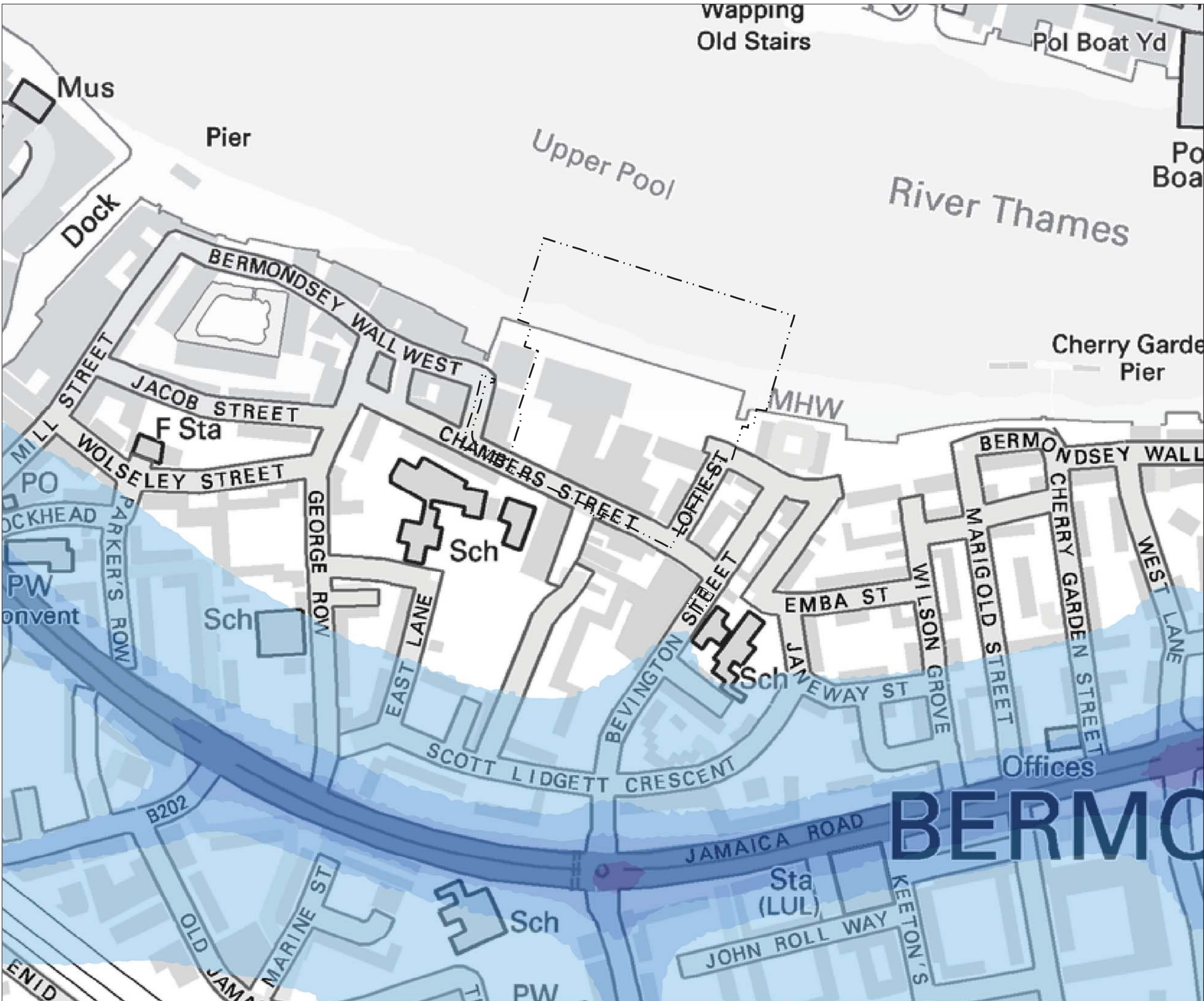
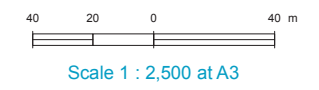
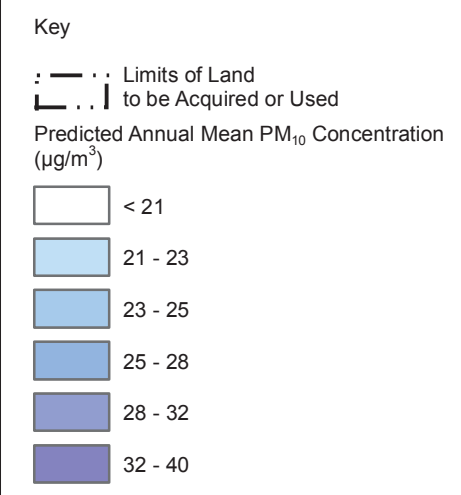
Location
Chambers Wharf
 London Borough of Southwark

Document Information
Environmental Statement

Air quality and odour - annual mean PM₁₀ for 2010 baseline
 Vol.20 Figure 4.5.5
 1PL03-AQ-10845
 January 2013



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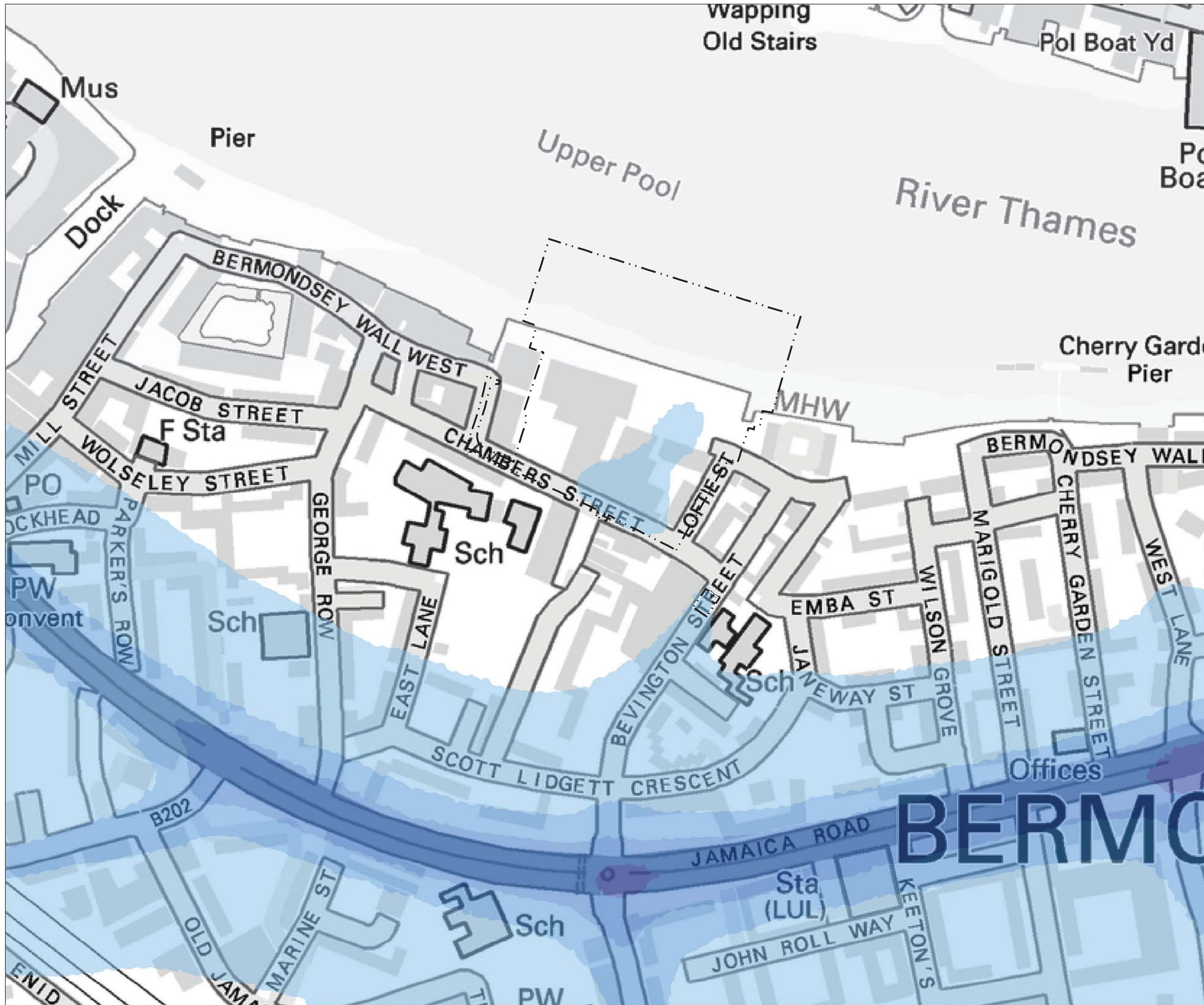


FOR INFORMATION

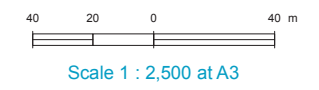
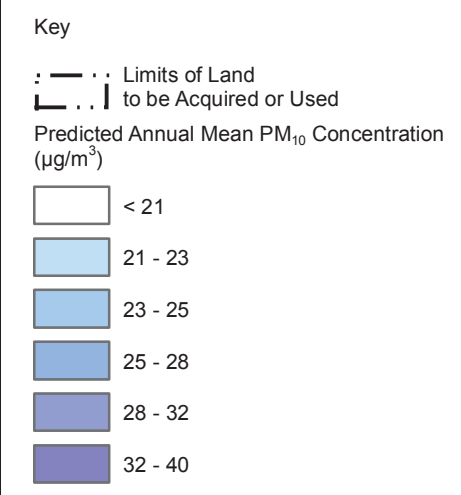
Location
Chambers Wharf
 London Borough of Southwark

Document Information
Environmental Statement
 Air quality and odour - annual mean PM₁₀ for peak construction year base case
 Vol.20 Figure 4.5.6
 1PL03-AQ-10846
 January 2013





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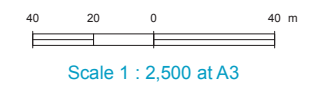
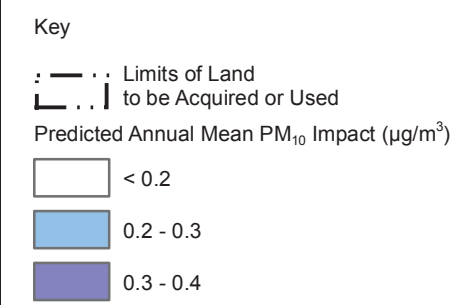
Location
Chambers Wharf
 London Borough of Southwark

Document Information
Environmental Statement
 Air quality and odour - annual mean PM₁₀ for peak construction year development case Vol.20 Figure 4.5.7
 1PL03-AQ-10847
 January 2013





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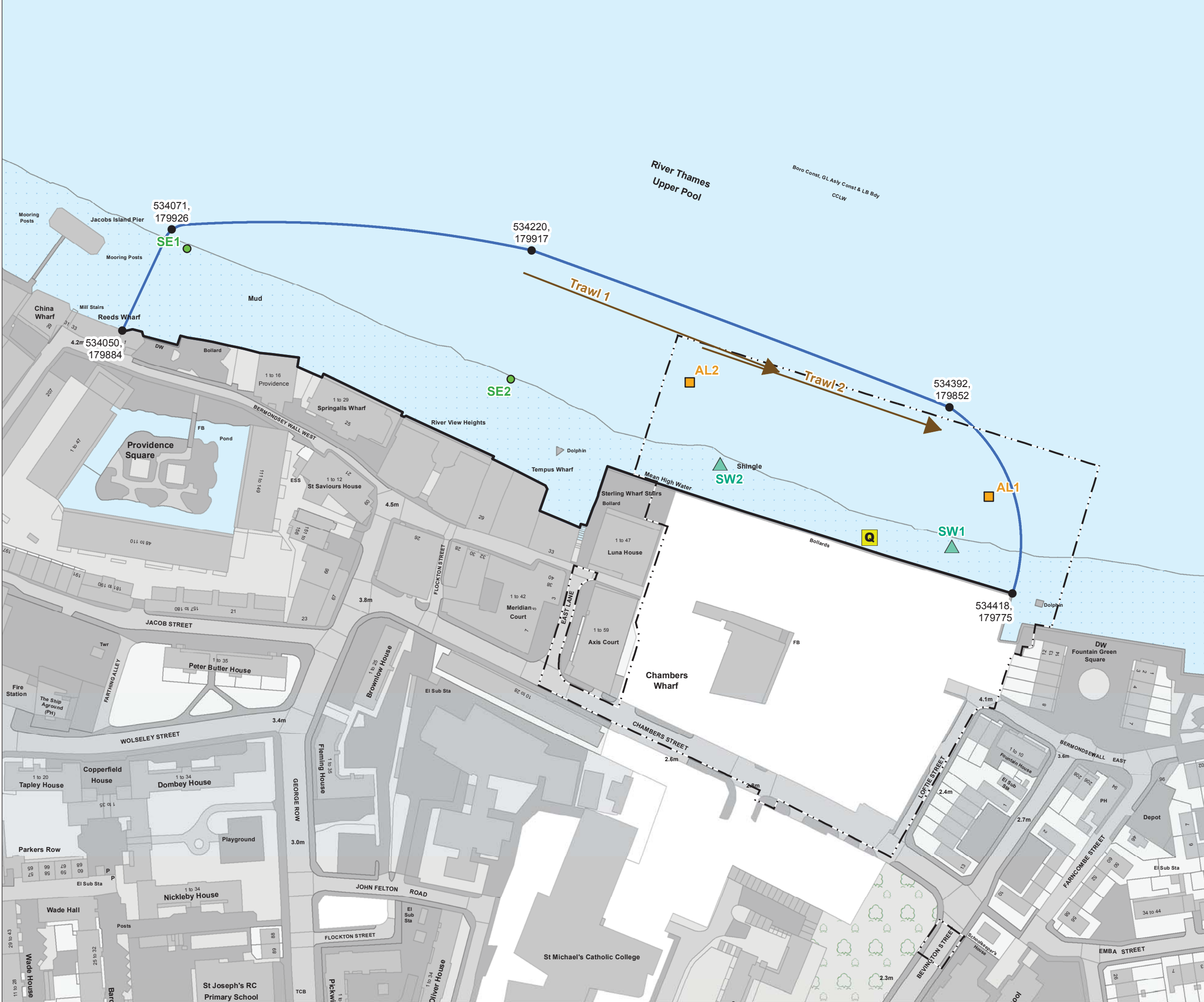
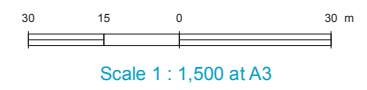
Location
Chambers Wharf
 London Borough of Southwark

Document Information
Environmental Statement
 Air quality and odour - annual mean PM₁₀ impact for peak construction year
 Vol.20 Figure 4.5.8
 1PL03-AQ-10848
 January 2013





- Key**
- Limits of Land to be Acquired or Used
 - ▭ Sampling Area for Fish and Benthic Invertebrates
 - Coordinates of Sampling Area
 - River Wall
 - Fish**
 - Seine Netting
 - ➔ Boat Fish Trawl
 - Invertebrates**
 - ▭ Airlift
 - Ⓚ Quadrat
 - ▲ Sweep/Kick Sample



FOR INFORMATION

Location
Chambers Wharf
 London Borough of Southwark

Document Information
Environmental Statement
 Aquatic ecology - habitats and sampling locations
 Vol.20 Figure 5.4.1
 1PL03-AE-20085
 January 2013



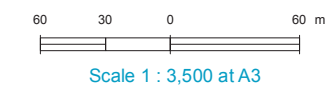


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- Key
- Limits of Land
 - to be Acquired or Used
 - 250m from Site
 - Local Authority Boundary
- Sites of Importance for Nature Conservation (SINC)
- Metropolitan Importance
 - Borough Importance
 - Local Importance

Note:
Aerial Imagery taken in 2010, before assessment.



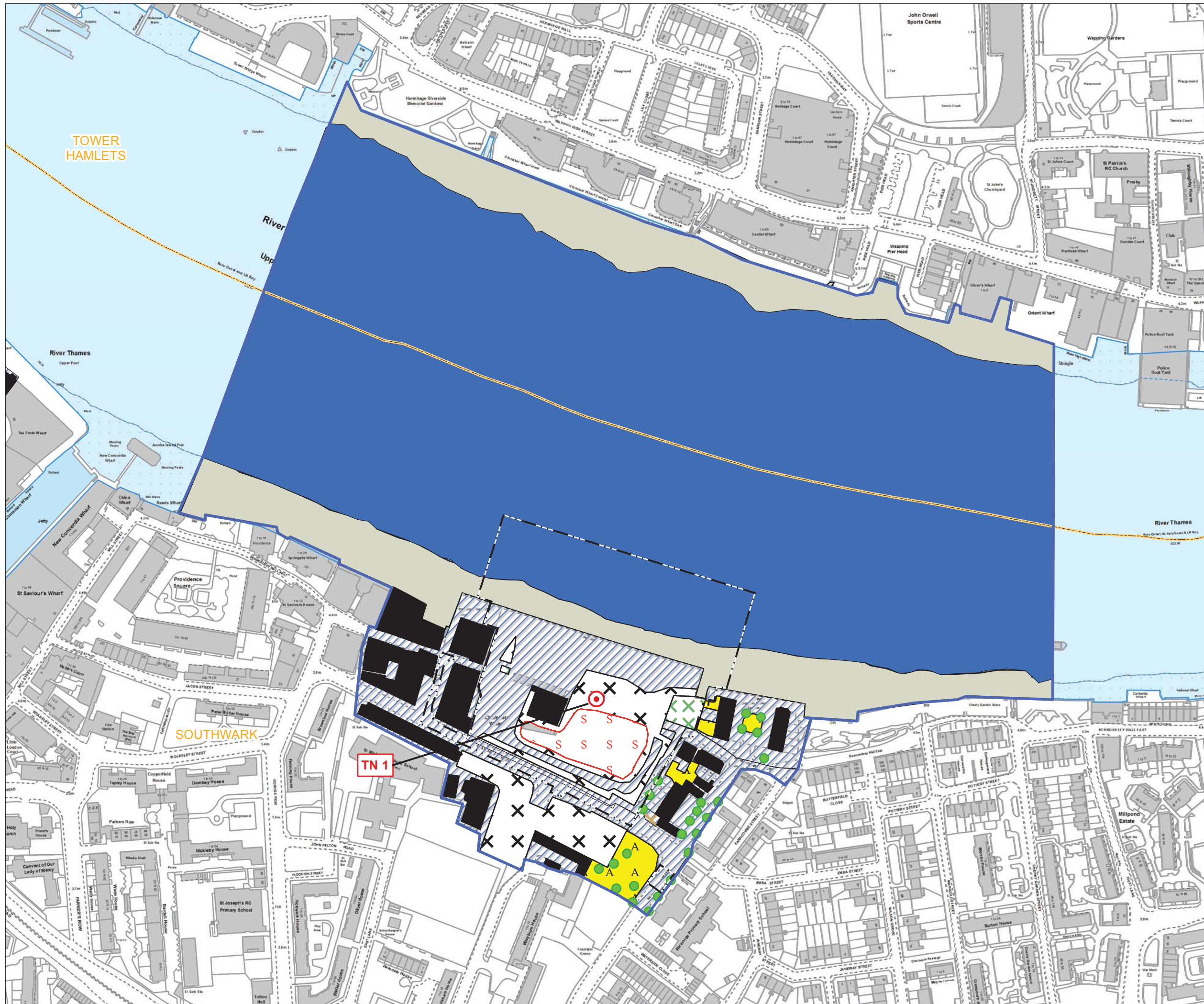
FOR INFORMATION

Location
Chambers Wharf
London Borough of Southwark

Document Information
Environmental Statement
Terrestrial ecology - designated sites

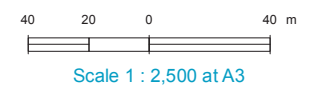
Vol. 20 Figure 6.4.1
1PL03-TE-40122
January 2013





- Key**
- Limits of Land to be Acquired or Used
 - Survey Area
 - Local Authority Boundary
 - Artificial - Spoil
 - Built-Up Areas - Buildings
 - Cultivated/Disturbed Land - Amenity Grassland
 - Cultivated/Disturbed Land - Introduced Shrub
 - Cultivated/Disturbed Land - Ephemeral/Short Perennial
 - Scrub - Scattered
 - Hard Standing
 - Intertidal - Mud/Sand
 - Running Water
 - Target Note
 - Scattered Trees

Note: Spoil pile removed during Summer 2012



FOR INFORMATION

Location
Chambers Wharf
 London Borough of Southwark

Document Information
Environmental Statement
 Terrestrial ecology – Phase 1 Habitat Survey

Vol. 20 Figure 6.4.2
 1PL03-TE-40180
 January 2013

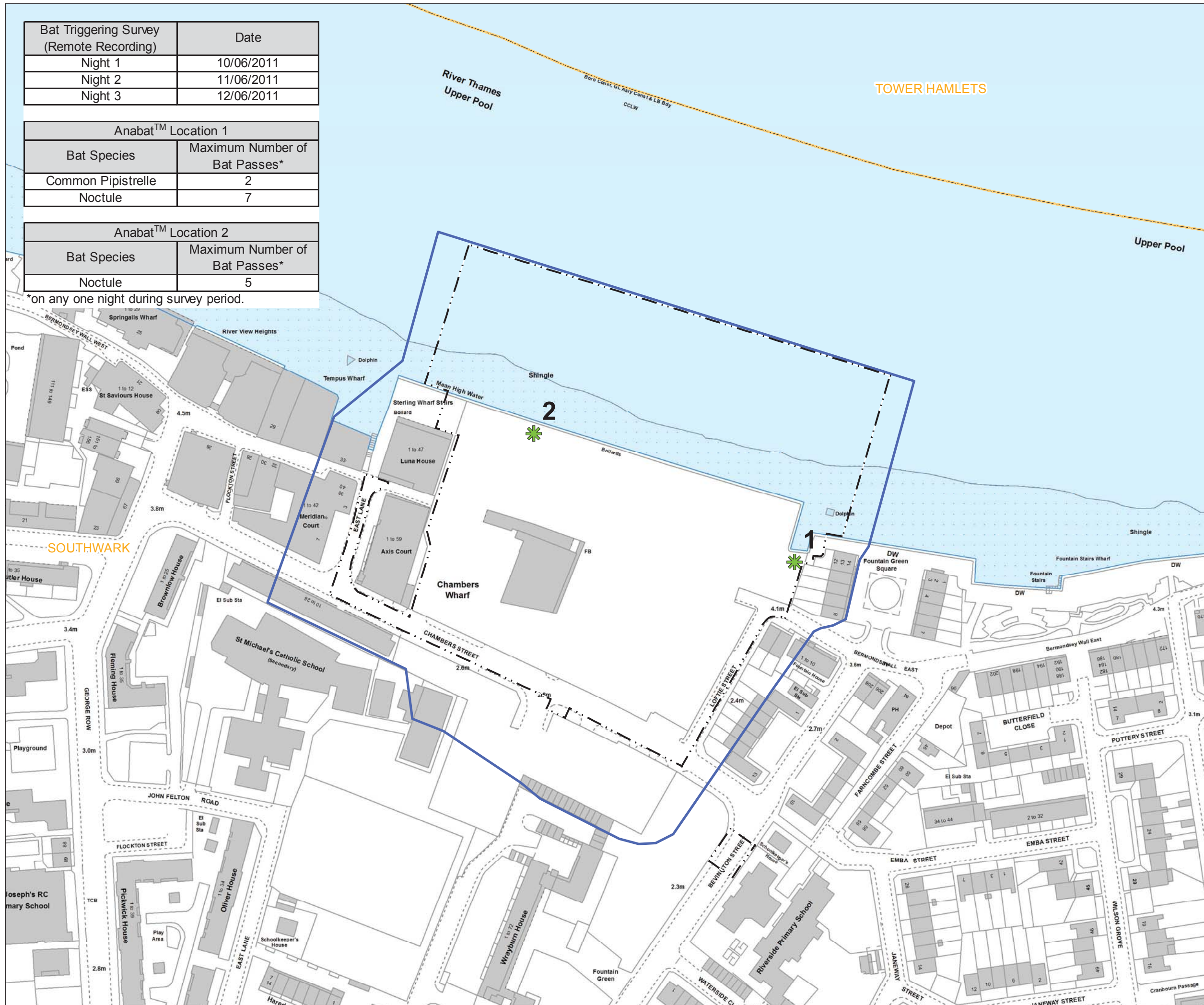


Bat Triggering Survey (Remote Recording)	Date
Night 1	10/06/2011
Night 2	11/06/2011
Night 3	12/06/2011

Anabat™ Location 1	
Bat Species	Maximum Number of Bat Passes*
Common Pipistrelle	2
Noctule	7

Anabat™ Location 2	
Bat Species	Maximum Number of Bat Passes*
Noctule	5

*on any one night during survey period.



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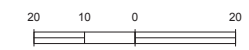
- Key
- Limits of Land to be Acquired or Used
 - Survey Area
 - Local Authority Boundary

Bat Triggering Survey (Remote Recording)

Anabat™ Location (1-2)

Activity Survey (Dawn at 04:53 on 08/07/2011)

Note:
No bats recorded during activity survey.



Scale 1 : 1,500 at A3

FOR INFORMATION

Location
Chambers Wharf
London Borough of Southwark

Document Information
Environmental Statement
Terrestrial ecology – bat triggering (remote recording) and bat activity survey
Vol. 20 Figure 6.4.3

1PL03-TE-40195
January 2013

Thames Tideway Tunnel
Creating a cleaner, healthier River Thames

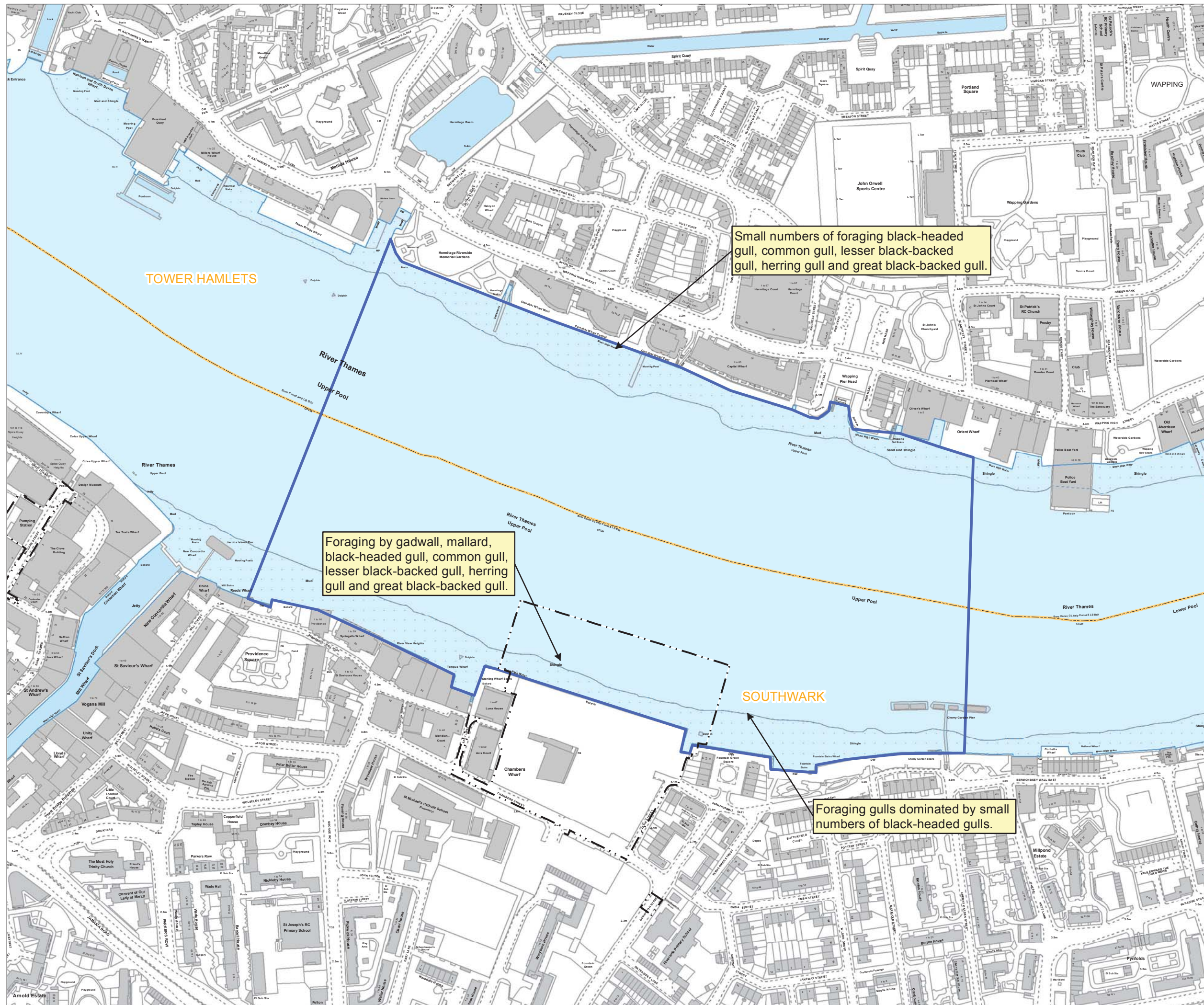


Keyplan:



Key

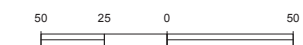
- Limits of Land to be Acquired or Used
- Survey Area
- Local Authority Boundary



Small numbers of foraging black-headed gull, common gull, lesser black-backed gull, herring gull and great black-backed gull.

Foraging by gadwall, mallard, black-headed gull, common gull, lesser black-backed gull, herring gull and great black-backed gull.

Foraging gulls dominated by small numbers of black-headed gulls.



Scale 1 : 3,000 at A3

FOR INFORMATION

Location

Chambers Wharf
London Borough of Southwark

Document Information

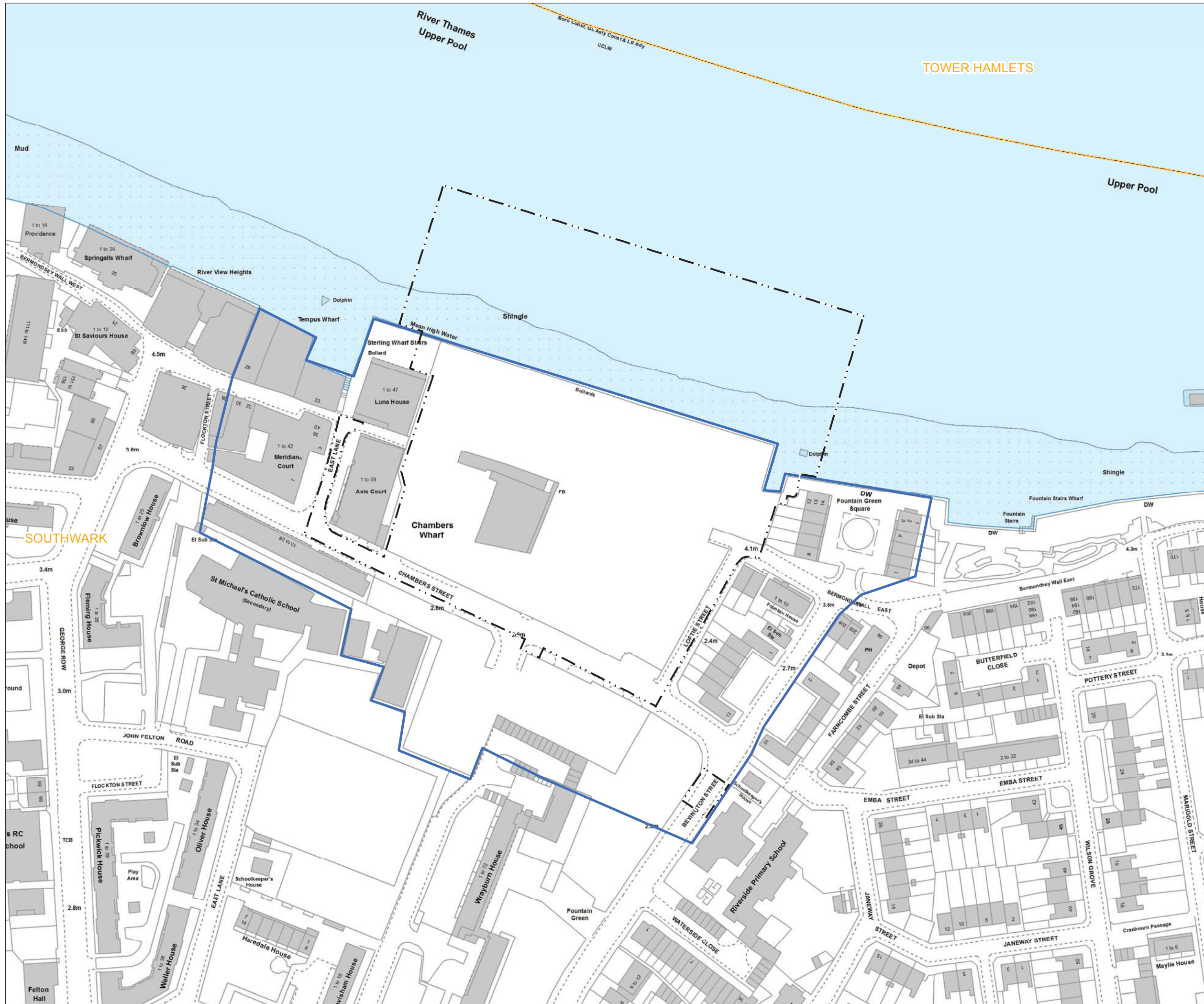
Environmental Statement

Terrestrial ecology – wintering birds survey

Vol. 20 Figure 6.4.4

1PL03-TE-40067

January 2013

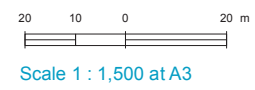


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- Key
- - - Limits of Land
 - to be Acquired or Used
 - ▭ Survey Area
 - ▭ Local Authority Boundary

Note:
No field signs recorded during survey.



FOR INFORMATION

Location
Chambers Wharf
London Borough of Southwark

Document Information
Environmental Statement
Terrestrial ecology – black redstart survey

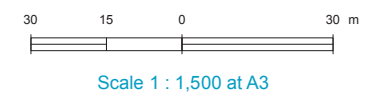
Vol. 20 Figure 6.4.5
1PL03-TE-40053
January 2013





- Key**
- Limits of Land to be Acquired or Used
 - Survey Area
 - Local Authority Boundary
 - Japanese Knotweed *Fallopia Japonica*

Note:
Invasive plants shown are those listed on Schedule 9 of the Wildlife and Countryside Act 1981

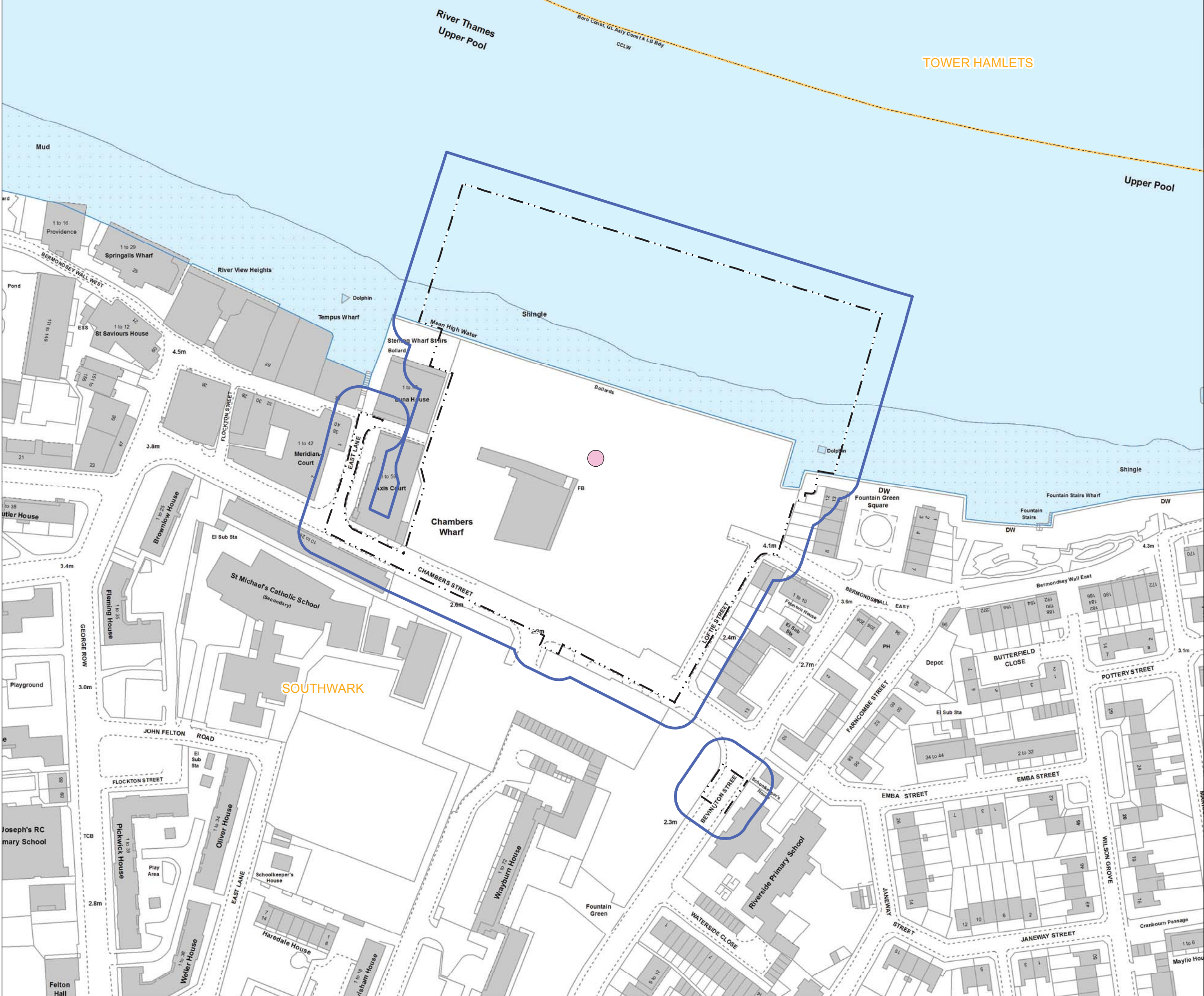


FOR INFORMATION

Location
Chambers Wharf
London Borough of Southwark

Document Information
Environmental Statement
Terrestrial ecology - invasive plant survey

Vol. 20 Figure 6.4.6
1PL03-TE-40207
January 2013

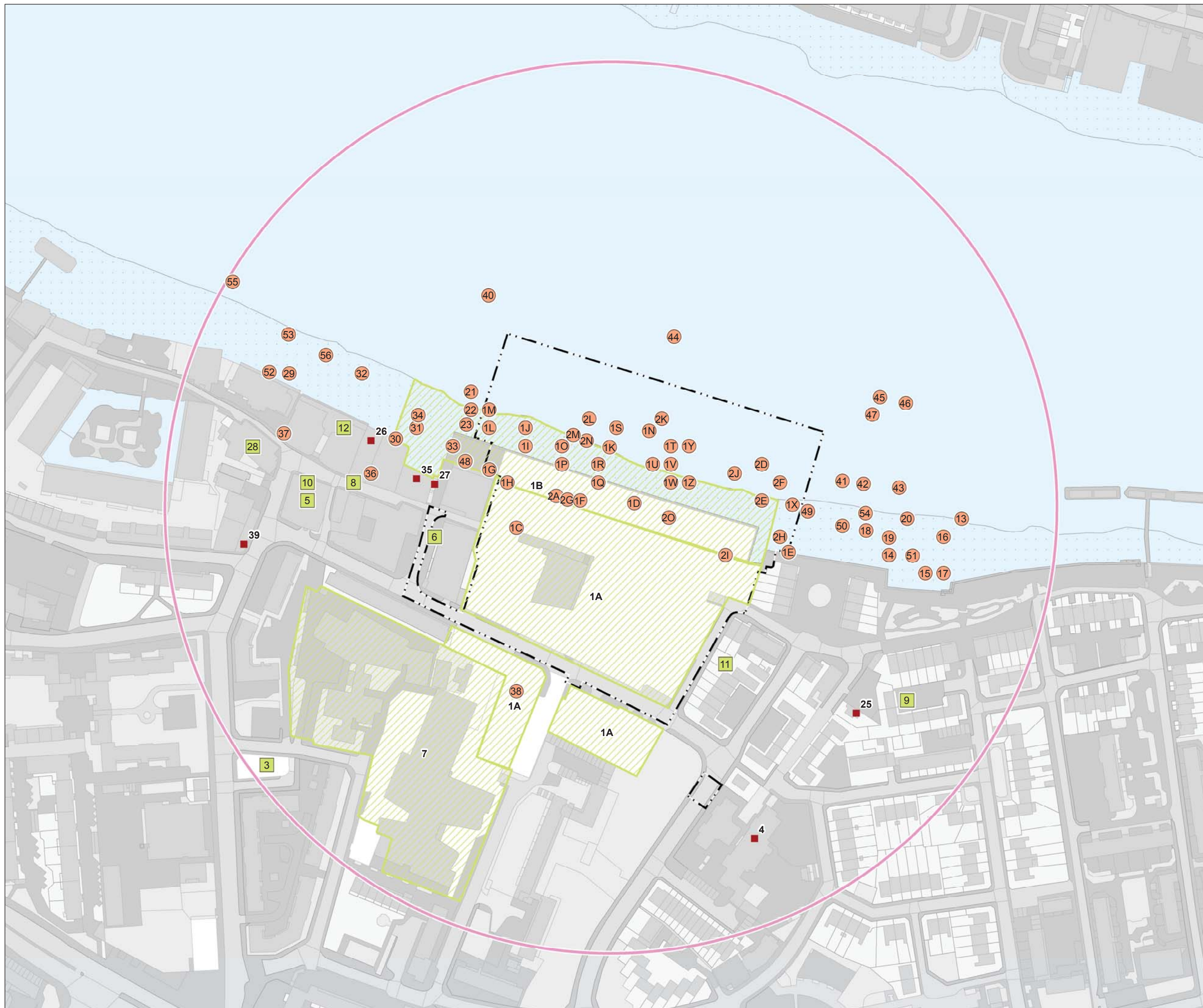


Keyplan:



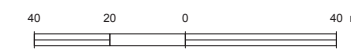
Key

- Limits of Land to be Acquired or Used
- Assessment Area
- Heritage Feature/Findspot
- Past Archaeological Investigation
- Statutorily Listed Building
- Past Archaeological Investigation



The reference numbers for historic environment features correspond to the descriptions in the 'Gazetteer of known heritage assets' in Environmental Statement Vol. 20 Appendix E.1

Note: Archaeological Priority Zones/ Conservation Areas not shown



Scale 1 : 2,000 at A3

FOR INFORMATION

Location

Chambers Wharf
London Borough of Southwark

Document Information

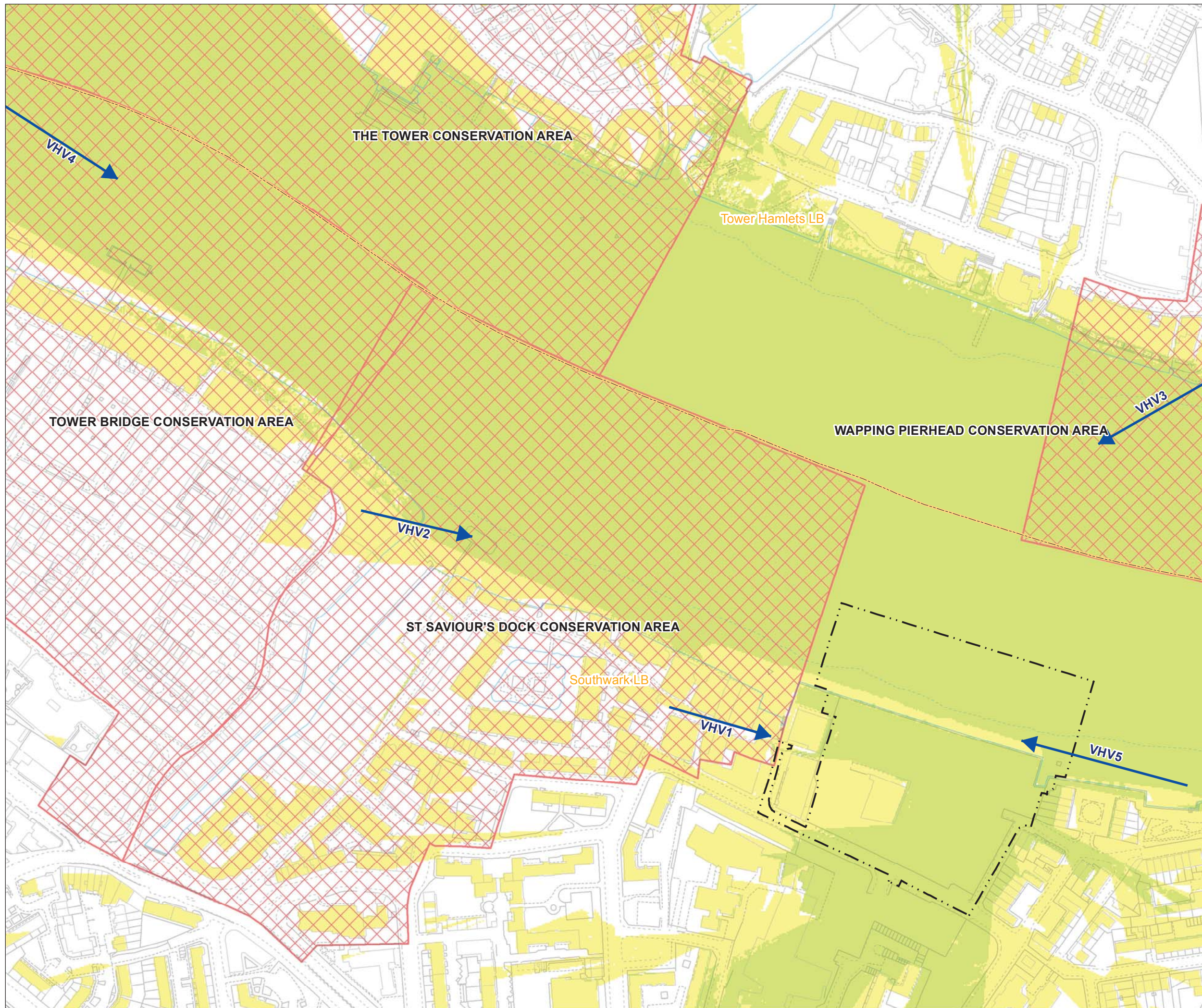
Environmental Statement

Historic environment -
historic environment features map
Vol.20 Figure 7.4.1

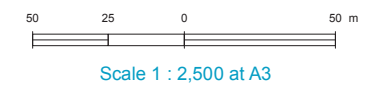
1PL03-HE-60081
January 2013



- Key
- Limits of Land to be Acquired or Used
 - Local Authority Boundary
 - Conservation Area
 - View of Heritage Value (VHV)
 - Operational phase ZTV
 - Construction phase ZTV



The reference number for historic environment features correspond to the descriptions in the 'Gazetteer of known heritage assets' in Environmental Statement Vol. 20 Appendix E.1

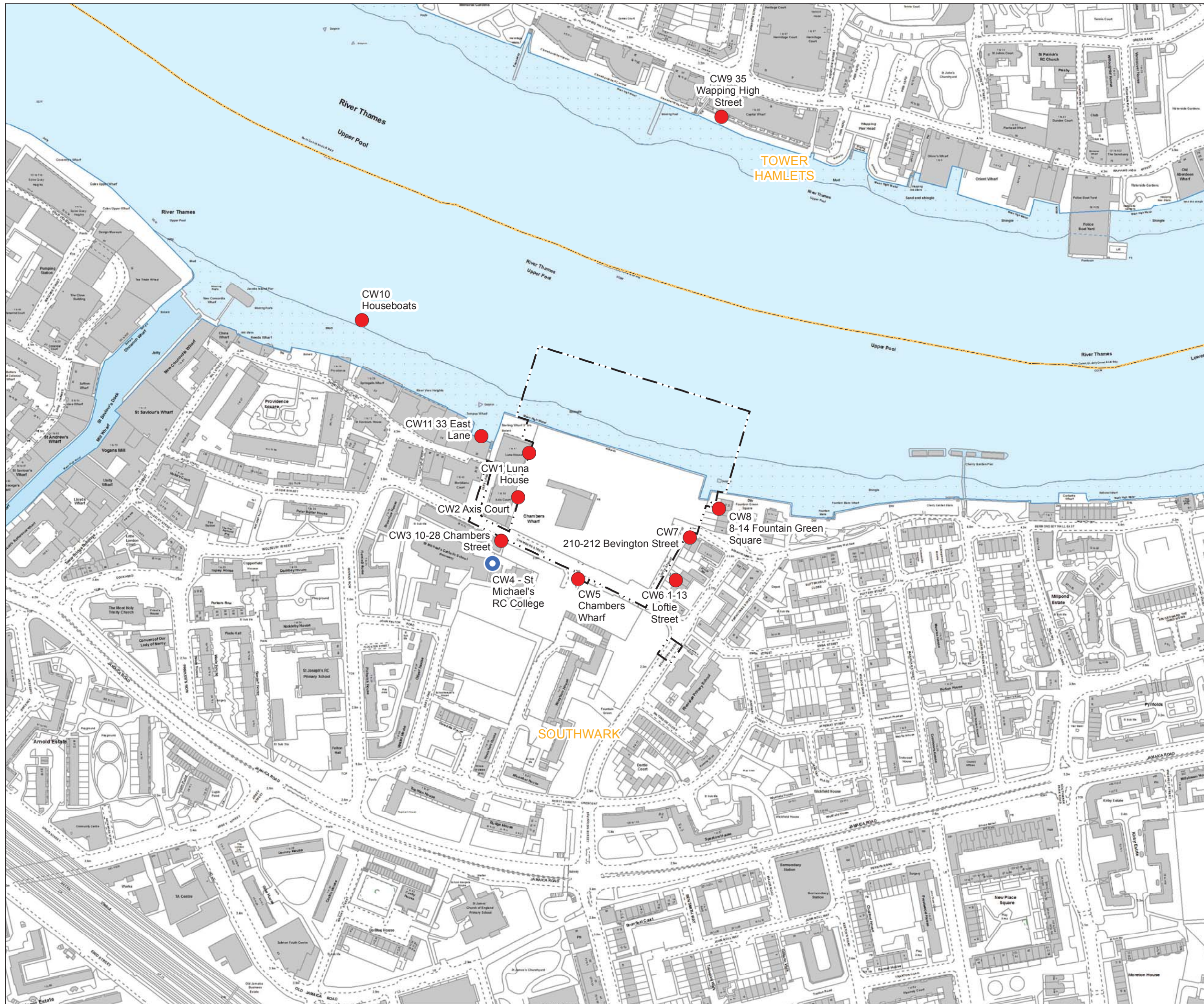


FOR INFORMATION

Location
Chambers Wharf
London Borough of Southwark

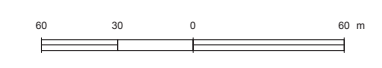
Document Information
Environmental Statement
Historic environment - historic character and setting of heritage assets
Vol. 20 Figure 7.4.2
1PL03-HE-65205
January 2013





- Key**
- Limits of Land to be Acquired or Used
 - Local Authority Boundary
- Representative Receptor Locations:**
- Residential
 - Non-Residential

Note:
The receptors are selected on the basis that they are representative of sensitive land uses closest to the site.



Scale 1 : 3,000 at A3

FOR INFORMATION

Location
Chambers Wharf
London Borough of Southwark

Document Information
Environmental Statement
Noise and vibration - receptor locations

Vol.20 Figure 9.4.1
1PL03-NV-40130
January 2013

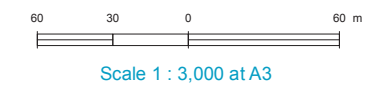
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- Key**
- Limits of Land to be Acquired or Used
 - Thames Path
 - National Cycle Route 4
 - Receptors and Site Context Features

- Receptors and Site Context Features**
1. St Joseph's RC Primary School
 2. Cherry Gardens
 3. Amenity Green Space, Wrayburn House
 4. St Michael's RC College
 5. Riverside Primary School

Note: Residential receptors have been identified on land use plans for this site.

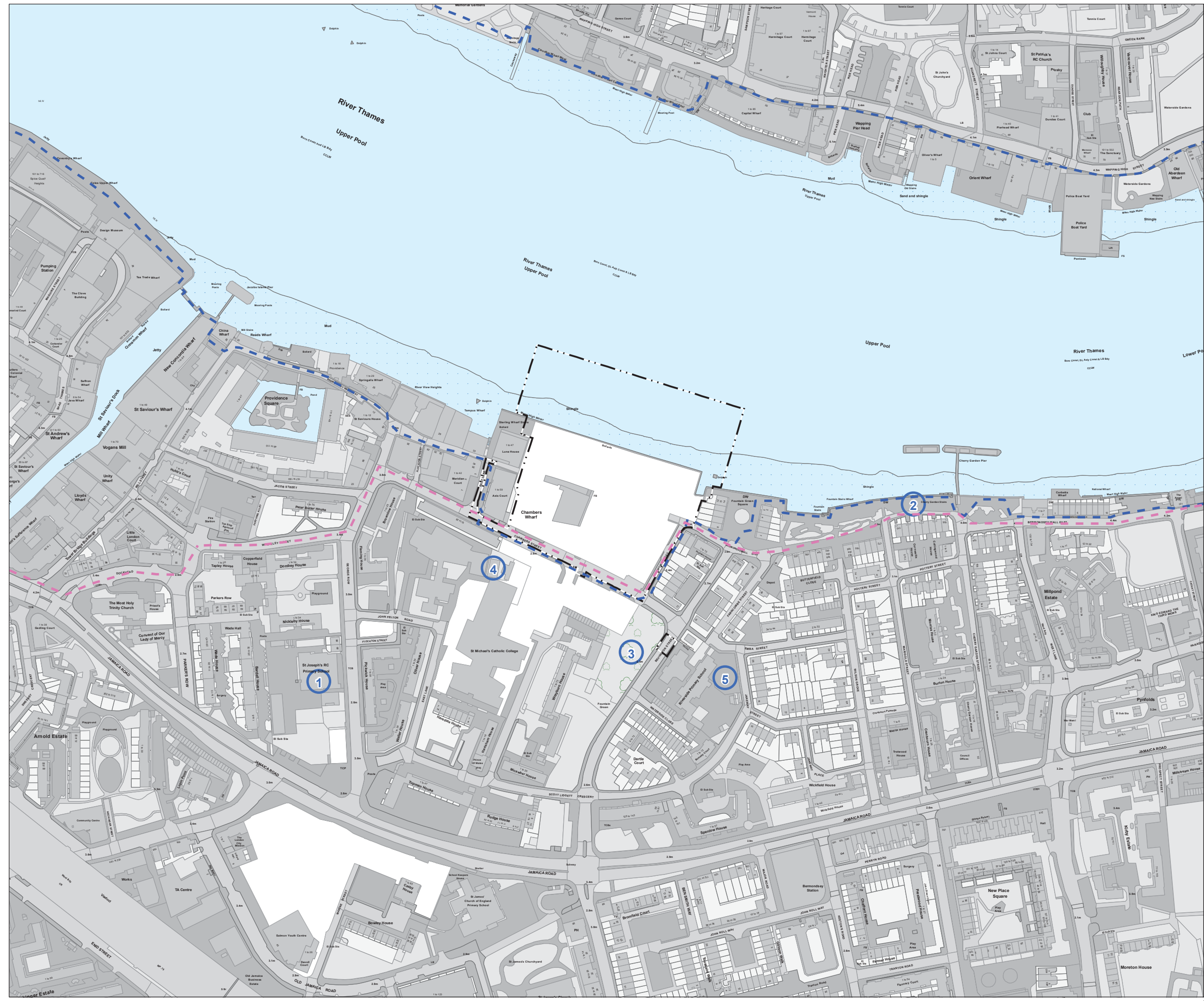


FOR INFORMATION

Location
Chambers Wharf
 London Borough of Southwark

Document Information
Environmental Statement
 Socio-economics - context plan

Vol.20 Figure 10.4.1
 1PL03-SE-20041
 January 2013

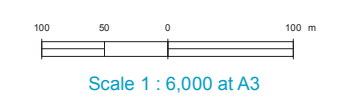


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- Key:**
- Limits of Land
 - to be Acquired or Used
 - Local Authority boundary
 - Extents of construction phase townscape assessment area
 - Extents of operational phase townscape assessment area
 - River Thames and tidal tributaries

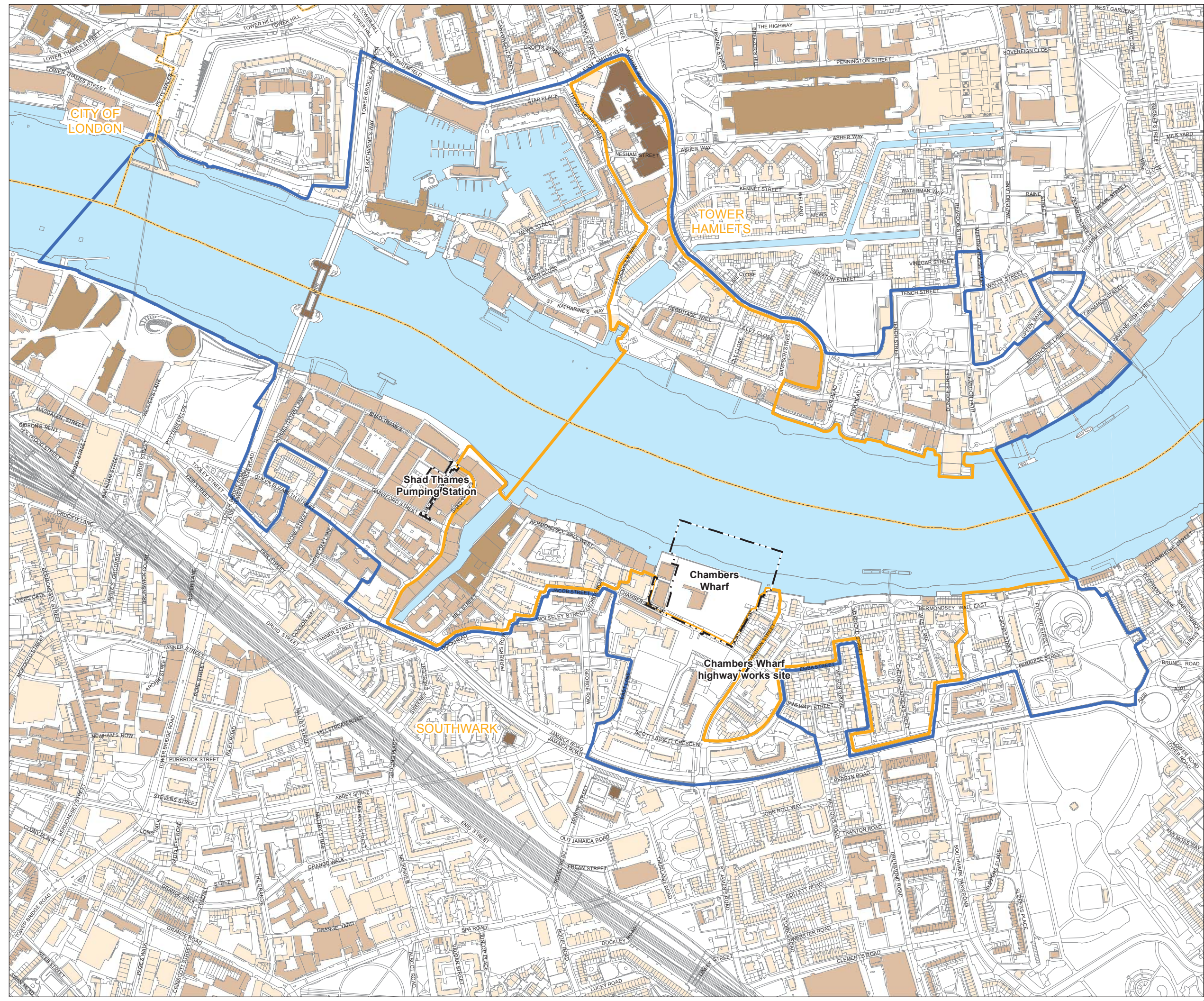
- Building heights**
- 0 - 20m
 - 20 - 40m
 - 40 - 60m
 - 60 - 80m
 - 80 - 100m
 - >100m



FOR INFORMATION

Location
Chambers Wharf
 London Borough of Southwark

Document Information
Environmental Statement
 Townscape and visual
 Development pattern and scale
 Vol. 20 Figure 11.4.1
 1PL03-TS-40480
 January 2013

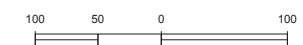




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- Key:
- Limits of Land to be Acquired or Used
 - Local Authority boundary
 - Extents of construction phase townscape assessment area
 - Extents of operational phase townscape assessment area



Scale 1 : 6,000 at A3

FOR INFORMATION

Location
Chambers Wharf
 London Borough of Southwark

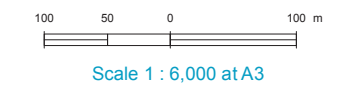
Document Information
Environmental Statement
 Townscape and visual
 Aerial photo showing pattern of vegetation
 Vol. 20 Figure 11.4.2

1PL03-TS-40481
 January 2013





- Key:**
- Limits of Land to be Acquired or Used
 - Local Authority boundary
 - Extents of construction phase townscape assessment area
 - Extents of operational phase townscape assessment area
 - Metropolitan Open Land
 - Public open space
 - River Thames and tidal tributaries

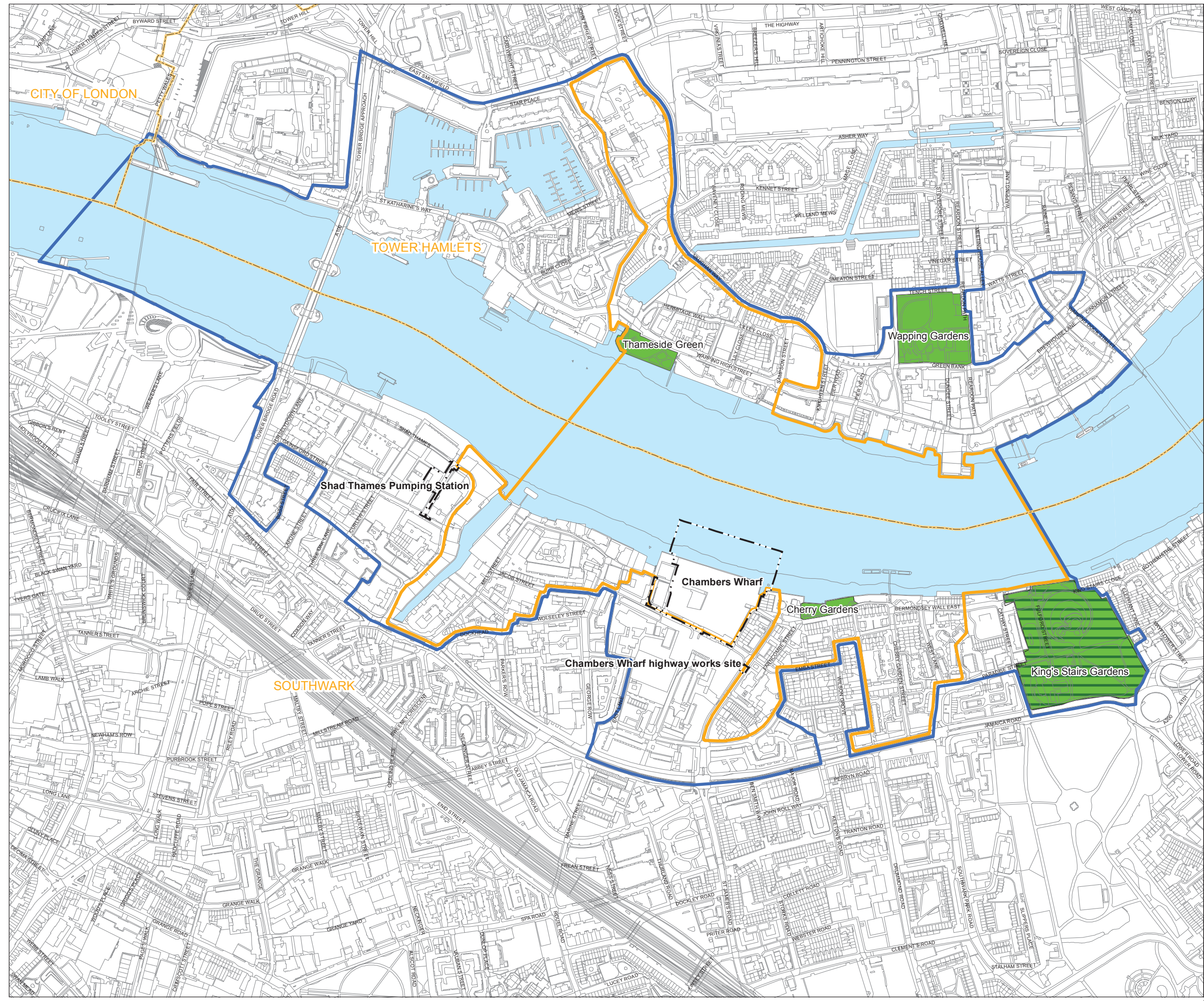


FOR INFORMATION

Location
Chambers Wharf
 London Borough of Southwark

Document Information
Environmental Statement

Townscape and visual
 Open spaces
 Vol. 20 Figure 11.4.3
 1PL03-TS-40482
 January 2013



Keyplan:



Key:

- Limits of Land to be Acquired or Used
- Local Authority boundary
- Extents of construction phase townscape assessment area
- Extents of operational phase townscape assessment area
- London Overground
- London Underground
- Thames Path
- Provision for cyclists alongside busy roads
- London cycle routes
- Rail
- A roads
- River Thames and tidal tributaries

100 50 0 100 m

Scale 1 : 6,000 at A3

FOR INFORMATION

Location

Chambers Wharf
London Borough of Southwark

Document Information

Environmental Statement

Townscape and visual
Transport routes

Vol. 20 Figure 11.4.4

1PL03-TS-40483

January 2013

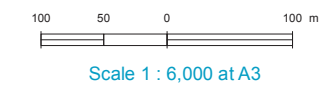
Thames Tideway Tunnel
Creating a cleaner, healthier River Thames





- Key:**
- Limits of Land
 - to be Acquired or Used
 - Local Authority boundary
 - Extents of construction phase townscape assessment area
 - Extents of operational phase townscape assessment area
 - Conservation areas

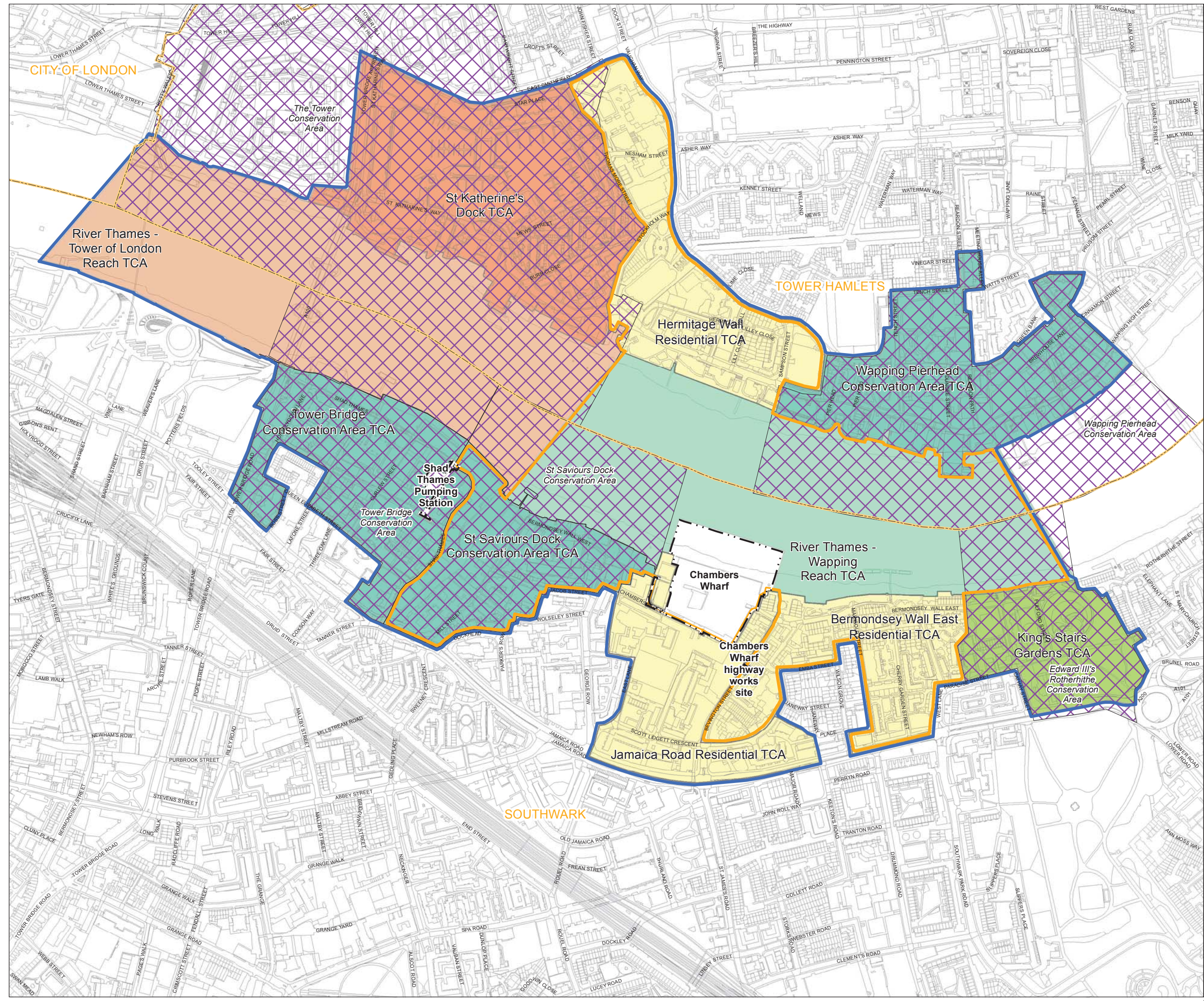
The colour fills shown on the plan are used to differentiate between townscape character areas



FOR INFORMATION

Location
Chambers Wharf
 London Borough of Southwark

Document Information
Environmental Statement
 Townscape and visual
 Townscape character areas
 Vol. 20 Figure 11.4.5
 1PL03-TS-40484
 January 2013

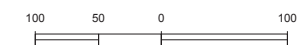


Keyplan:



Key:
The zone of theoretical visibility (ZTV) is a computer generated model which indicates the theoretical visibility of the construction works (including cranes) and operational structures. As described in Volume 2 the ZTV is a starting point for defining the assessment area and for informing the assessment of likely significant effects. Theoretical visibility does not necessarily mean a location would be subject to adverse effects.

- Limits of Land to be Acquired or Used
- Local Authority boundary
- Visual assessment points
- ↗ Verifiable photomontage locations
- London View Management Framework (LVMF) London Panorama
- Construction phase ZTV
- Operational phase ZTV
- River Thames and tidal tributaries



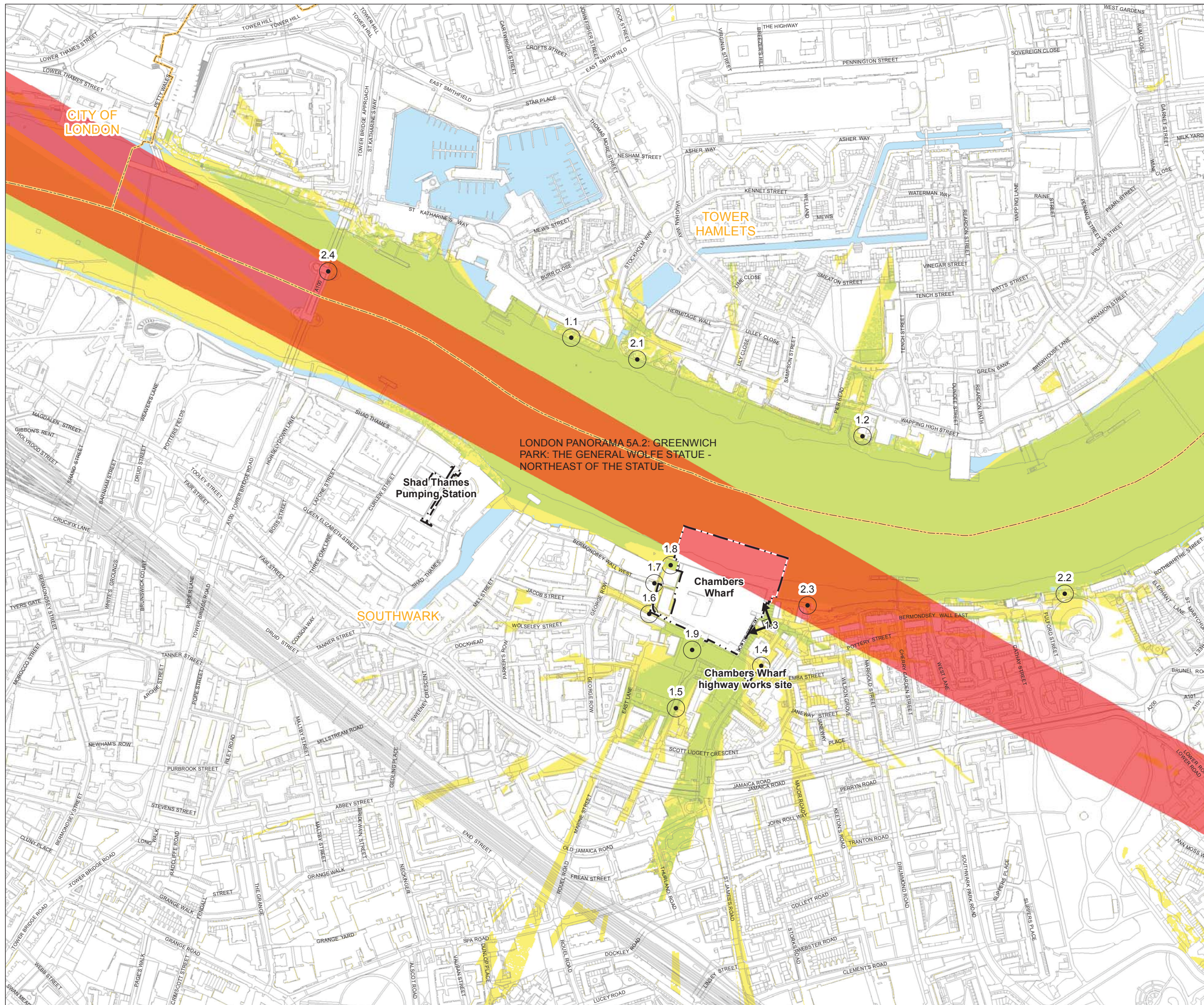
Scale 1 : 6,000 at A3

FOR INFORMATION

Location
Chambers Wharf
London Borough of Southwark

Document Information
Environmental Statement

Townscapes and visual Viewpoints
Vol. 20 Figure 11.4.6
1PL03-TS-40485
January 2013



Current baseline

Bermondsey Wall East Road

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Keyplan:



Technical information

Location: Viewpoint 1.3: View west from residences on Fountain Green Square
 Date taken: 23 January 2012
 Time taken: 17.23
 Focal length: 35mm

This verifiable photomontage shows an illustration of how the construction site may be set up during phase 3 (tunnelling). The layout of the construction activities may change within the maximum extent of working area (see Construction phases – phase 3 tunnelling [see volume of figures - Section 1]), however the assessment of effects would be no worse than that described in the Environmental Statement Vol 20 Chambers Wharf – Section 11 Townscape and visual.

Construction phase night time verifiable photomontage



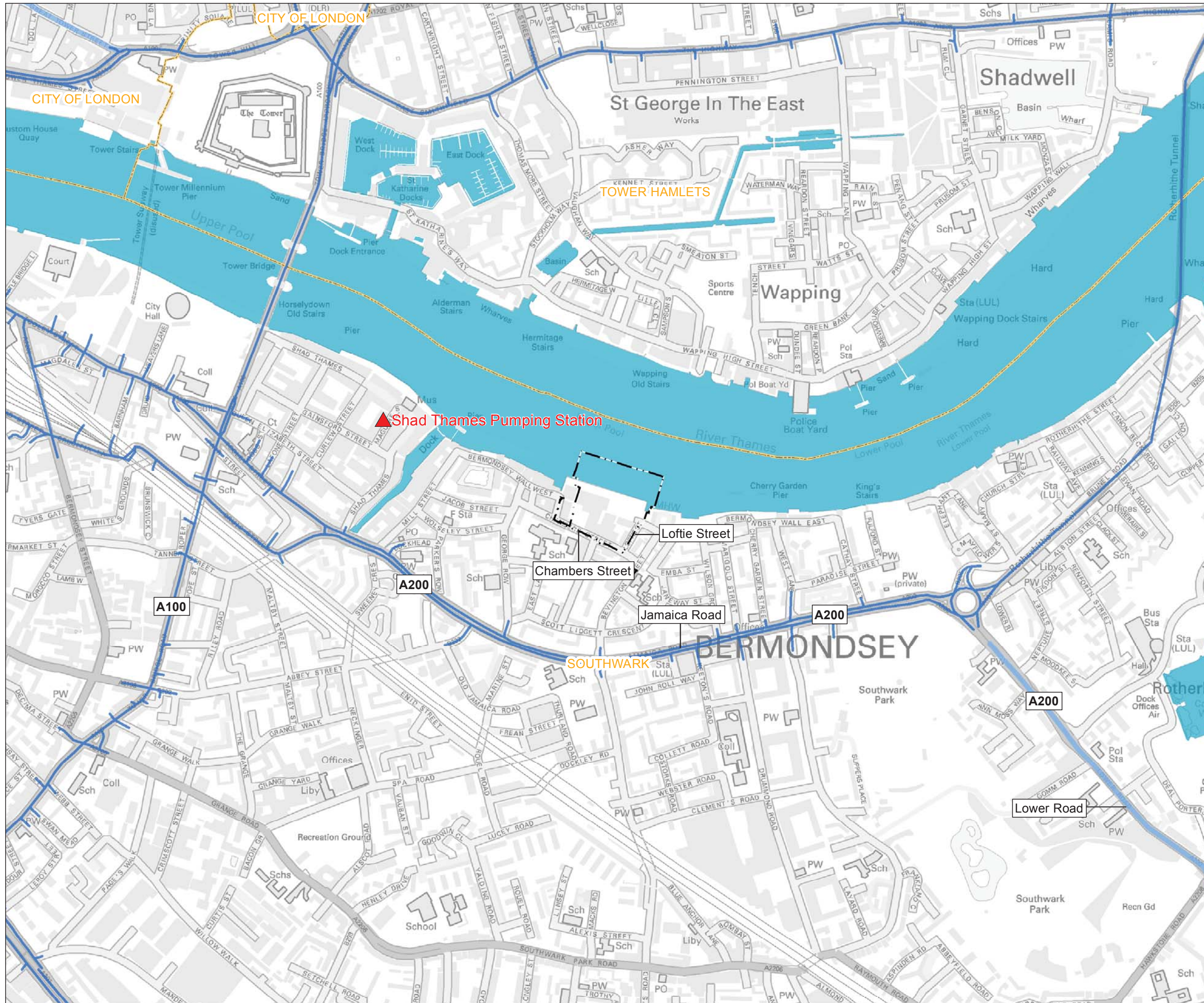
Noise shed
 Site hoardings
 Welfare and office facilities

FOR INFORMATION

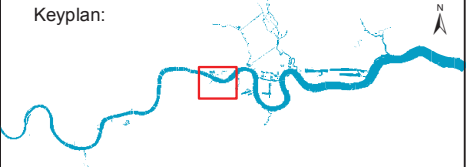
Location
Chambers Wharf
 London Borough of Southwark

Document Information
Environmental Statement
 Townscape and visual
 Viewpoint 1.3
 Construction phase verifiable photomontage
 Vol 20 Figure 11.5.1
 1PL03-TS-40486
 January 2013

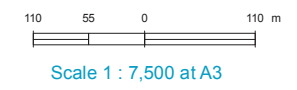




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- Key**
- Pumping station
 - TFL road network
 - Strategic road network
 - Limits of Land to be Acquired or Used
 - Local authority boundary



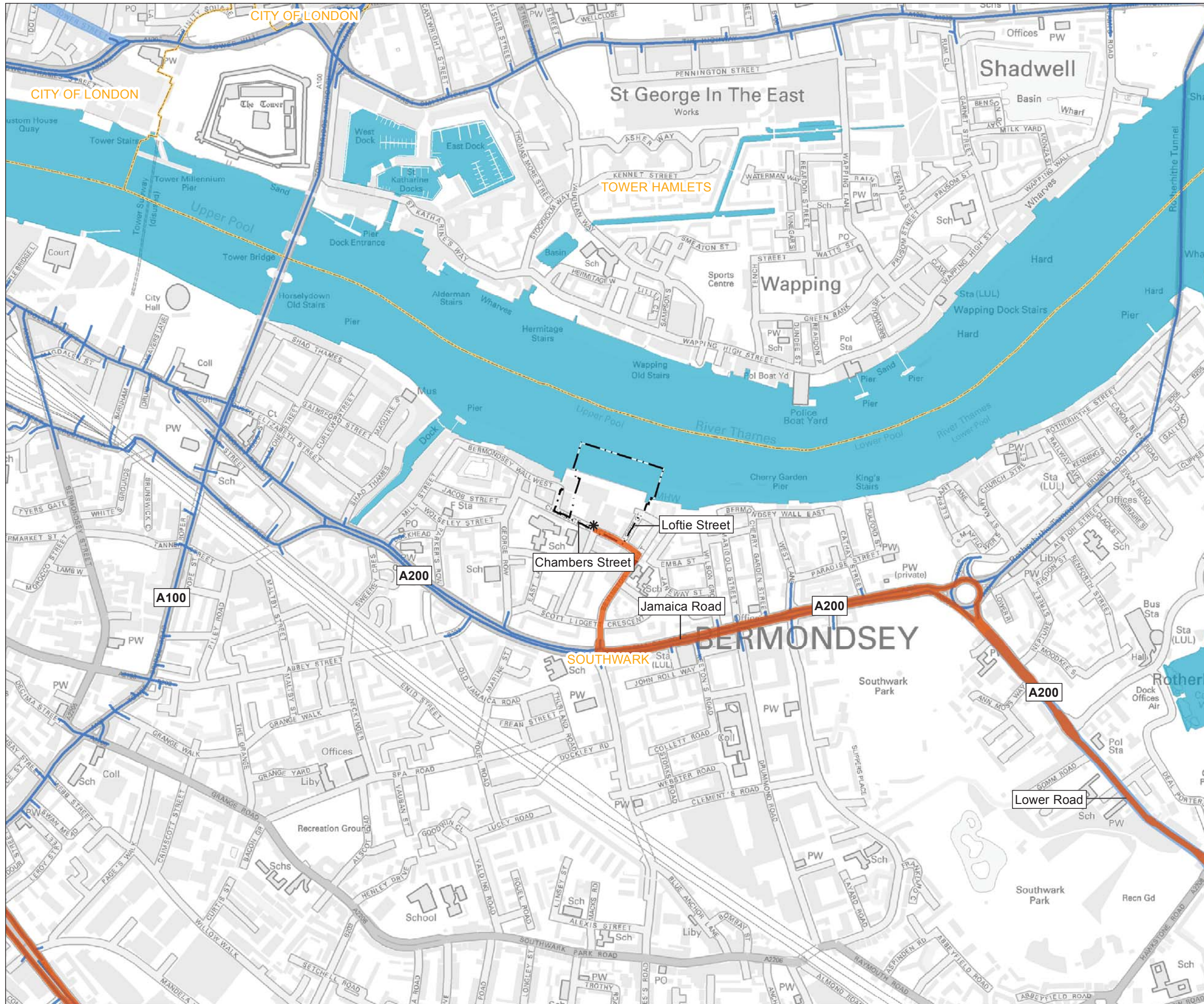
FOR INFORMATION

Location
Chambers Wharf
 London Borough of Southwark

Document Information
Environmental Statement
 Transport - site location plan

Vol.20 Figure 12.4.1
 1PL03-TT-50409
 January 2013

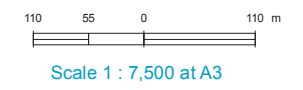




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- Key**
- * Site access
 - TFL road network
 - Strategic road network
 - Primary construction route
 - - - Limits of Land to be Acquired or Used
 - Local authority boundary



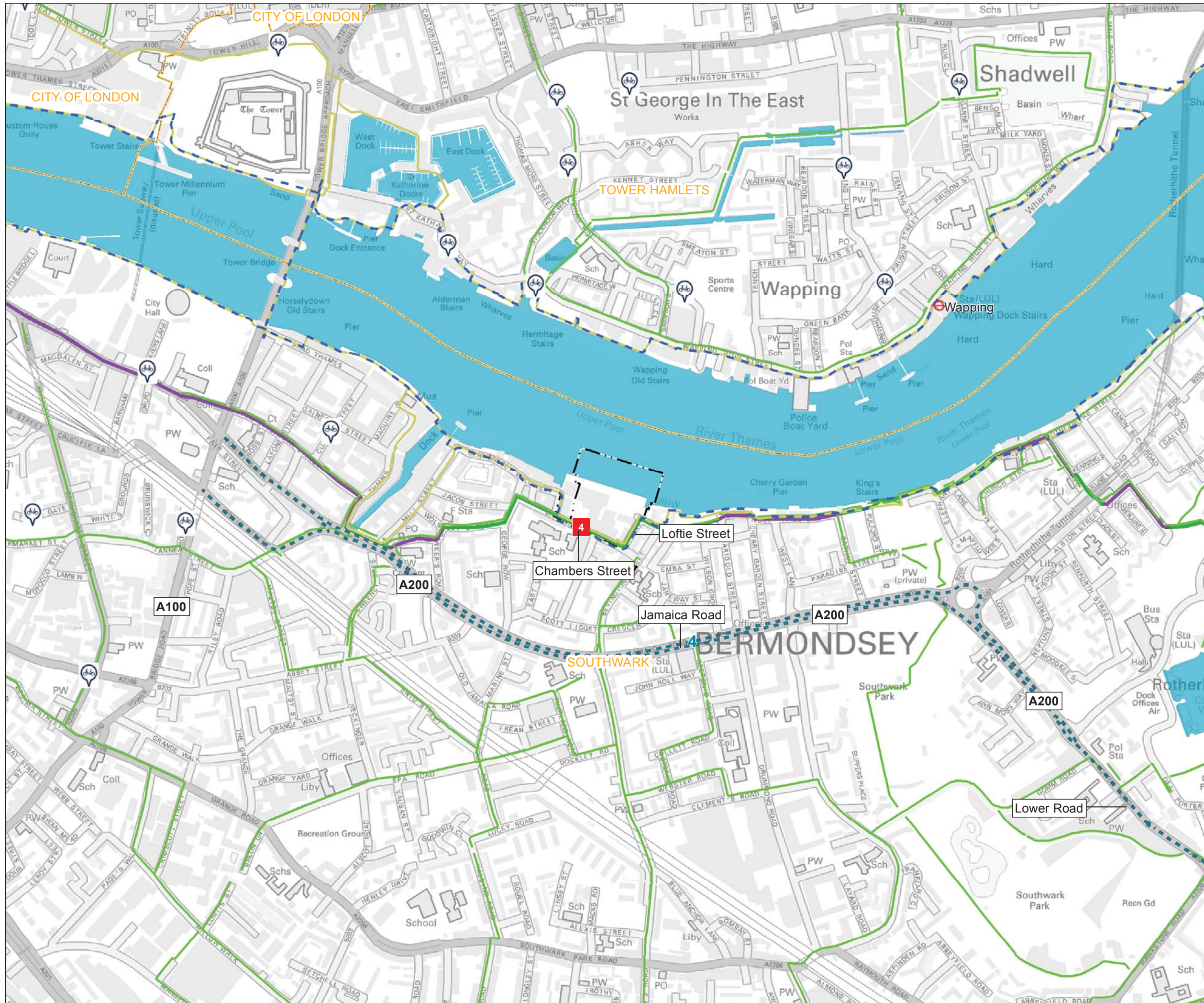
FOR INFORMATION

Location
Chambers Wharf
 London Borough of Southwark

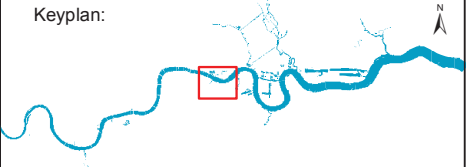
Document Information
Environmental Statement
 Transport - construction traffic routes

Vol.20 Figure 12.2.1
 1PL03-TT-50401
 January 2013

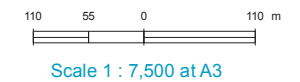




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- Key**
- Underground stations with cycle parking
 - Barclays cycle hire locations
 - Cycle superhighway (Opening 2015)
 - London cycle routes
 - London strategic walk network
 - Thames path
- National cycle network**
- Route type**
- Open Traffic Free
 - Open on-road
 - Limits of Land to be Acquired or Used
 - Local Authority Boundary



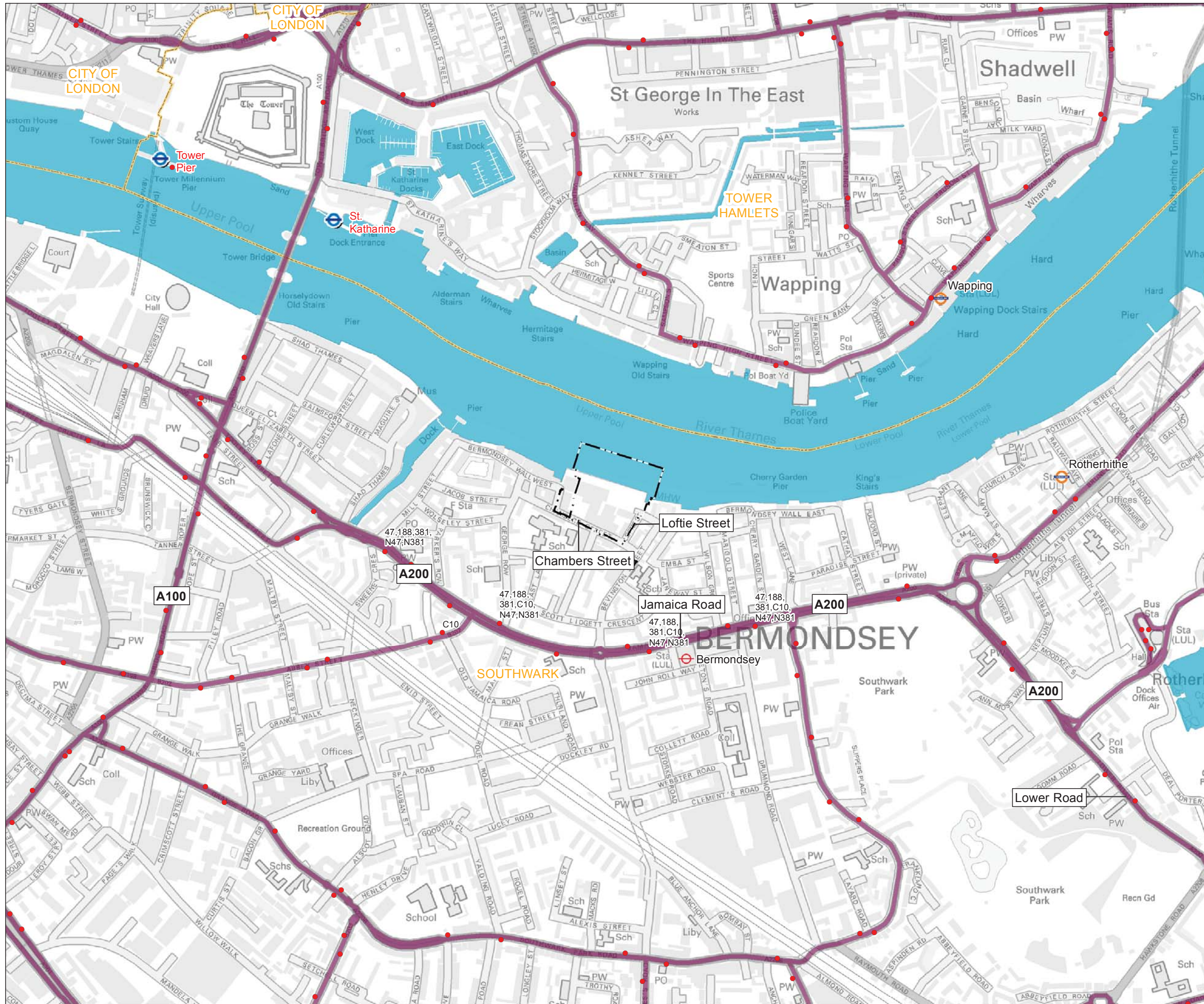
FOR INFORMATION

Location
Chambers Wharf
 London Borough of Southwark

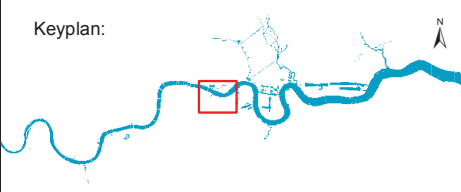
Document Information
Environmental Statement
 Transport - pedestrian and cycle network

Vol.20 Figure 12.4.2
 1PL03-TT-50417
 January 2013

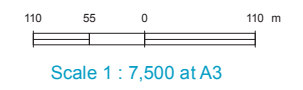




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- Key**
- TFL bus stops
 - London underground stations
 - London overground stations
 - Pier locations
 - Limits of Land to be Acquired or Used
 - Local authority boundary



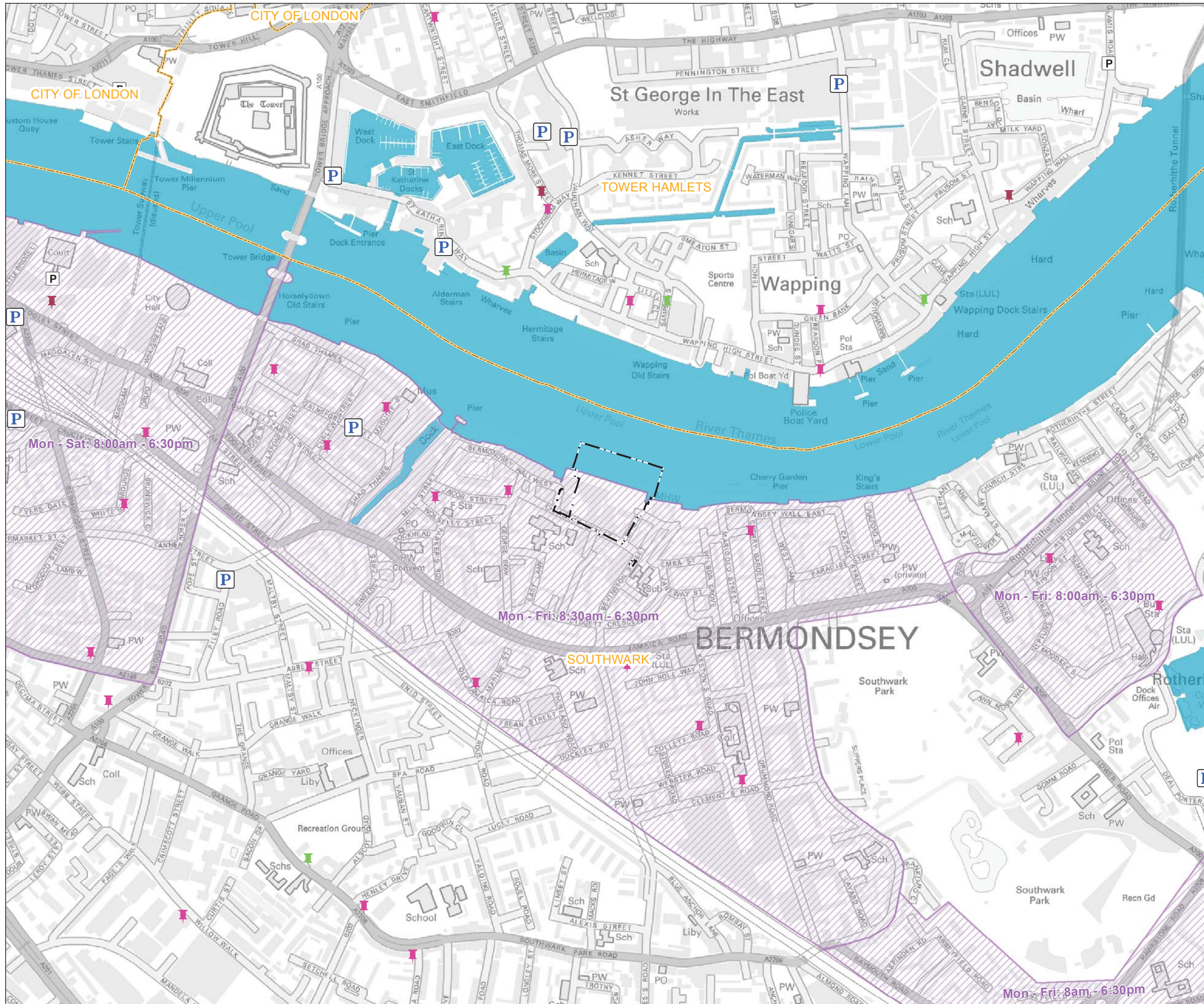
FOR INFORMATION

Location
Chambers Wharf
 London Borough of Southwark

Document Information
Environmental Statement
 Transport - public transport

Vol.20 Figure 12.4.3
 1PL03-TT-50425
 January 2013

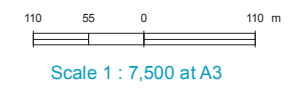




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- Key**
- City Car
 - Hertz on Demand
 - Zip Car
 - Private car parking
 - Coach parking
 - Controlled Parking Zones and hours of operation
 - Limits of Land to be Acquired or Used
 - Local authority boundary



FOR INFORMATION

Location
Chambers Wharf
 London Borough of Southwark

Document Information
Environmental Statement
 Transport - parking

Vol.20 Figure 12.4.4
 1PL03-TT-50433
 January 2013

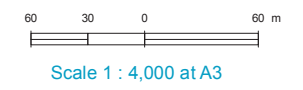




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- Key**
- Automatic traffic count surveys
 - Pedestrian and cycle surveys
 - Junction surveys
 - Parking surveys
 - Limits of Land to be Acquired or Used
 - Local authority boundary



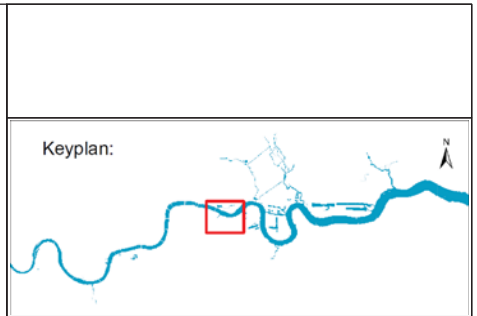
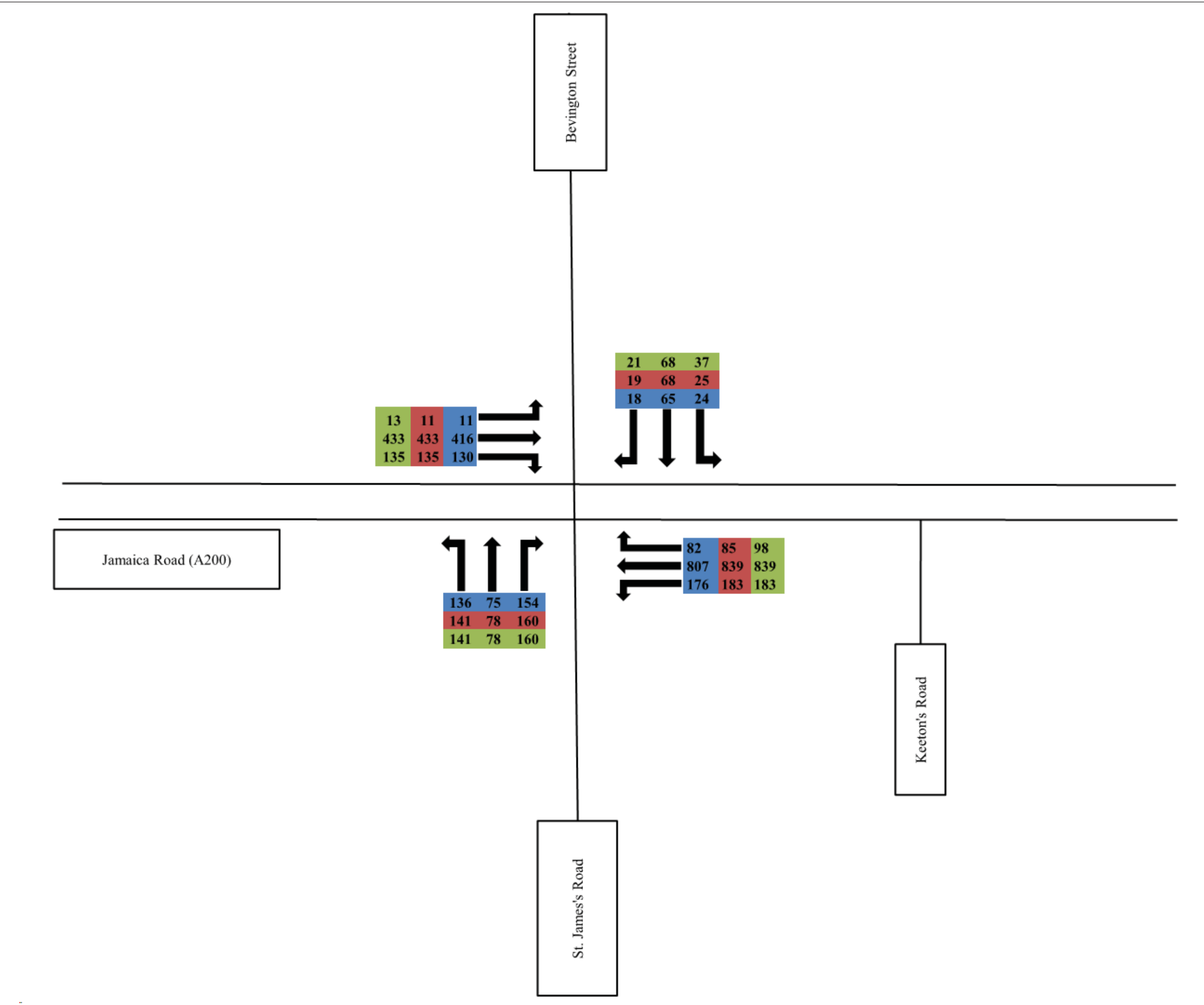
FOR INFORMATION

Location
Chambers Wharf
 London Borough of Southwark

Document Information
Environmental Statement
 Transport - survey locations

Vol.20 Figure 12.4.5
 1PL03-TT-50441
 January 2013





Key

- Base Traffic Flow
- Construction Base
- Development Case

FOR INFORMATION

Location
Chambers Wharf
 London Borough of Southwark

Document Information
Environmental Statement
 Transport - Baseline, Construction and Development case traffic flow (AM peak hour)
 Vol.20 Figure 12.4.6
 1PL03-TT-50852
 January 2013

Thames Tideway Tunnel
 Creating a cleaner, healthier River Thames

Bevington Street

42	40	38
636	636	606
179	179	170

25	45	26
23	45	14
22	43	13

Jamaica Road (A200)

100	64	105
105	67	110
105	67	110

50	53	64
562	590	590
200	210	210

Kecton's Road

St. James's Road



Key

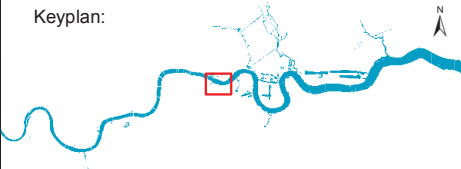
- Base Traffic Flow
- Construction Base
- Development Case

FOR INFORMATION

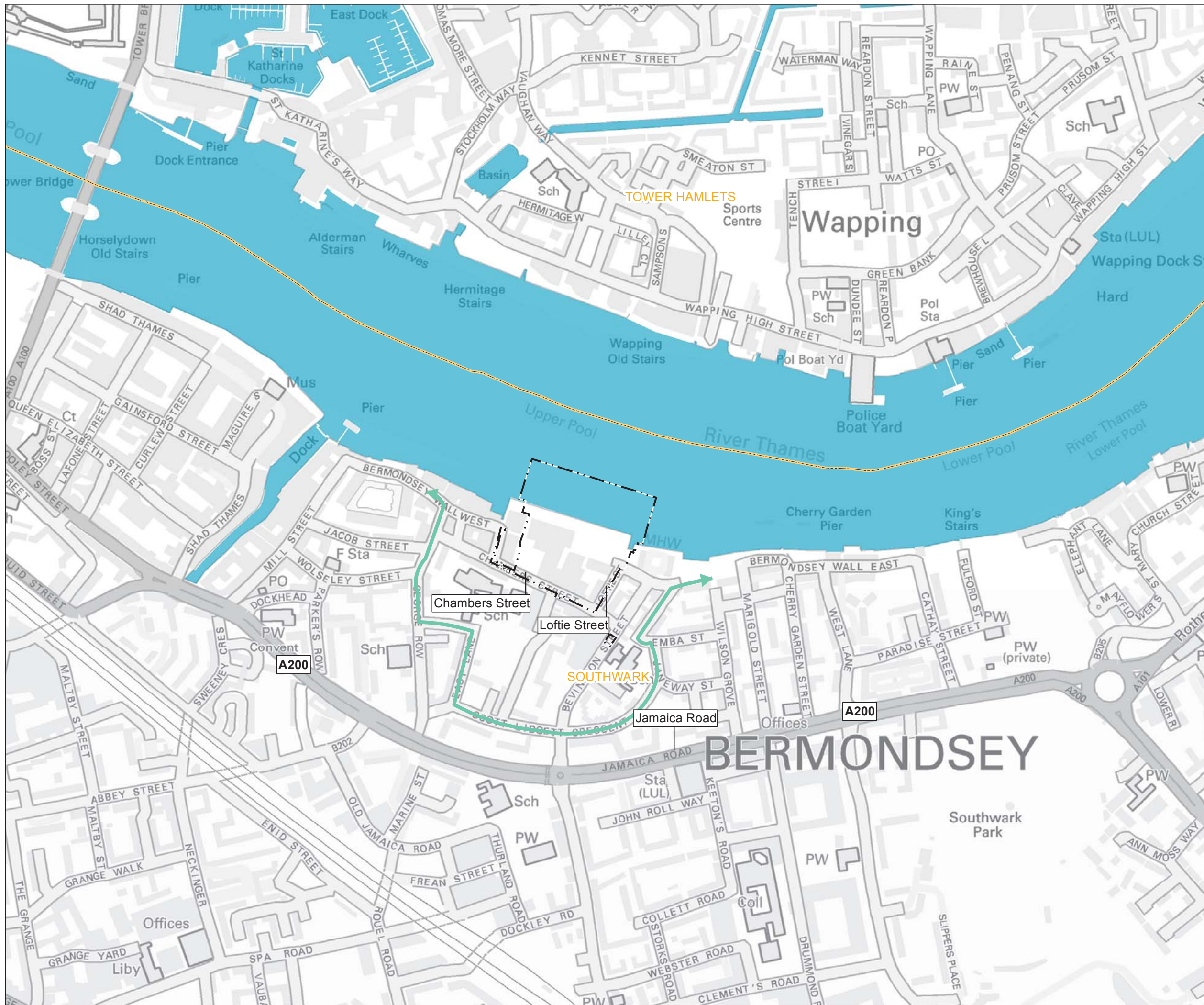
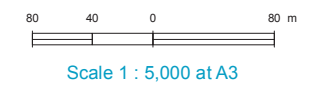
Location
Chambers Wharf
 London Borough of Southwark

Document Information
Environmental Statement
 Transport - Baseline, Construction and Development case traffic flow (PM peak hour)
 Vol.20 Figure 12.4.7
 1PL03-TT-50876
 January 2013





- Key**
- Proposed cycle diversion
 - Limits of Land to be Acquired or Used
 - Local authority boundary



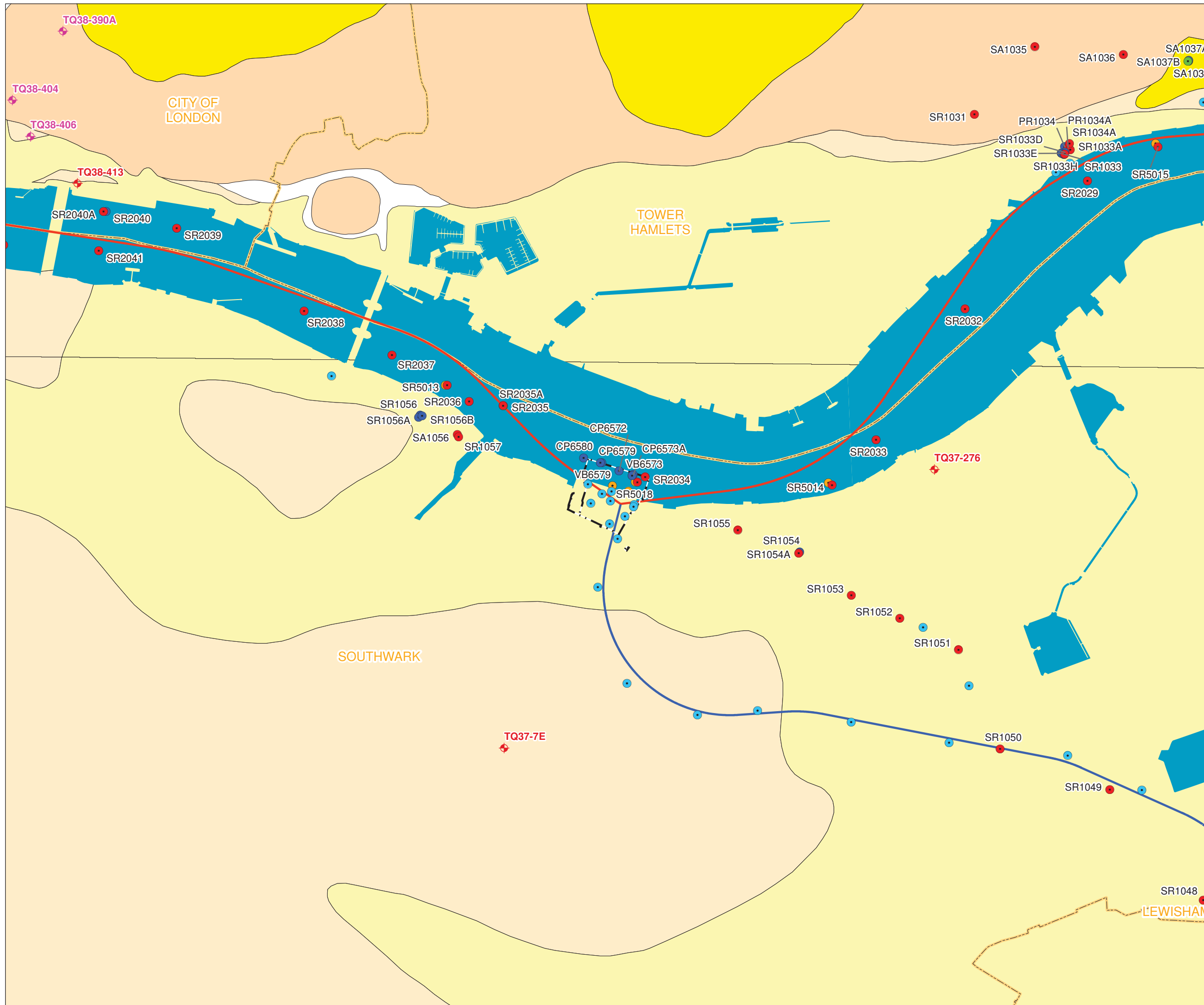
FOR INFORMATION

Location
Chambers Wharf
 London Borough of Southwark

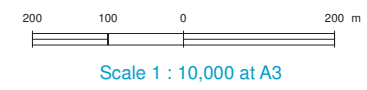
Document Information
Environmental Statement
 Transport - cycle diversion for Chambers Wharf construction phases 1,2,3,4
 Vol.20 Figure 12.5.1
 1PL03-TT-50544
 January 2013



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- Key**
- Limits of Land to be Acquired or Used
 - Thames Tideway Tunnel
 - Main Tunnel
 - Connection Tunnel
 - Local Authority Boundary
 - Drilled Boreholes
 - Depth (m)
 - 0 - 10
 - 10 - 30
 - 30+
 - Proposed Boreholes
 - Water
 - Land
 - EA Groundwater Level Monitoring Locations
 - ◆ Historical Data Available
 - ◆ Recent Data Available
 - Superficial Geology
 - Alluvium
 - Kempton Park Gravel Member
 - Langley Silt Member
 - Taplow Gravel Formation



FOR INFORMATION

Location
Chambers Wharf
 London Borough of Southwark

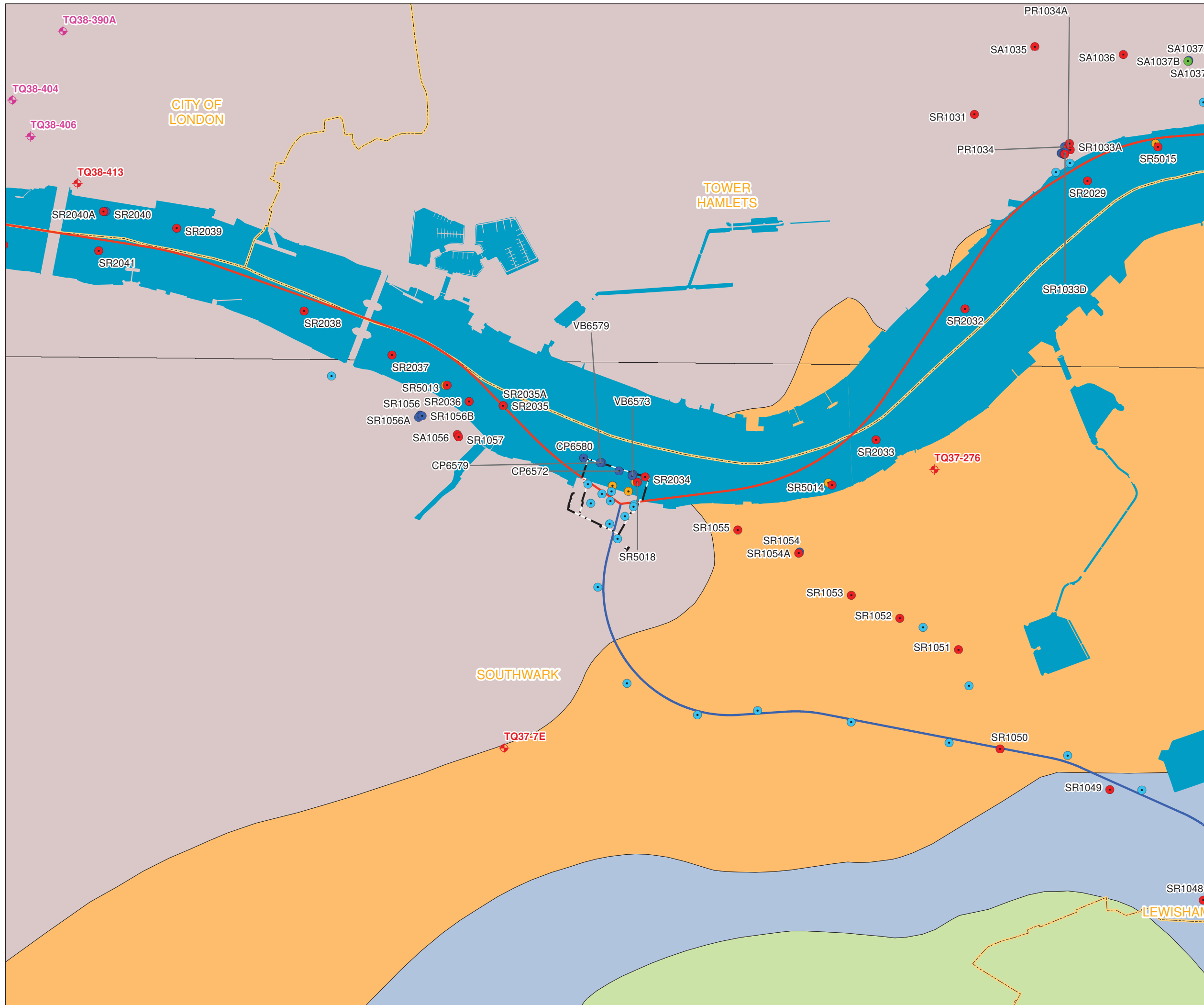
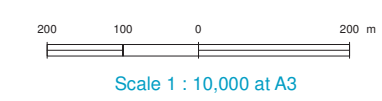
Document Information
Environmental Statement
 Water resources – groundwater - superficial geology
 Vol.20 Figure 13.4.1
 1PL03-WR-20167
 January 2013



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- Key**
- Drilled Boreholes**
 - Depth (m)**
 - 0 - 10
 - 10 - 30
 - 30+
 - Proposed Boreholes**
 - Water
 - Land
 - EA Groundwater Level Monitoring Locations**
 - Historical Data Available
 - Recent Data Available
 - Limits of Land to be Acquired or Used**
 - Thames Tideway Tunnel**
 - Main Tunnel
 - Connection Tunnel
 - Local Authority Boundary**
 - Solid Geology**
 - London Clay Formation
 - Lambeth Group
 - Thanet Sand
 - Chalk Formation

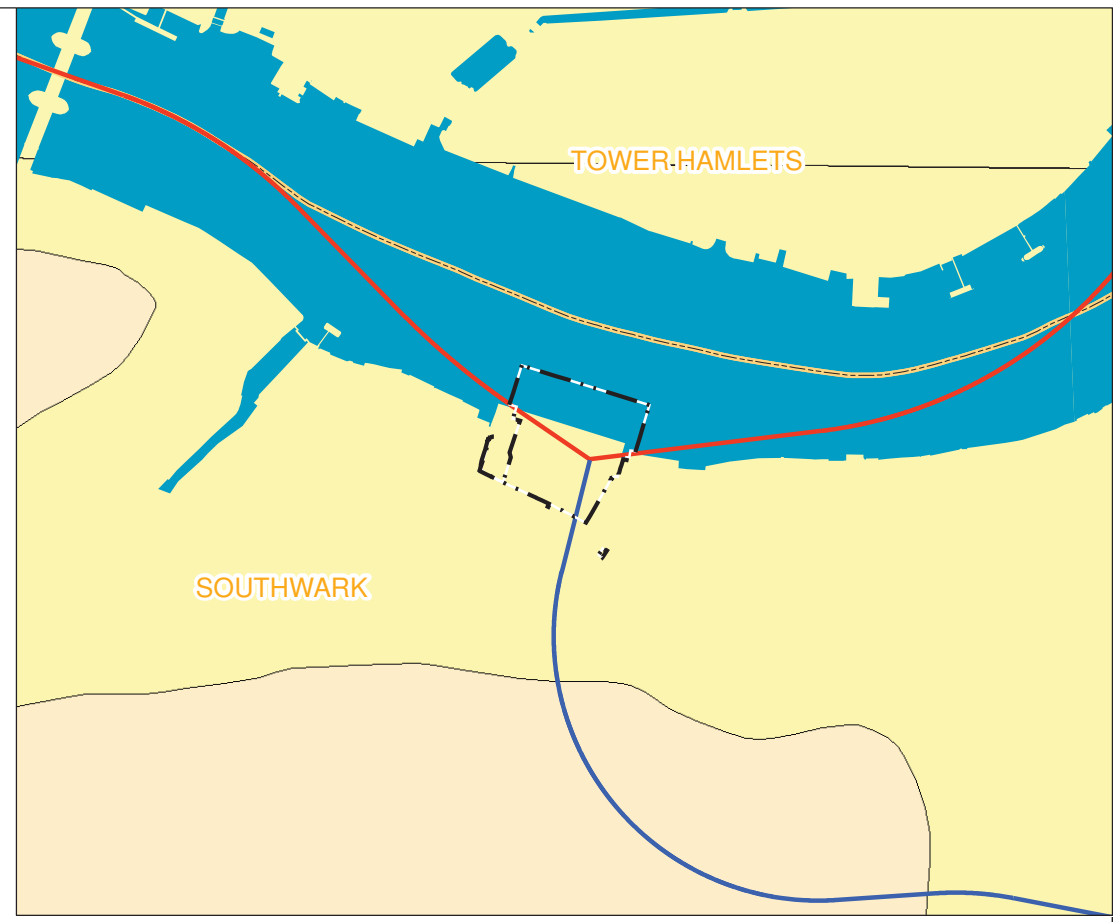
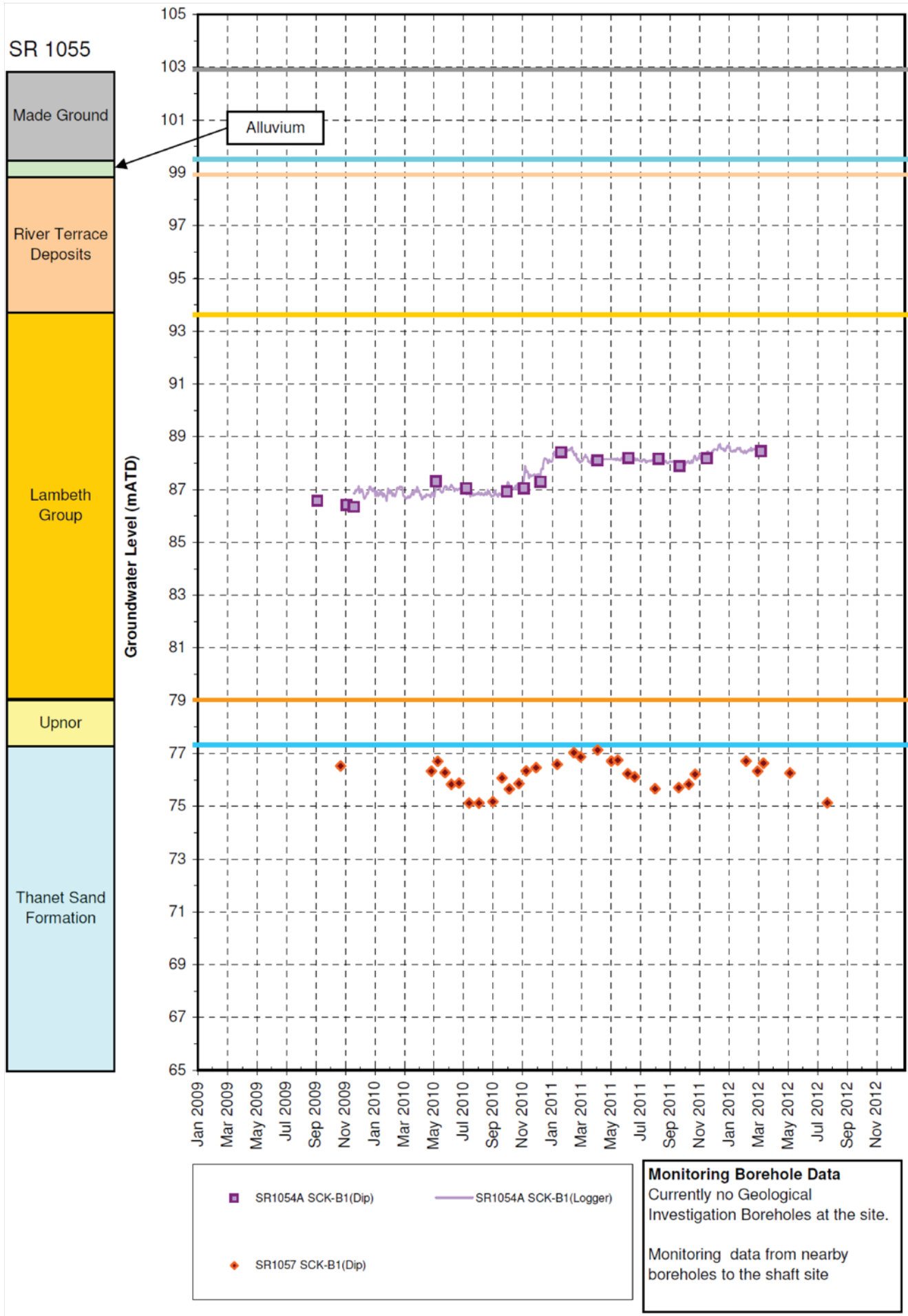


FOR INFORMATION

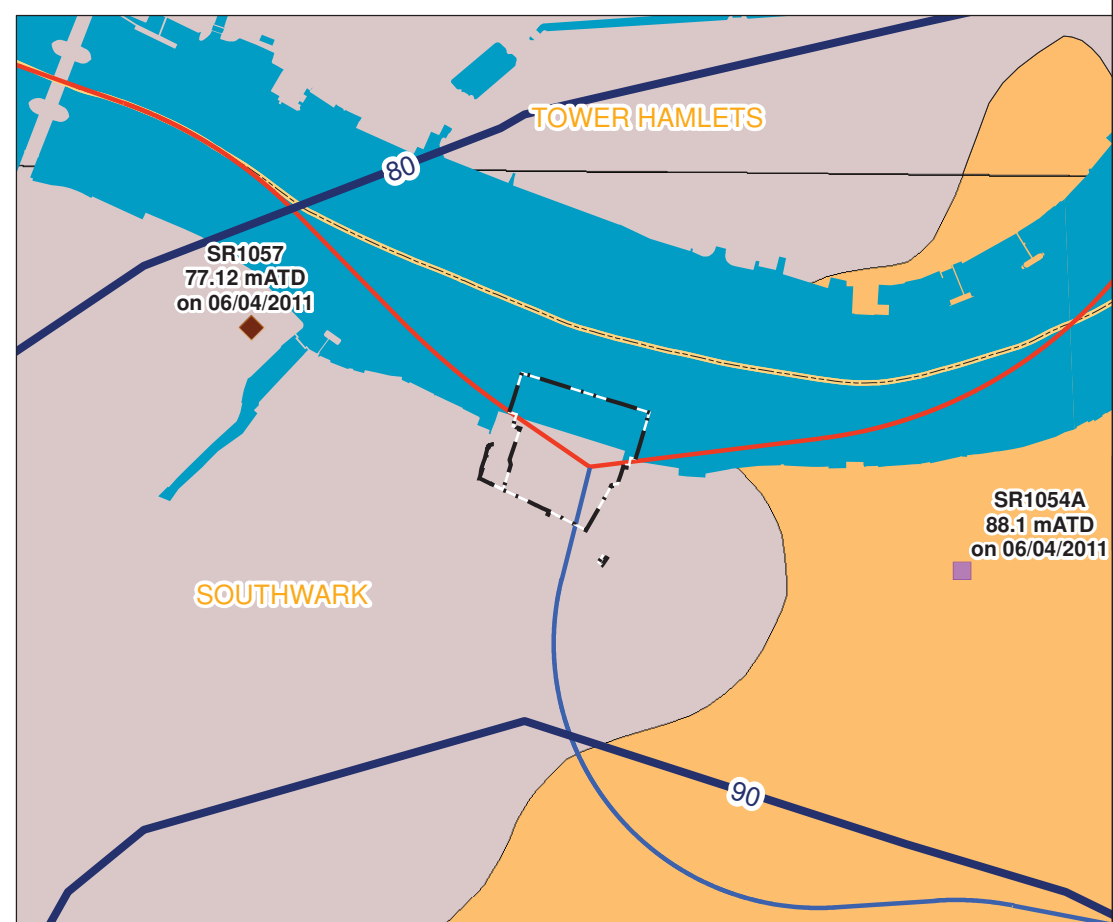
Location
Chambers Wharf
 London Borough of Southwark

Document Information
Environmental Statement
 Water resources – groundwater - solid geology
 Vol.20 Figure 13.4.2
 1PL03-WR-20168
 January 2013





Upper aquifer monitoring locations



Lower aquifer monitoring locations

FOR INFORMATION

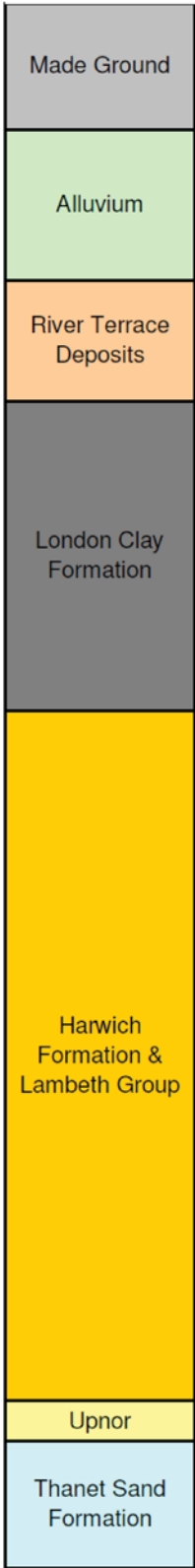
Location
Chambers Wharf
London Borough of Southwark

Document Information
Environmental Statement
Water resources – groundwater - monitoring locations
Vol.20 Figure 13.4.3
1PL03-WR-20169
January 2013

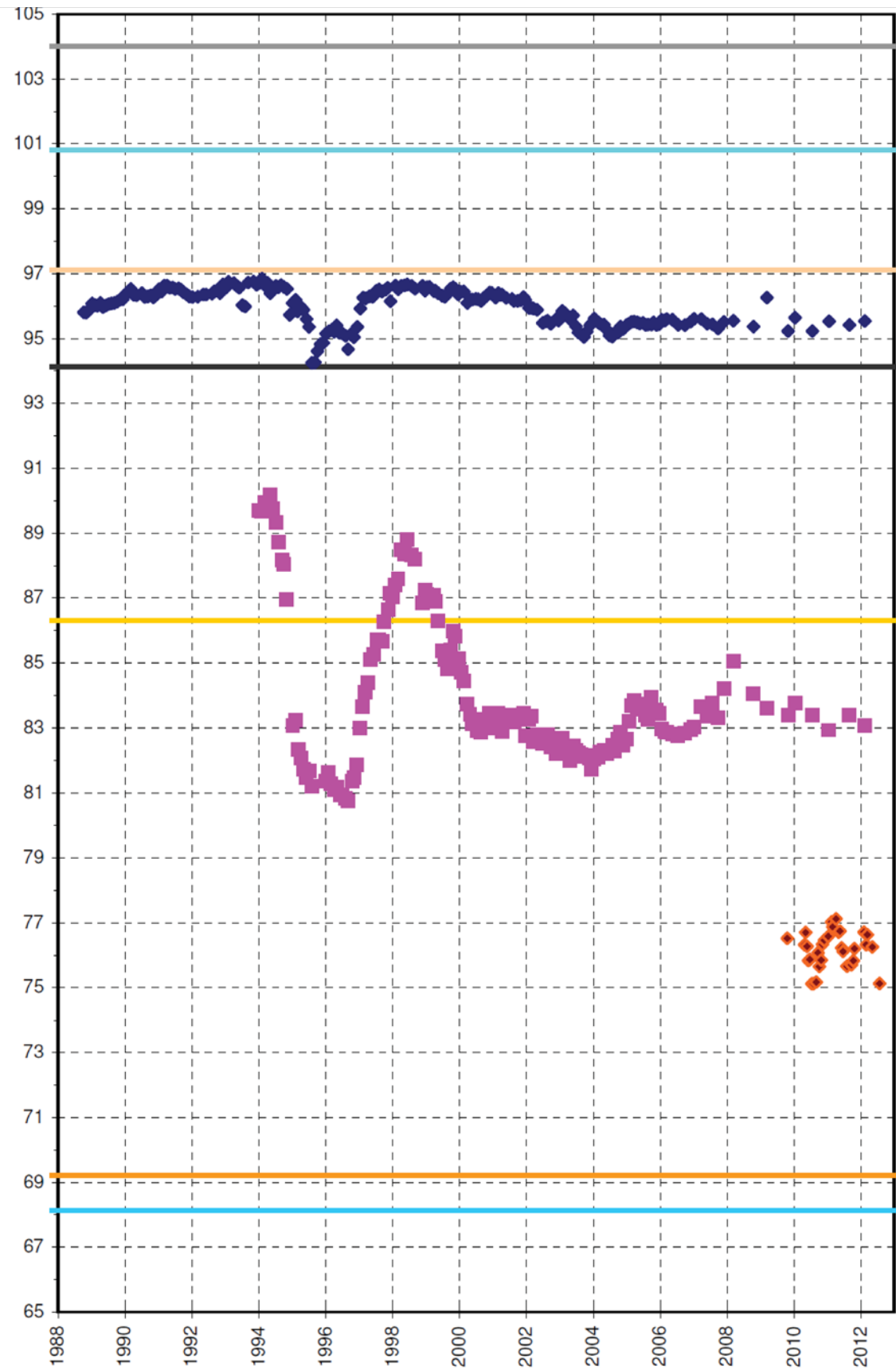
Thames Tideway Tunnel
Creating a cleaner, healthier River Thames

Thames Water

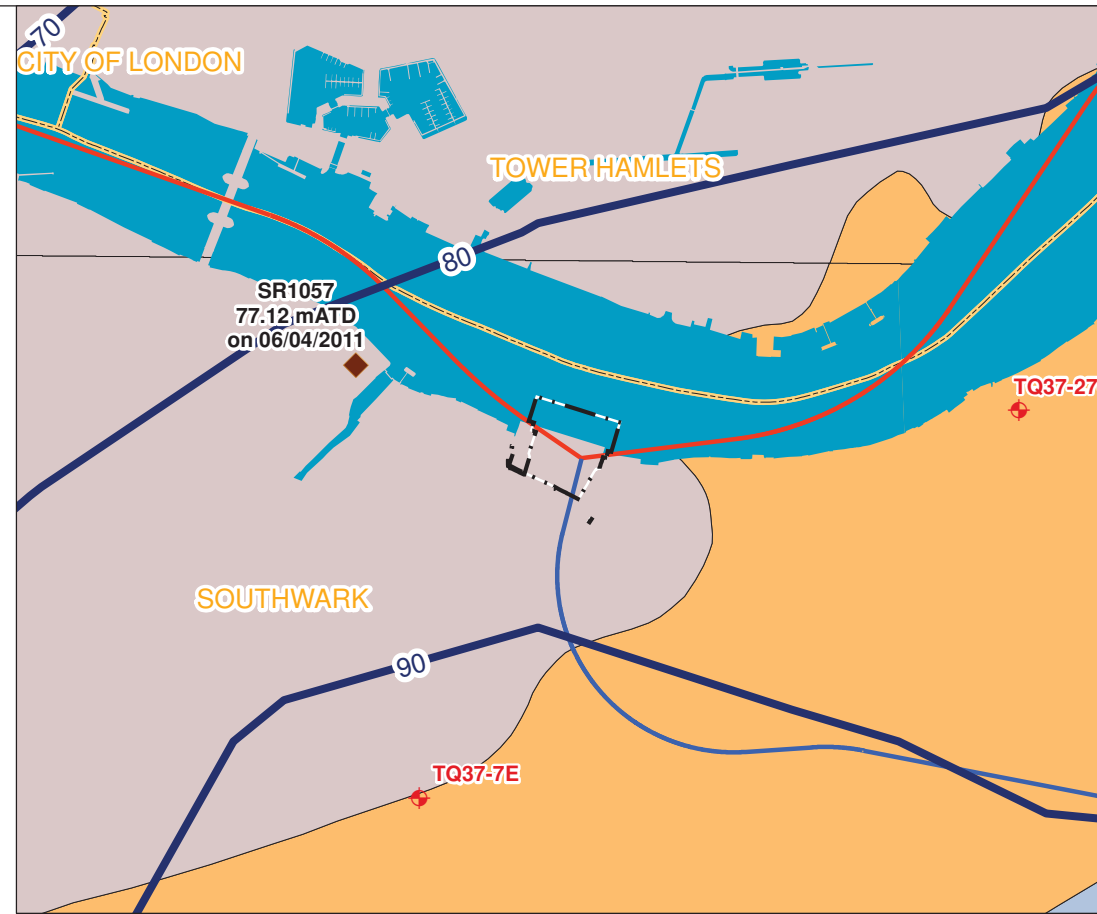
SR 1057



Groundwater Level (mATD)



Monitoring Borehole Data
 Currently no Geological Investigation Boreholes at the site.
 Monitoring data from nearby boreholes to the shaft site

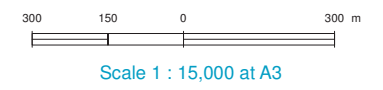


Long term groundwater level monitoring

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- Key**
- Limits of Land to be Acquired or Used
 - Thames Tideway Tunnel
 - Main Tunnel
 - Connection Tunnel
 - Local Authority Boundary
 - Drilled Boreholes Lower Aquifer Water Levels
 - SR1057
 - EA Groundwater Level Monitoring Locations
 - Recent Data Available
 - EA Chalk Piezometric Level (mATD) - Jan 11
 - Solid Geology
 - London Clay Formation
 - Lambeth Group
 - Thanet Sand



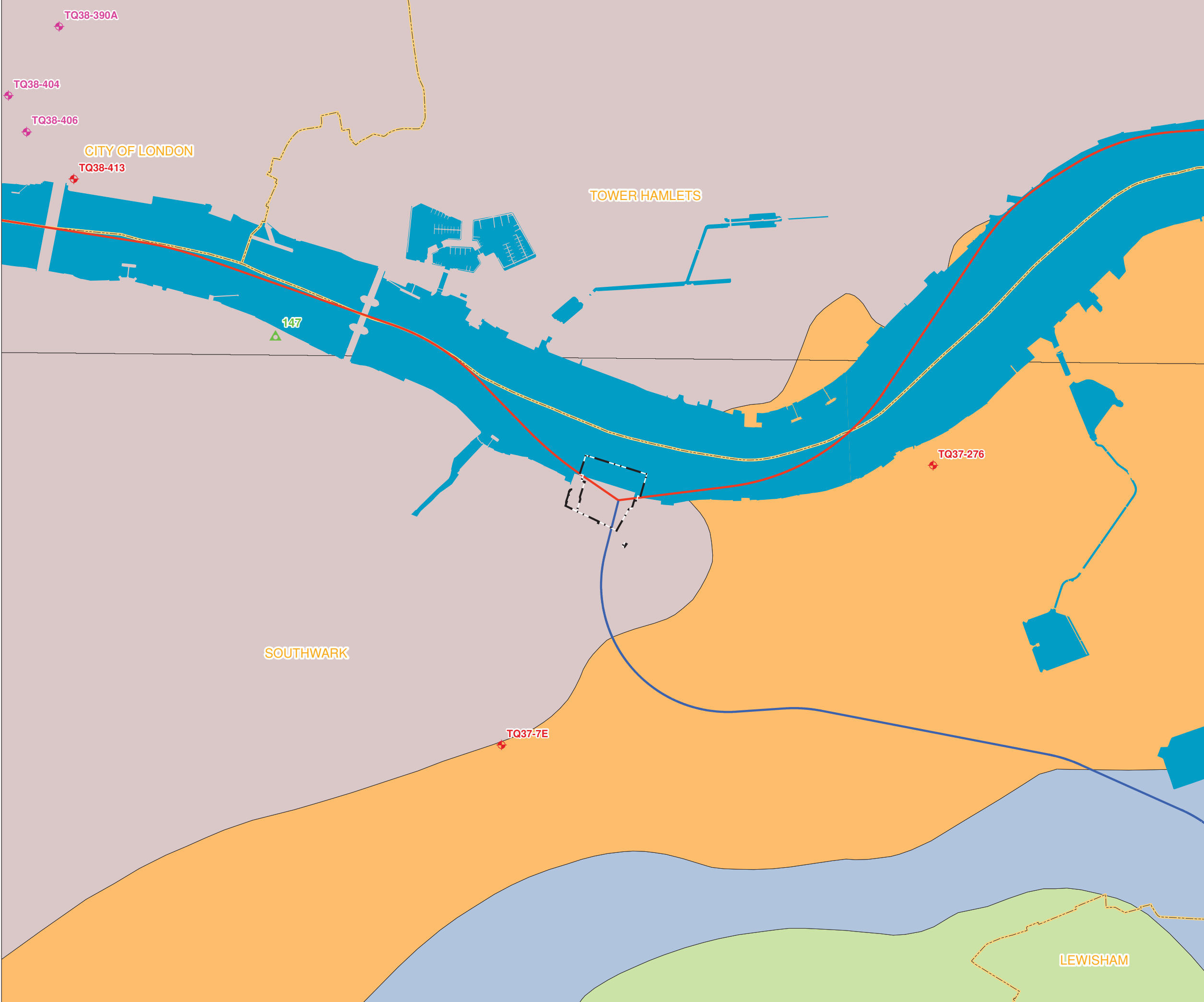
FOR INFORMATION

Location
 Chambers Wharf
 London Borough of Southwark

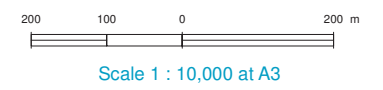
Document Information
Environmental Statement
 Water resources – groundwater - regional groundwater hydrograph
 Vol.20 Figure 13.4.4
 1PL03-WR-20170
 January 2013



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- Key**
- Limits of Land to be Acquired or Used
 - Thames Tideway Tunnel
 - Main Tunnel
 - Connection Tunnel
 - Local Authority Boundary
 - GSHP Scheme
 - ▲ Chalk
 - EA Groundwater Level Monitoring Locations
 - ◆ Historical Data Available
 - ◆ Recent Data Available
 - Solid Geology
 - London Clay Formation
 - Lambeth Group
 - Thanet Sand
 - Chalk Formation



FOR INFORMATION

Location
Chambers Wharf
London Borough of Southwark

Document Information
Environmental Statement
Water resources – groundwater - Ground Source Heat Pump schemes
Vol.20 Figure 13.4.5
1PL03-WR-20171
January 2013

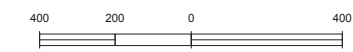
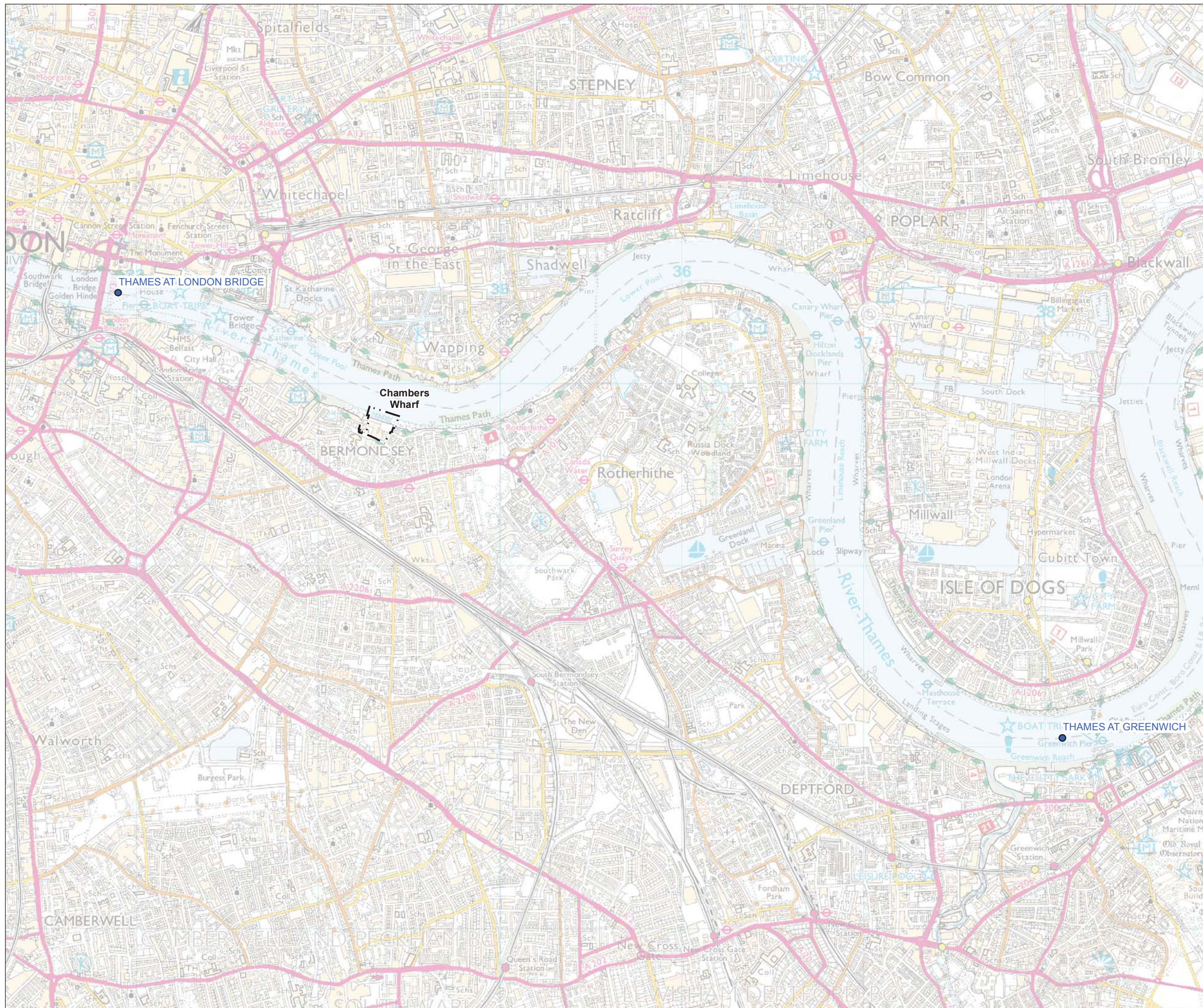


Keyplan:



Key

- Limits of Land to be Acquired or Used
- Spot Sample Locations



Scale 1 : 20,000 at A3

FOR INFORMATION

[Location](#)

Chambers Wharf
London Borough of Southwark

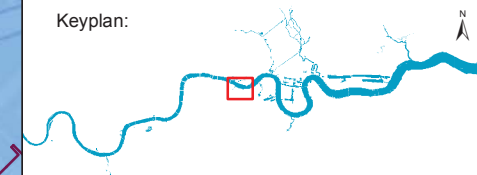
[Document Information](#)

Environmental Statement

Water resources - surface water - water quality monitoring points
Vol.20 Figure 14.4.1

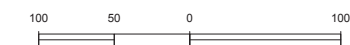
1PL03-WR-21017
January 2013

Keyplan:



Key

- Limits of Land to be Acquired or Used
- Thames Tidal Defences
- EA Flood Zone 3
- EA Flood Zone 2



Scale 1 : 5,000 at A3

FOR INFORMATION

Location

Chambers Wharf
London Borough of Southwark

Document Information

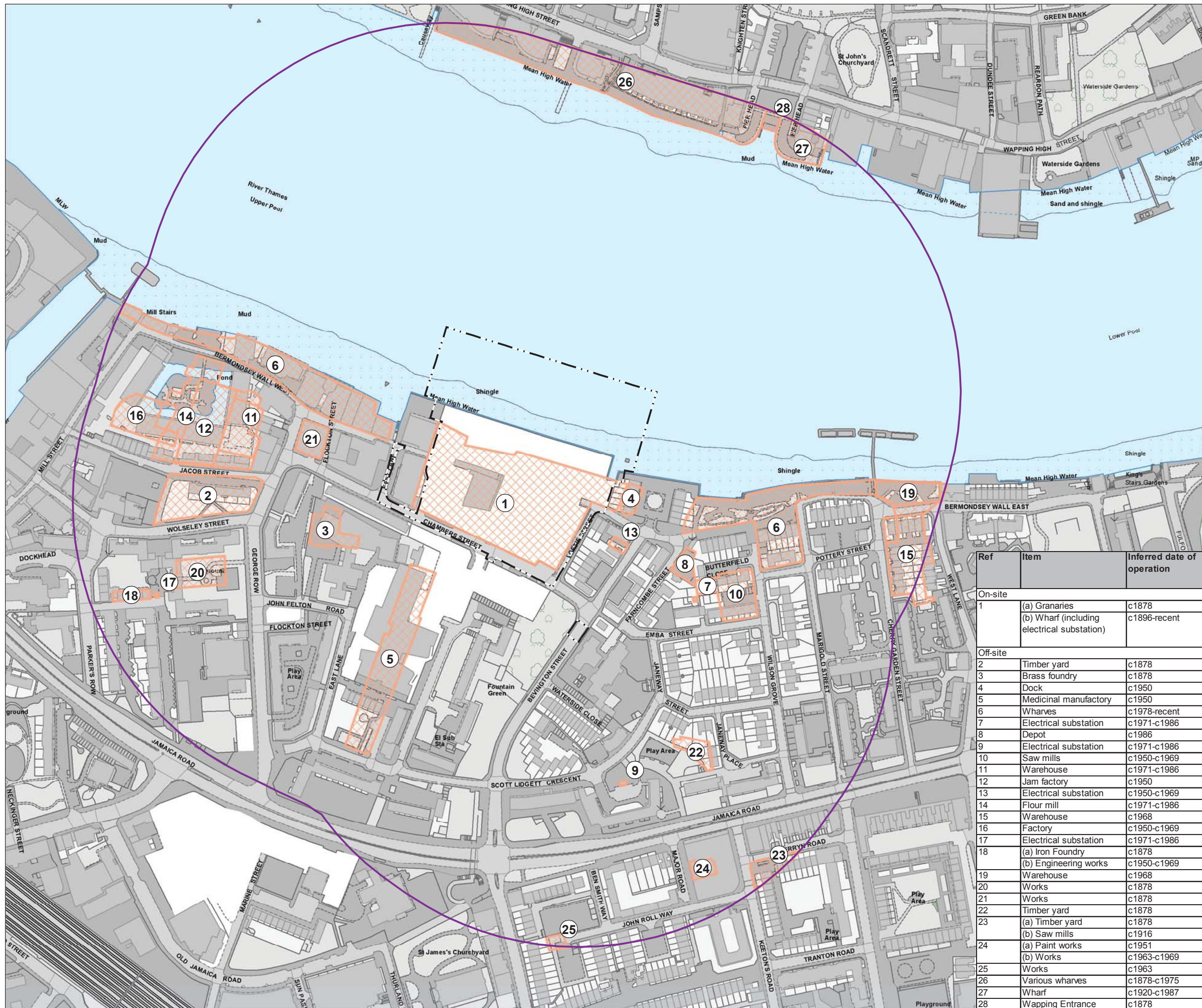
Environmental Statement
Flood risk - EA flood zones

Vol.20 Figure 15.3.1

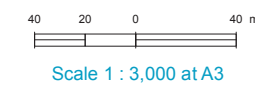
1PL03-FL-20144
January 2013



- Key**
- Limits of Land
 - - - to be Acquired or Used
 - Limit of Land 250m Buffer
 - ▨ Potentially Contaminating Land-Uses



Ref	Item	Inferred date of operation
On-site		
1	(a) Granaries (b) Wharf (including electrical substation)	c1878 c1896-recent
Off-site		
2	Timber yard	c1878
3	Brass foundry	c1878
4	Dock	c1950
5	Medicinal manufactory	c1950
6	Wharves	c1978-recent
7	Electrical substation	c1971-c1986
8	Depot	c1986
9	Electrical substation	c1971-c1986
10	Saw mills	c1950-c1969
11	Warehouse	c1971-c1986
12	Jam factory	c1950
13	Electrical substation	c1950-c1969
14	Flour mill	c1971-c1986
15	Warehouse	c1968
16	Factory	c1950-c1969
17	Electrical substation	c1971-c1986
18	(a) Iron Foundry (b) Engineering works	c1878 c1950-c1969
19	Warehouse	c1968
20	Works	c1878
21	Works	c1878
22	Timber yard	c1878
23	(a) Timber yard (b) Saw mills	c1878 c1916
24	(a) Paint works (b) Works	c1951 c1963-c1969
25	Works	c1963
26	Various wharves	c1878-c1975
27	Wharf	c1920-c1987
28	Wapping Entrance	c1878



FOR INFORMATION

Location
Chambers Wharf
 London Borough of Southwark

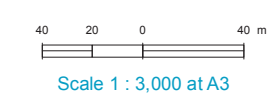
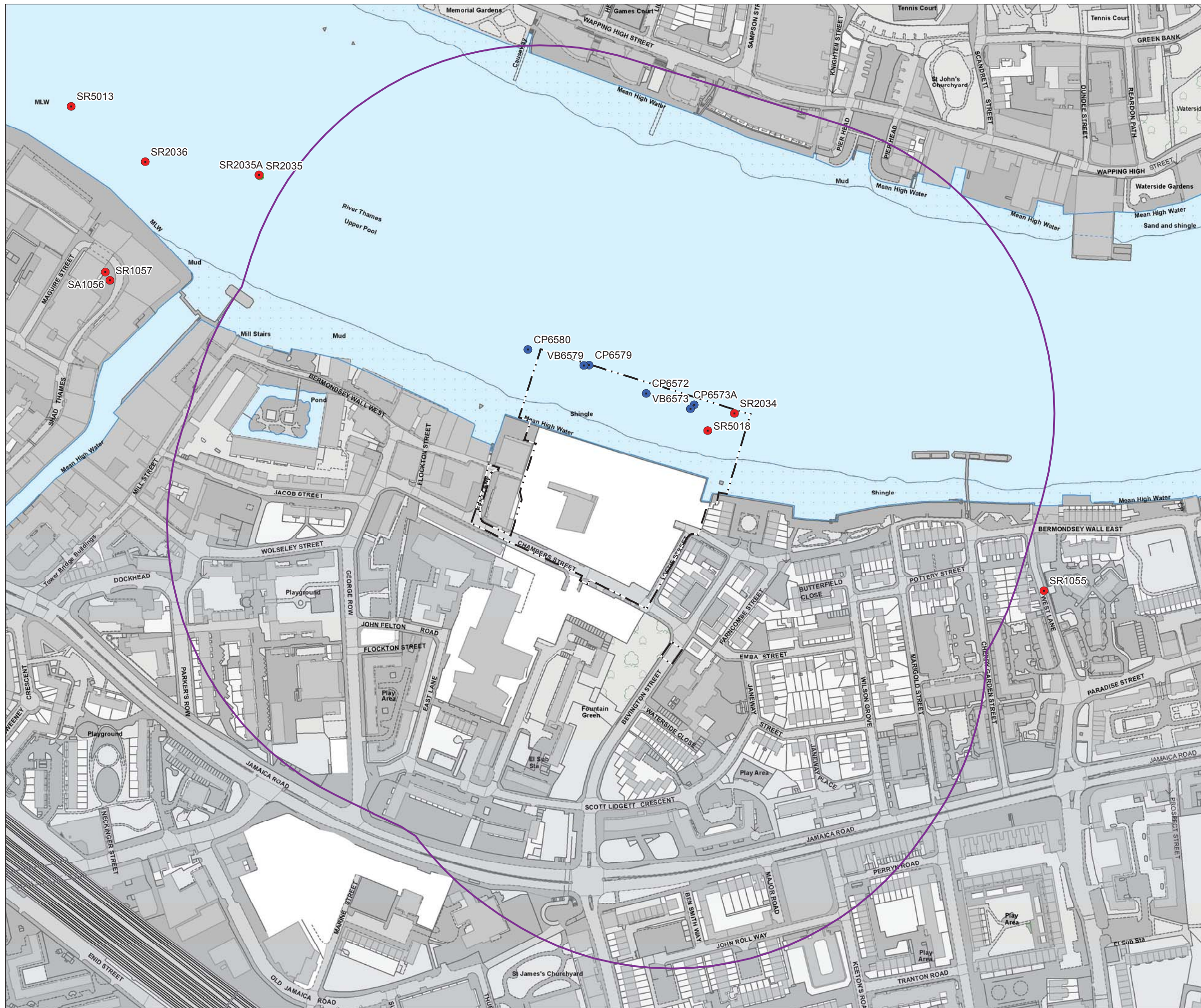
Document Information
Environmental Statement
 Land quality - potentially contaminating land-uses
 Vol.20 Figure F.1.1
 1PL03-LQ-30099
 January 2013



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- Key**
- Drilled Boreholes**
- Depth (m)**
- 0 - 10
 - 10 - 30
 - 30+
- Limits of Land
 - - - to be Acquired or Used
 [Purple Line] Limit of Land 250m Buffer



FOR INFORMATION

Location
Chambers Wharf
 London Borough of Southwark

Document Information
Environmental Statement
 Land quality - borehole locations

Vol.20 Figure F.1.2
 1PL03-LQ-30097
 January 2013



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- Key**
- Limits of Land
 - - - to be Acquired or Used
 - Limit of Land 250m Buffer
- Waste**
- Historic Landfill Sites
- Hazards**
- Pollution Incidents to Controlled Waters
 - LA Pollution Prevention & Controls
 - Past Potentially Contaminated Industrial Uses

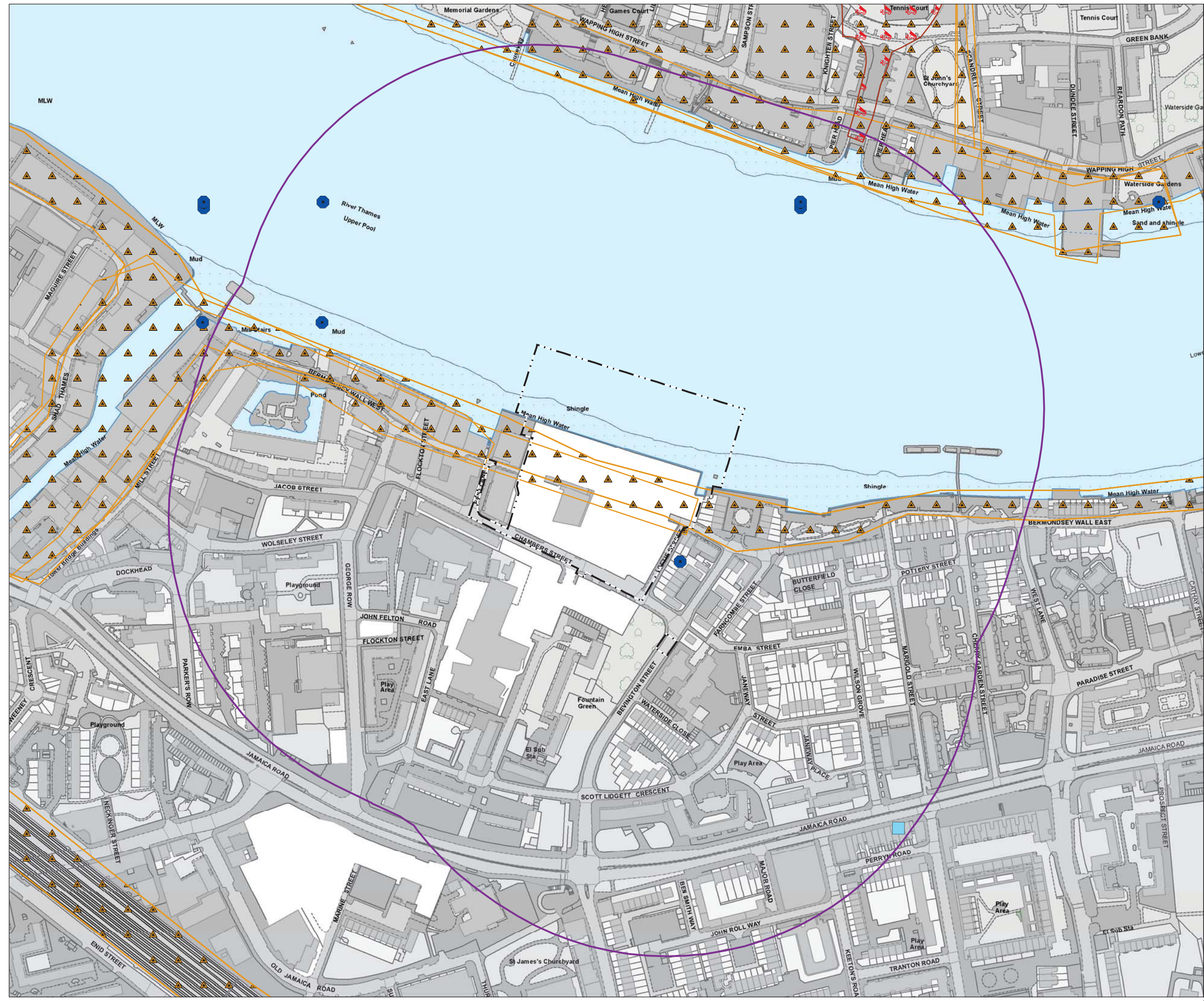
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Scale 1 : 3,000 at A3

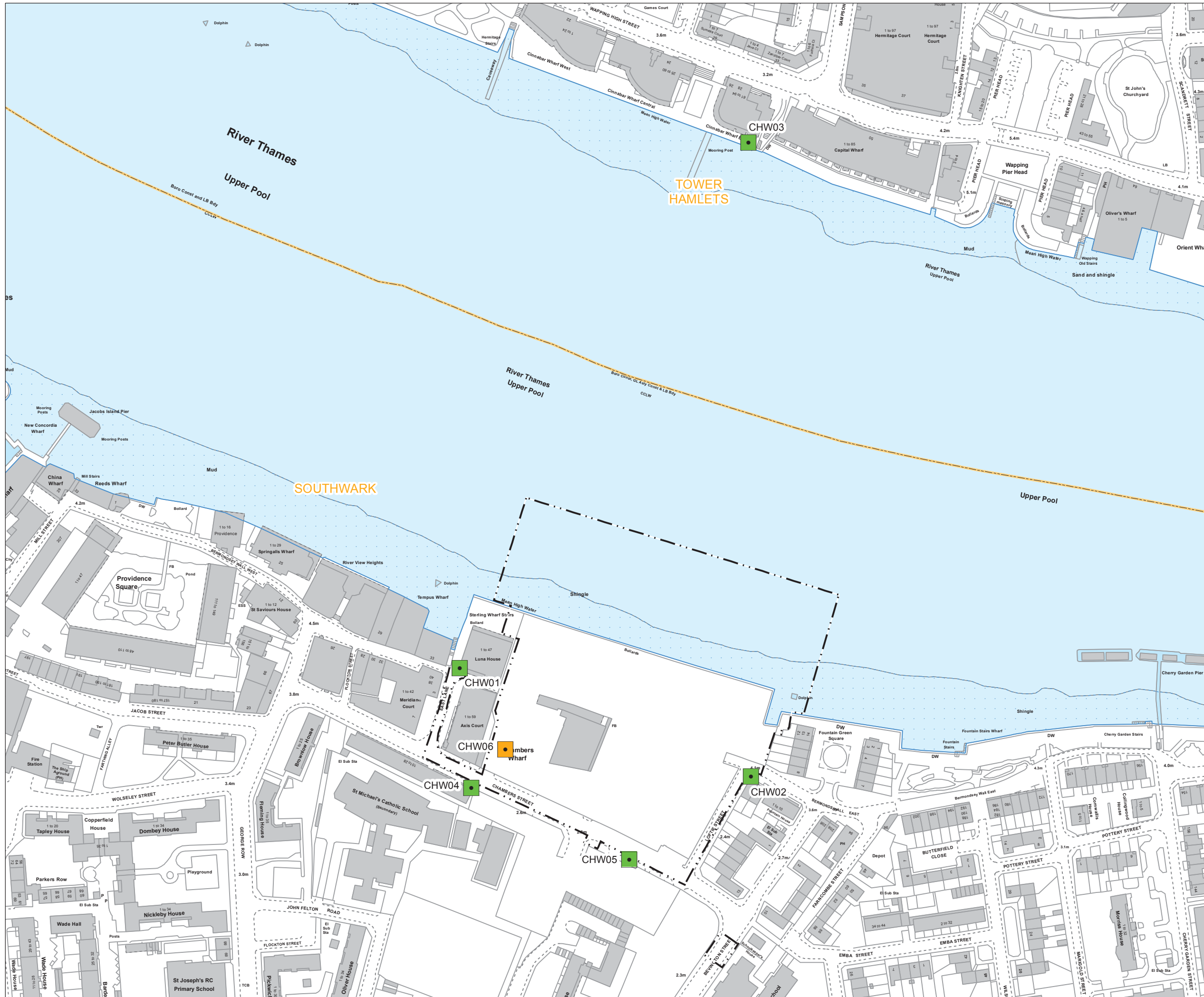
FOR INFORMATION

Location
Chambers Wharf
London Borough of Southwark

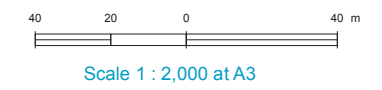
Document Information
Environmental Statement
Land quality - hazard and waste sites

Vol.20 Figure F.1.3
1PL03-LQ-30098
January 2013





- Key**
- Limits of Land to be Acquired or Used
 - - - Local Authority Boundary
 - Noise Survey Locations**
 - Attended
 - Unattended



FOR INFORMATION

Location
Chambers Wharf
 London Borough of Southwark

Document Information
Environmental Statement
 Noise and vibration - noise survey locations

Vol.20 Figure G.1
 1PL03-NV-40145
 January 2013



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Thames Water Utilities Limited

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