Thames Tideway Tunnel
Thames Water Utilities Limited

Application for Development Consent

Application Reference Number: WWO10001

Planning Statement

Doc Ref: **7.01**

Appendix V

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

Planning Statement
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Appendix V: Deptford Church Street

V.1 Introduction

V.1.1 In the average year, the Deptford Storm Relief Sewer combined sewer overflow (CSO) discharges approximately 1,470,000 m^3 of untreated sewage into the tidal Thames near Borthwick Wharf in the London Borough of Greenwich. On the basis that litter tonnages are proportional to discharge volumes, approximately 371 tonnes of sewage derived litter is also discharged from this CSO in an average year.

V.1.2 A worksite is required to connect the Deptford Storm Relief CSO to the Greenwich connection tunnel, which would transfer wastewater flows into the main tunnel. The CSO was identified by the Environment Agency as a CSO that needs to be controlled. The proposed development site is known as Deptford Church Street, which is located in the London Borough of Lewisham and is also close to the Royal Borough of Greenwich to the north and east. The location of the site is illustrated in the Site location plan in Annex V and an image of the site is provided in Figure V.1.

Figure V.1 Aerial photograph of Deptford Church Street

V.1.3 This assessment is structured as follows:

a. Section V.2 provides a brief description of the Deptford Church Street site.

b. Section V.3 sets out the planning context for works in this location.

c. Section V.4 describes the site-specific development for which consent is sought and the way in which the proposals evolved in response to consultation.

d. Section V.5 provides an analysis of the principal site-specific planning considerations and how the proposals comply with relevant planning policy.

e. Section V.6 provides an overall conclusion of the site-specific assessment for the proposed works at the site.

V.2 Site description

V.2.1 The site is triangular in shape and comprises an area of public open space known as the Crossfield Street Open Space and roadway.

V.2.2 A brick wall runs north-south across the site, dividing the grassed space into two separate areas. The eastern area is fenced and currently used as a dog exercise area and the western side features a partial low railing fence and is used as an informal area of public open space.

V.2.3 Pedestrian access to the site is from Crossfield Street and the western end of Coffey Street. Access from Deptford Church Street is restricted by high railings which run around the eastern, northeastern, and southeastern boundary of the open space to the brick wall which crosses the site and restricts east-west movement across it. A gated entrance on Crossfield Street provides the only access to this eastern section of the open space. There is no existing vehicular access to the site.

V.2.4 The site is bounded to the north by Coffey Street, to the east by Deptford Church Street (A2209), and to the southeast by Crossfield Street.

V.2.5 The Grade I listed St Paul's Church is situated to the north of the site on Coffey Street. There are Grade II listed walls and railings to the north and east of the church and the Grade II listed walls of the former chapel are situated to the southeast of the church. To the north of the church on Albury Street are a number of timber-framed, pre-19th century houses and early 18th century terraced houses.

V.2.6 To the northeast of the site lies the Sue Godfrey Nature Reserve. The reserve forms part of a potential east-west link across Deptford from Deptford High Street to Deptford Creek, as set out in the London Borough of Lewisham's *North Lewisham Links Strategy* (2007). The nearest residential buildings are the three-storey houses at the corner of Deptford Church Street and Berthon Street.

V.2.7 To the east of the site are the residential apartment buildings of Congers House and Farrer House, which are five storeys high. The industrial areas along Deptford Creek further east are characterised by two and three-storey warehouses that range from small units to large-scale sheds. The development pattern here is typical of industrial estates with narrow access roads informally arranged around Deptford Creek and the Docklands Light Railway viaduct. The Laban Dance Centre is also located in this area.

V.2.8 The pattern of residential development continues to the southeast. To the southwest of the site lies St Joseph's Roman Catholic Primary School ('St Joseph's) and the Grade II listed railway viaduct. On the far side of the viaduct is the Wavelengths Leisure Centre, which has recently undergone improvements. A new school, Tidemill Academy, and the Deptford Lounge development to the south of the railway viaduct were recently completed. The Deptford Lounge development includes Resolution Studios, which is seven storeys high and provides a mixture of affordable housing, studios for local business and an exhibition space.

V.2.9 There have also been public realm improvements in Frankham Street, which provides parking facilities for shoppers. This area has been modified as a shared surface to create a safe and secure environment.

V.2.10 Deptford High Street to the west of the site is a linear band of dense mixed use residential, retail and commercial terraced properties. Deptford Railway Station, which has recently undergone improvement works, is located on Deptford High Street to the southwest of the site. The arches of the railway viaduct upon which Deptford Station is situated are currently occupied by a plumbing supplies retailer, a car mechanic business and a recycling centre which are accessed from Crossfield Street.

V.2.11 The site features plan located in Annex V provides additional context of the site and surrounding area.

V.3 Planning context

V.3.1 In developing the proposals and mitigation measures for the development at Deptford Church Street Thames Water[1] had regard to the policies set out in the National Policy Statement for Waste Water (the 'NPS'), and to local development plan designations where these are relevant to the application.

V.3.2 In this case, the local development plan comprises the *London Plan* (2011), the London Borough of Lewisham's *Core Strategy* (2011), and the London Borough of Lewisham's *Unitary Development Plan* 2004 (*UDP*) saved policies.

V.3.3 Within the *UDP*, the site falls within the Upper Deptford Archaeological Priority Area and Crossfield Street Open Space is designated as public open space.

V.3.4 The site is located within the St Paul's Conservation Area and is adjacent to Deptford High Street Conservation Area. Listed buildings close to the site include the Parish Church of St Paul's which is a Grade I listed building, the Grade II listed walls of its churchyard, the walls of the former graveyard belonging to the Old Baptist Chapel, also Grade II listed, and the Grade II listed railway viaduct.

[1] Thames Water Utilities Ltd (TWUL). The Draft Development Consent Order (DCO) contains an ability for TWUL to transfer powers to an Infrastructure Provider (as defined in article 2(1) of the DCO) and/or, with the consent of the Secretary of State, another body

V.3.5 St Paul's Churchyard and Crossfield Street Open Space are both designated as Sites of Importance for Nature Conservation (SINC) in the *UDP*.

V.3.6 The Sue Godfrey Nature Reserve, to the northeast of the site, is also designated as a SINC in the *UDP*.

V.3.7 Deptford Church Street is identified within the *North Lewisham Links Strategy* as an area in which pedestrian and cycle routes could be improved, creating better links between Deptford High Street and Deptford Creek. The strategy is not a statutory document but sets out a framework for future development in the north of the borough and supports the borough's *Local Development Framework*.

V.3.8 There are no tree preservations orders on the site; however the site contains a number of mature trees which are protected under the conservation area designation.

V.3.9 No planning applications for the site have been submitted within the last five years.

V.4 Description of development

Overview

V.4.1 The proposed development at Deptford Church Street would intercept the existing Deptford Storm Relief CSO. A CSO drop shaft would be constructed and the base would be connected to the long connection tunnel from Greenwich Pumping Station to Chambers Wharf where flows would be transferred into the main tunnel. An interception chamber, hydraulic structures/chambers with access cover(s) and other structures including culverts and ventilation columns would be constructed to manage and intercept flows from the existing Deptford Storm Relief Sewer and divert them into the Greenwich connection tunnel.

V.4.2 The broad locations (within parameters) and size thresholds of the shaft, structures for air management , electrical and control kiosk and other underground chambers, culverts, pipes and ducts to connect, control and intercept flow are all submitted for approval as part of the application. Illustrative landscaping plans and designs are also submitted as part of this application to show how the site could look once construction works are complete (see Figure V.2), but these are not submitted for approval. There is a site-specific Requirement to submit detailed landscape plans to the London Borough of Lewisham, for approval, at a later date. Those elements to be submitted for detailed approval by London Borough of Lewisham must be consistent with the general and site-specific design principles which are set out in the *Design Principles* document, which accompanies the application.

Figure V.2 Visualisation of the complete site

Application for development consent

V.4.3 The geographic extent of the proposals for which development consent is sought is defined by the limits of land to be acquired or used, which is illustrated in the *Book of Plans,* which accompanies the application.

V.4.4 Table V.1 sets out where the site-specific information for Deptford Church Street can be found.

Table V.1 Deptford Church Street: Drawings that define the proposed development

Drawing title	Status	Location
Proposed schedule of works	For approval	Schedule 1 to the *Draft Thames Water Utilities Limited (Thames Tideway Tunnel) Development Consent Order* (the '*Draft DCO*')
Access plan	For approval	*Book of Plans*, Section 23
Demolition and site clearance	For approval	*Book of Plans*, Section 23
Site works parameter plan	For approval	*Book of Plans*, Section 23
Permanent works layout	Illustrative	*Book of Plans*, Section 23

Drawing title	Status	Location
Proposed landscape plan	Illustrative except the above-ground structures, which are indicative	*Book of Plans*, Section 23
Section AA	Illustrative	*Book of Plans*, Section 23
As existing and proposed elevation (various)	Illustrative	*Book of Plans*, Section 23
Kiosk design intent	Illustrative	*Book of Plans*, Section 23
Construction phases plans	Illustrative	*Book of Plans*, Section 23
Highway layout during construction (phases)	Illustrative	*Transport Assessment* Deptford Church Street Figures
Permanent highway layout (phases)	Illustrative	*Transport Assessment* Deptford Church Street Figures

V.4.5 The Nationally Significant Infrastructure Project (NSIP) works (Work Nos. 22a) comprise the construction of a CSO drop shaft with an internal diameter of approximately 17m and depth of 48m. Associated development (Work No. 22b) comprises the works to intercept and divert flow from the Deptford Storm Relief CSO to the drop shaft including construction of an interception chamber, CSO overflow structures, hydraulic structures, chambers with access covers, structures for air management plant and equipment and other structures to manage and intercept flow. The full description of the proposed development can be found in Schedule 1 to the *Draft DCO*. Further details of the temporary construction works and permanent operational structures are contained below and an extended description can also be found in the *Environmental Statement* (Vol 23), which accompanies the application.

V.4.6 At this site, approval is sought for the works shown on the Works plan showing the Greenwich connection tunnel, Deptford Church Street CSO drop shaft (Work No. 22a), and the Site works parameter plan which shows the relevant zones and limits of land to be acquired or used in which the associated development works would be undertaken (Work No. 22b) Access plans, and Demolition and site clearance plans. The plans for approval are contained in the *Book of Plans* along with other plans showing the construction phasing and permanent works plans relevant to this site. These other plans are marked either for approval, for information, indicative or illustrative depending on the level of detail they are providing. Section 5 of this document explains in more detail the overall approach to the level of detail and how the plans for approval were developed.

Construction

V.4.7 Construction at Deptford Church Street is anticipated to take approximately three and a half years and would involve the following

phases (with some overlaps). An illustration of the duration of the construction phases is provided in Figure V.3:

a. site set-up (approximately three months)

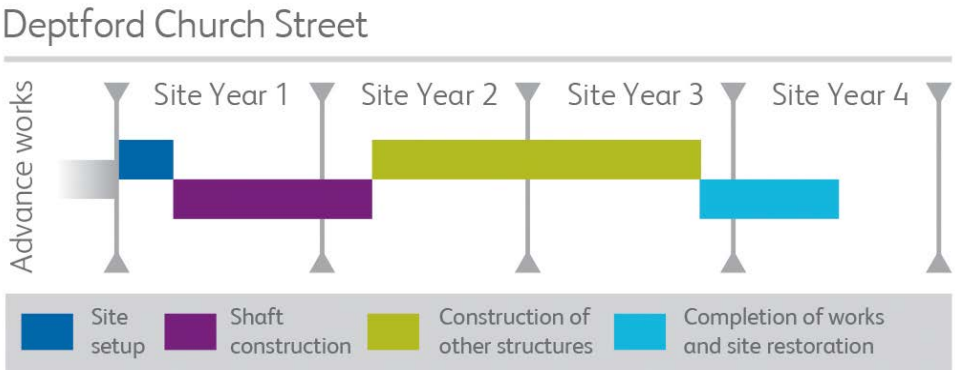
b. CSO drop shaft construction (approximately 12 months)

c. construction of other structures (approximately 20 months)

d. completion of works and site restoration (approximately six months).

V.4.8 Connection of utilities and diversion of utilities may be conducted in advance of the main activities listed above.

Figure V.3 Construction timeline



V.4.9 This site would operate to the standard and extended working hours for various phases and activities as set out in the *Code of Construction Practice (CoCP)* Part A and B (Section 4). Standard working hours would be applied to all of the above phases of construction work apart from elements of shaft construction and secondary lining as described below.

V.4.10 Extended working hours are required at this site to allow for major concrete pours for shaft construction including diaphragm wall panels, base slab, roof slab and other large elements. It is assumed that extended hours would be required approximately twice a week during diaphragm walling for a total duration of approximately four months, and once a month during other major concrete pours. The exact timing of any extended hours of working would be consulted on, and notified to the London Borough of Lewisham. During these periods only those activities directly connected with the task would be permitted within the varied hours.

V.4.11 Construction traffic would access the site from Blackheath Road (A2) travelling northbound along Deptford Church Street (A2209), turning left onto Crossfield Street and right into the site from a new access on Crossfield Street. Traffic leaving the site would turn right from a new entrance on Coffey Street and left onto Deptford Church Street (A2209), and then return to Blackheath Road (A2) using Creek Road (A200), Norman Road and Greenwich High Road (A206).

V.4.12 While the connection to the existing sewer in Deptford Church Street (A2209) is constructed the two northbound lanes of the road would need to be closed. The two southbound lanes would provide two-way access along Deptford Church Street (A2209). The bus lanes would be

suspended to enable this and buses would need to use the general traffic lanes. Two bus stops would also need to be relocated and part of the footpath along the western side Deptford Church Street would be diverted around the site.

V.4.13 It is anticipated that an average of nine heavy goods vehicles (HGVs) would access the site per day for the majority of the construction period. This would rise to approximately 32 HGVs per day over an estimated seven month period during CSO drop shaft construction. Further details regarding the number and breakdown of anticipated heavy goods vehicles accessing the site per day is contained within the *Transport Strategy,* which accompanies the application

V.4.14 Potential layouts of the construction site are shown on the Construction phasing plan contained within the *Book of Plans*. It should be noted that these layouts are illustrative only. The contractor may arrange the site in a different way, depending on the chosen construction method, provided that any environmental effects are appropriately managed.

Site set-up

V.4.15 Prior to any works commencing the site boundary would be established and secured. The boundary would be built to the heights specified in the *CoCP*. Welfare and office facilities would be set up. Water and power connection to the site would also be established.

V.4.16 All of the trees on the site would need to be removed as would the existing wall which runs from north to south across the site. The approach to any land remediation that might be required cannot be defined at this stage. However, it is assumed that any remediation that is required would occur within this earliest phase of construction and that any associated lorry movements would be substantially lower than the subsequent peak during the main construction phases.

Shaft construction

V.4.17 The approximate 17m internal diameter CSO drop shaft would then be constructed by diaphragm wall techniques.

V.4.18 During diaphragm wall excavation the trench would be filled with bentonite for ground support; on completion of the excavation, steel bar reinforcement cages would be lowered in before concrete would be pumped into the trench in order to displace the bentonite and form a wall panel.

V.4.19 This process would be repeated for each diaphragm wall panel in order to create the full circle of the shaft. Diaphragm wall excavated material would be processed as required and then loaded onto lorries for transport off site.

V.4.20 The CSO drop shaft excavation would commence after the diaphragm wall is complete. Excavated material would be put into skips within the shaft working area and hoisted by crawler crane from the shaft and deposited in a suitable storage area. After any required treatment, the material would be loaded onto lorries for transport off-site. Once the excavation is

complete, a steel reinforced concrete base slab would be formed at the base of the shaft.

V.4.21 It is anticipated that dewatering would be required. Dewatering wells would be drilled from within the shaft (a process known as 'internal dewatering') and groundwater extracted via pumps.

V.4.22 It is anticipated that ground treatment would be required within the Chalk beneath the base slab and that treated blocks would be constructed either side of the shaft to facilitate tunnel boring machine break in/break out.

Tunnel construction

V.4.23 As the Deptford Church Street shaft is online with the Greenwich Pumping Station to Chambers Wharf tunnel drive (Greenwich connection tunnel), there is no connection tunnel to be constructed. A temporary cradle would be constructed to receive the tunnel boring machine from Greenwich Pumping Station and re-launch it to Earl Pumping Station.

V.4.24 Tunnel portals with launch and reception seals would be formed in the shaft lining. The portals would consist of a cast *in situ* concrete portal with sealing arrangement tied to the shaft lining.

Secondary lining

V.4.25 Secondary lining is an additional layer of concrete placed against the inside of a tunnel's primary concrete segmental lining for water tightness and to improve the overall structural durability. It was assumed that the shaft at this site would have a reinforced concrete secondary lining.

V.4.26 It is assumed that the lining of the CSO drop shaft would be made of reinforced concrete placed inside the shaft's primary support. The steel reinforcement would be assembled in sections and a shutter would be used to cast the concrete against.

V.4.27 Any reinforced concrete structures internal to the shaft and for the roof slab would be constructed in a similar manner progressively from the shaft bottom.

Construction of other structures

V.4.28 Air management structures comprising an underground chamber, ventilation column and underground louvre chambers for ventilation control and an electrical and control kiosk would be constructed on the site. In addition an interception chamber, culvert and valve chamber would intercept the sewer running along Deptford Church Street.

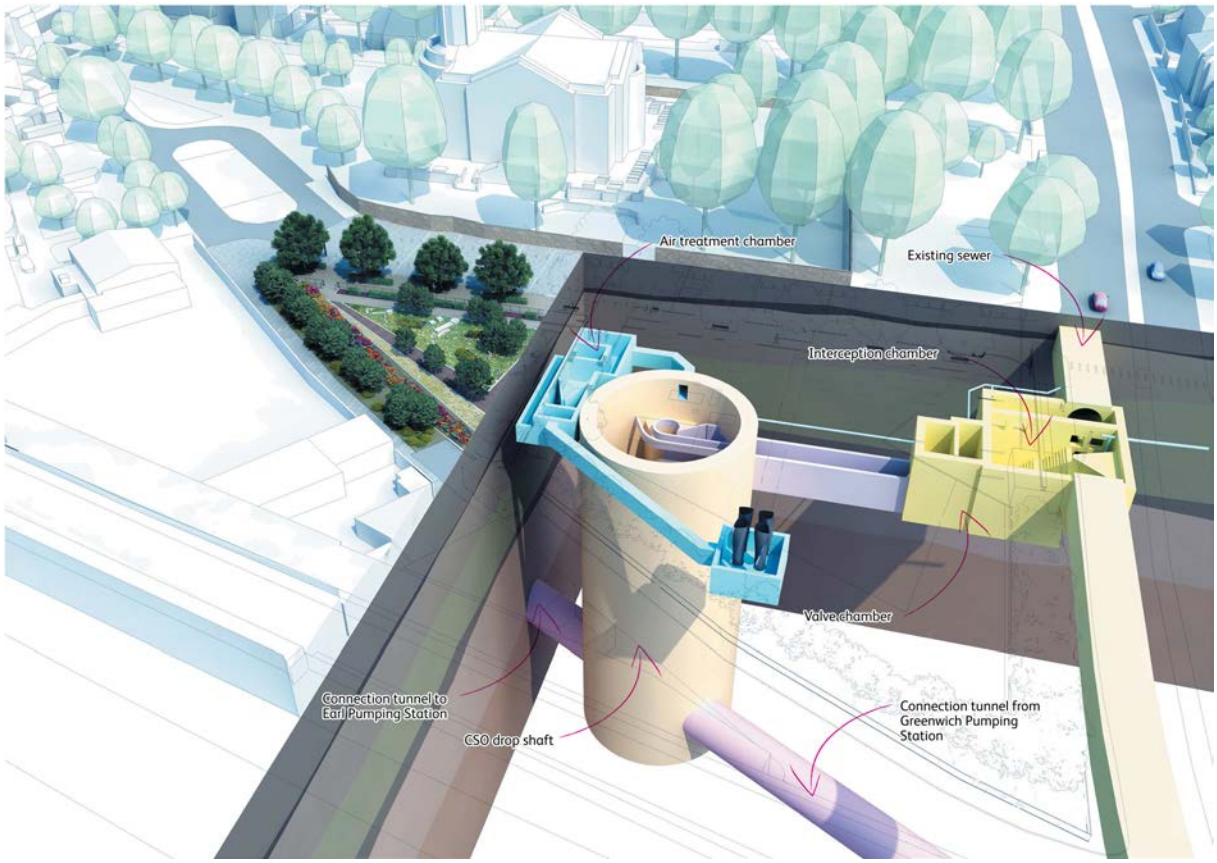
V.4.29 Sheet pile walls would be used to provide ground support within which the underground chambers would be constructed. Walls would be constructed to depth to minimise groundwater ingress into the excavation, but small pumps would be utilised to manage any ground water that does seep through. The pumps would discharge flow to the sewer after being treated through a settlement system.

V.4.30 The walls, bases and roofs of the chambers and shallow foundations for above-ground structures would be formed by in-situ concrete techniques. Ready mixed concrete would be delivered to site and either pumped or skipped to the chamber.

V.4.31 For the above-ground structures, including the electrical and control kiosk and ventilation columns, the components would be delivered by road and assembled on site using suitable lifting equipment.

V.4.32 The illustrative Construction phasing plans in Annex V provide context for the construction phases and Figure V.4 provides a visualisation of the functional components.

Figure V.4 Functional components digram



Completion of works and site restoration

V.4.33 On completion of the construction works the permanent works area would be finished in accordance with the landscaping requirements.

Operation

CSO drop shaft

V.4.34 The shaft would be located within the centre of the site. It would have an internal diameter of approximately 17m and be approximately 48m deep. The area above the shaft would be generally covered with grass with some access covers incorporated at the top of the shaft for inspection and maintenance purposes.

Chambers and culverts

V.4.35 The interception chamber, culvert and valve chamber would sit below ground in the north eastern corner of the site. Their location is dictated by the Deptford Storm Relief sewer below the western carriageway of Deptford Church Street. Access covers would be incorporated in an area

of hardstanding on top of the chambers for inspection and maintenance purposes.

Air management structures

V.4.36 An underground air treatment chamber containing an air management filter would be connected to the ventilation columns. A ground level access cover would be incorporated on the air treatment chamber for inspection and maintenance purposes.

V.4.37 Four ventilation columns would be located in the southeast of the site between 4 and 8m high with an approximate internal diameter of 1.2m. A further small diameter ventilation column serving the interception chamber would be located adjacent to the electrical and control kiosk. It would be approximately 6m in height with an approximate internal diameter of 0.225m.

Electrical and control kiosk

V.4.38 The electrical and control kiosk would be located on the site's eastern boundary adjacent to Deptford Church Street. It would measure approximately 5.9m by 2.3m by 6m high maximum and 8m by 5m by 3m high maximum.

Permanent restoration and landscaping

V.4.39 The proposed landscape plan is presented in a separate volume of figures. Thames Water propose a Requirement as part of the *Draft DCO* to require the submission of detailed design proposals for the final external appearance and landscaping details for approval prior to the commencement of their development. The final design of the landscape and restoration proposals would be subject to both the generic and site-specific design principles (see the *Design Principles*).

Access and movement

V.4.40 During operation, maintenance access to the site would be from Crossfield Street and Coffey Street with an additional access from the corner of Deptford Church Street and Coffey Street. These accesses would also provide the primary pedestrian entrances into the site.

Typical maintenance regime

V.4.41 Once the project is operational, it is anticipated that Thames Water personnel would visit the site approximately every three to six months to inspect and carry out maintenance of the electrical and control, ventilation and below-ground equipment. This would likely involve a visit by personnel in a small van during normal working hours and may take several hours.

V.4.42 It is anticipated that approximately once every three years the filter media in the air treatment chamber would need to be replaced. This would be carried out via the access covers in the western hardstanding area and the vehicles required would park on the area of hardstanding.

V.4.43 It is anticipated that a major internal inspection of the tunnel system and underground structures would be required once every ten years. This process would likely involve a small team of inspection staff and support

crew and two mobile cranes to lower the team and tunnel inspection vehicle into the CSO drop shaft. The inspection would be carried out during normal working hours and would take several weeks. It would involve temporarily removing turf and other landscaping to expose and open any buried access covers.

V.4.44 There would be one access cover in the western (northbound) carriageway of Deptford Church Street. This cover would be accessed once every ten years for major maintenance of the flap valves and would require a temporary lane closure in Deptford Church Street.

V.4.45 Thames Water may also need to visit the site for unplanned maintenance or repairs, for example, in the event of a blockage or an equipment failure. Such a visit may require the use of mobile cranes and vans.

Scheme development

V.4.46 The proposed development of the Deptford Church Street site was subject to over 18 months of extensive consultation and engagement. The site featured as a preferred site in the second full round of public consultation (at phase one the preferred site was Borthwick Wharf foreshore), in a phase of interim engagement, and in a period of pre-application publicity. Throughout this period the scheme evolved in response to consultation, through engagement with key stakeholders, regular community meetings and on-going design development. The *Consultation Report,* which accompanies the application, contains detailed information on the consultation process.

V.4.47 At phase one consultation, which ran from September 2010 to January 2011, the preferred site to intercept the CSO was Borthwick Wharf foreshore. During this phase of consultation, the proposal to use the Borthwick Wharf foreshore site gave rise to a number of objections concerning the potential impact of the proposed works on residential, visitor and business amenity and the unsuitability of Glaisher Street for use by HGVs accessing the site.

V.4.48 As detailed in the *Final Report on Site Selection Process*, which accompanies the application, following phase one consultation, Thames Water carried out further technical studies, into the use of the preferred site at Borthwick Wharf foreshore. As part of these further studies, Thames Water considered factors such as the difficult site access along Glaisher Street, a private road that was neither designed nor well-suited to carry construction traffic and, in this particular location, the construction constraints from the close proximity of the existing wharf jetty and sewer outfall at the bottom of the boat ramp used by the AHOY Centre. These factors, taken together with the objections received during phase one consultation, led to a back-check process and review of the selection of Borthwick Wharf foreshore as the preferred CSO interception site. This review included consideration of potential alternative sites further inland along the route of the Deptford Storm Relief Sewer including the site at Deptford Church Street.

V.4.49 The phase one consultation shortlisted sites; Borthwick Wharf foreshore, the AHOY Centre and the Open Space fronting Deptford Green were

reviewed along with new sites including Borthwick and Payne's Wharves, a site preferred by the London Borough of Lewisham as an alternative to Deptford Church Street, Deptford Church Street and land adjacent to Bronze Street. Deptford Church Street, Borthwick Wharf foreshore and land adjacent to Bronze Street were shortlisted during this review process. The site at Borthwick and Payne's wharf was not shortlisted due to it being subject to an extant planning permission for mixed use development. The selection of the site would be contrary to the project site selection methodology as it may be developed for uses including residential by the time Thames Water would be ready to begin construction works.

V.4.50 The constraining factors associated with the use of Borthwick Wharf foreshore are set out above, and were considered further as part of the review process.

V.4.51 Use of the Land at Bronze Street would impact upon an area of public open space which is well-used, designated as a Local Nature Reserve and could potentially impact upon a children's play area. It would also have a greater impact upon vehicle movements along Deptford Church Street. The Deptford Storm Relief Sewer which is to be intercepted is located on the western side of Deptford Church Street and use of the Bronze Street site would require phased lane closures across the full width of the highway. The Deptford Church Street site is located closer to the sewer and therefore its interception from the west would only require the phased closure of the western carriageway Whilst use of the Deptford Church Street site would cause some noise and visual disruption to St Paul's Church, St Joseph's and impact upon an area of public open space within a conservation area, Thames Water believe these effects can be mitigated to a greater degree than those associated with the use of the Land at Bronze Street.

V.4.52 Having carefully reviewed the relative advantages and disadvantages of the three shortlisted sites through this process, Thames Water concluded that Deptford Church Street was the most suitable site. It therefore became the preferred site at phase two consultation which ran from November 2011 to February 2012. In summary, it was selected for the following reasons (not in order of importance):

a. It has much better access for construction vehicles than Borthwick Wharf foreshore. Glaisher Street which was selected to provide access to Borthwick Wharf foreshore is a private road that passes through a large, gated housing development and was not designed to carry the HGV loads that would be required for construction. The only other option for access to the foreshore site would be through the Deptford Green Home Zone via Watergate Street, and Borthwick Street, which is also unsuitable due to its restricted width and the presence of traffic calming measures.

b. It is close to the existing CSO and interception can be made without working in the river, where the condition of the jetty is poor.

c. It would avoid using another foreshore site (at Borthwick Wharf) and the loss of valued foreshore habitats. The amenity grassland habitats at Deptford Church Street are less valuable ecologically.

d. The use of a land based site eliminates the risks to the flood defences, changes to local current flows and patterns of scour and sedimentation that can be associated with use of foreshore sites.

e. There are relatively few homes in the immediate vicinity of the site, (unlike the alternatives) and there is a busy road in close proximity which leads to relatively high existing background noise levels at these houses during daytime hours.

f. Whilst the proposed drop shaft and associated works would require the temporary loss of the designated open space and removal of the unlisted wall, the completed works would be mainly underground, which would allow opportunities to reinstate an enhanced open space. There was also scope to achieve further enhancements to the setting of the adjacent listed buildings, particularly the Grade I listed St Paul's Church.

g. It is acknowledged that the use of the Deptford Church Street site could have significant effects on sensitive receptors and the transport network and would result in the temporary loss of open space. However, Thames Water would be better able to address and mitigate the effects at Deptford Church Street than the impacts that would arise at other shortlisted sites.

V.4.53 Following further design improvements and the identification of potential mitigation measures, the site is the most appropriate site to intercept the Deptford Storm Relief CSO and connect to the Greenwich connection tunnel. It was publicised as Thames Water's proposed site at the Section 48 publicity stage, which ran from July 2012 to October 2012.

V.4.54 The principal issues that arose from pre-application consultation and Section 48 publicity for Deptford Church Street are given below:

a. The reasons for selecting the proposed site are flawed and questionable: This issue is addressed above and in more detail in the *Final Report on Site Selection Process*.

b. Concerns regarding the loss of open space during construction: This issue is addressed in the Land use including open space, green infrastructure and green belt and Socio-economic subsections below.

c. Concerns regarding amenity impacts arising from construction: This issue is addressed in the Air quality emissions, dust and odour, Noise and vibration, Townscape and visual impact and Light subsections below.

d. Concerns regarding effect of proposals on heritage features (including the Grade 1 listed St Paul's Church, St Paul's Conservation Area and other listed structures): This issue is addressed in the Good design, and Historic environment subsections below.

e. The effects on local wildlife and habitats including the loss of mature trees, and the impact on the SINC: This issue is addressed in the Biodiversity and geological conservation subsection below.

f. The effect of disruption from construction traffic on schools, businesses and pedestrian safety and the loss of parking and loading areas around the site: This issue is addressed in the Traffic and transport subsection below.

g. The effect of the proposed works on implementation of the Lewisham Links project and the council's other strategic objectives for Deptford: This issue is addressed in the Good design and Land use including open space, green infrastructure and green belt subsections below

h. Visual effects of the proposed structures: This issue addressed within the Townscape and visual impacts subsection below.

V.5 Site-specific planning considerations

V.5.1 This section provides an analysis of the key planning considerations associated with the proposed works at Deptford Church Street. It considers the issues and factors identified in the NPS and other issues such as noise, traffic and loss of open space which arose from consultation and are relevant to the site. The design response to each of these issues was informed by extensive consultation with stakeholders, as set out in the *Consultation Report*, and detailed below.

Meeting the need

V.5.2 The proposed works at Deptford Church Street would be successful in meeting the need to intercept the Deptford Storm Relief CSO, and would make an important contribution to meeting the wider need for the project identified in the NPS.

V.5.3 Currently in an average year, the Deptford Storm Relief Sewer CSO discharges approximately 1,470,000m^3 of untreated sewage into the tidal Thames in front of the slipway for the AHOY Sailing Club at Borthwick Street in the Royal Borough of Greenwich. The CSO discharges approximately 36 times a year and releases approximately 371 tonnes of sewage derived litter.

V.5.4 The CSO was identified by the Environment Agency as a CSO that needs to be controlled. The CSO discharges have multiple impacts on water quality in this location, including a localised effect of rapidly dropping dissolved oxygen levels, the release of pollutants and the discharge of sewage derived litter and effluent.

V.5.5 It is predicted that the CSO discharges will continue to worsen both in terms of volume frequency and content. By the time the proposed works at Deptford Church Street become operational the CSO in an average year is predicted to discharge approximately1,980,000m^3 of untreated sewage, over 39 discharge events releasing 500 tonnes of sewage derived litter.

V.5.6 Modelling suggests that the current annual discharges of untreated sewage would be reduced to approximately 163,000m^3 a reduction of 1,307,000m^3 from the current level, and from 36 spills a year to a predicted level of four spills per year with the project in operation. This represents a reduction of 92 per cent. This reduction would have a

significant beneficial effect on water quality. The tonnage of sewage derived litter discharged by the CSO is expected to be reduced by approximately 418 tonnes to 40 tonnes per year.

Good design

V.5.7 The amount, layout and scale of the proposed structures are primarily dictated by the function they need to perform. At this site key functional considerations would be transferring flows from the Deptford Storm Relief CSO into the Greenwich connection tunnel.

V.5.8 The location and value of the site as public open space are also key considerations, in particular the proximity of sensitive receptors to the north and south of the site including a number of listed structures and two schools.

V.5.9 Early site analysis and subsequent engagement identified that it was important for the design to respond to a number of opportunities and constraints.

V.5.10 The site-specific design opportunities included the potential to:

a. re-establish and enhance the public open space following the construction works
b. improve biodiversity and habitat value of the open space
c. improve and enhance the relationship between the site and the historic surroundings
d. improve the amenity and community value of the area
e. improve access and movement through the open space by removing the existing old brick wall and improving the fencing design
f. improve the connectivity between the site and surrounding land uses in accordance with the *North Lewisham Links Strategy*.

V.5.11 The site-specific design constraints included:

a. the proximity of the Grade I listed St Paul's Church to the site
b. part of the site falls within the St Paul's Conservation Area and the site is in close proximity to a number of heritage assets
c. part of the site is a designated SINC
d. the location of existing infrastructure and utilities which may present a challenge
e. surrounding roads on three sides
f. the site is in close proximity to sensitive receptors including St Joseph's, residential properties and a number of businesses
g. The site currently forms part of a fire evacuation muster point for St Joseph's.

V.5.12 The design of the proposals for the site evolved through phase two consultation and formal consultation with key stakeholders including the Design Council CABE, the London Borough of Lewisham, and the local

community. Details of the consultation process for this site are reported in the *Consultation Report* and Section 25 of the *Design and Access Statement*, which accompanies the application. As a result of design development aimed at addressing the site's constraints and capitalising on its opportunities, the Design Council CABE advised during a design review in June 2011 that the overall design for the Deptford Church Street site represents "*the best long-term solution for this space […] a genuine attempt to redress its shortcomings so that it can make a more valuable contribution to the community it serves*".

V.5.13 The principal issues that influenced the design at Deptford Church Street arising from Thames Water's analysis of site opportunities and constraints and the feedback from stakeholder consultations are:

a. the potential to enhance the setting of local historic assets

b. recognising the value of green space to the community and the importance of preserving and enhancing it

c. the relationship of the proposed development to Lewisham's aspirations to improve links across Deptford

d. managing construction impacts.

Enhancing the setting of local historic assets

V.5.14 Whilst the majority of Thames Water's proposals are underground, the site works, parameters and design principles for above-ground structures (ventilation columns and electrical and control kiosks), materials and landscaping were carefully chosen to ensure they are sensitive to the local heritage assets.

V.5.15 The ventilation columns would be located to the southeast of the site away from the Grade I listed St Paul's Church where illustrative plans show their appearance would be softened by planting. It is anticipated that the signature cast iron column design of the ventilation columns would be finished in black to reference other historic cast and wrought iron features in the area as illustrated in the *Design and Access Statement*. The final details of finishes would however be subject to the approval of London Borough Lewisham.

V.5.16 The position of the columns would also mark the end point of the old brick wall which currently divides the site and would be removed during construction. The demolition of the existing wall forms part of the associated development at this site. The route of the wall would be further recognised through a line of seasonal planting to reference the historical development of the site. This responds to comments made by the Design Council CABE during a design review in June 2011 when it stated that: "*It is felt important to reference the position of the Rectory Wall in the scheme, we think this could be achieved in a subtle way by, for example marking the alignment in mown grass or planting*".

V.5.17 Thames Water propose to make further reference to the history of the site in line with the scheme wide heritage design principle HRTG.04 by cladding the electrical and control kiosk in a high quality material such as York stone to reflect the materials of St Paul's Church. The kiosk could

also incorporate interpretive material such as an information board explaining the history of the site. These measures are shown in the *Design and Access Statement* as being illustrative and do not form part of this application. Such details would be submitted for approval by the London Borough of Lewisham at a later date.

Recognise the value of the green space to the community and the importance of preserving and enhancing it

V.5.18 The existing open space is divided by the brick wall into two distinct spaces and access east to west across the site is prevented. Thames Water's proposals for the site provide an opportunity to improve the open space, creating a more flexible, accessible and usable space. Illustrative landscaping proposals for the site, include the use of wildflower planting and native trees as well as the installation of bird boxes to attract a range of bird species (design principle DEPCS.08) which support the aims and objectives in the London Borough of Lewisham's *Biodiversity Action Plan* and would also enhance the site's value as a site of nature conservation importance. The final detailed proposals would in due course be submitted for approval by the London Borough Lewisham.

V.5.19 Illustrative proposals show how a new community-orientated public park could be created on completion of the proposed works. The park could become a local destination for residents and their families for a mixture of formal and informal activities. The design principles ensure that the detailed proposals would create a more integrated and accessible public space than that which currently exists, and one that would enhance the setting of the listed church (design principle DEPCS.06).

V.5.20 Thames Water produced two illustrative landscape design proposals for the Deptford Church Street site that set out two potential options for the configuration of the space and show the flexibility of the layout to accommodate different activities. Both options are described in more detail in Section 23 of the *Design and Access Statement* and plans of the two options are reproduced below in Figure V.5 and Figure V.6. Thames Water proposes to submit detailed design proposals to define the final external appearance and landscaping details for approval should development consent be granted. It is proposed that these final design proposals would be worked up in consultation with the London Borough of Lewisham and the local community including St Joseph's and St Paul's Church to reflect their aspirations, an approach commended by the Design Council CABE who stated in the design review that: "*the idea that the community could play a key role in developing the designs for the space should be welcomed and would be a good way of securing local ownership over the entire space. In our view the chances of a successful outcome will be that much greater if this is followed through rather than prescribing specific uses before local aspirations have been solicited*".

Figure V.5 Deptford Church Street landscaping Option 1

Figure V.6 Deptford Church Street landscaping Option 2

V.5.21 The illustrative proposals reflect the scope for the site to be used by school children from nearby St Joseph's. The design could include a community garden or educational play space and flexible grassed areas that could be used for educational purposes and informal recreation. This space would be enclosed by a low fence and a hedge to create a safe, semi-enclosed space for children and families to enjoy. It could

incorporate opportunities for natural and equipment-based play, tailored for the needs of young children and toddlers.

V.5.22 Other potential uses could include a community orchard and small scale food or herb garden. The proposals should be driven by the needs of the local community and schools.

V.5.23 Thames Water's proposals also include for the provision of adequate space for a fire mustering point for St Joseph's (design principle DEPCS.03)

Impact of the proposed development on Lewisham's aspirations to improve links across Deptford

V.5.24 The London Borough of Lewisham has aspirations, as set out in the *North Lewisham Links Strategy*, to improve east-west links across Deptford from Deptford Creek to Deptford High Street. Proposed pedestrian links would be defined once development consent for the project has been granted, however Thames Water's illustrative proposals show how the council's aspirations to fulfil the objectives in the *North Lewisham Links Strategy* and improve pedestrian access across the site (design principle DEPCS.01) could be achieved. Illustrative plans show footpaths across the site running north-south and east-west. These footpaths would establish new links with St Paul's Church as well as enhancing pedestrian access across the site.

V.5.25 Pedestrian links are proposed across the site between Crossfield Street and Coffey Street (design principle DEPCS.04) and also from Deptford Church Street towards Deptford High Street. Thames Water's proposals to improve accessibility across the open space and open it up to the surrounding neighbourhood were commended by the Design Council CABE: "*The design team's ideas for how this space could open itself up to the surrounding neighbourhood, and in the process strengthen links between the Laban Centre and Sue Godfrey Nature Reserve to the east. St. Paul's Church to the north and St. Joseph's Primary School and the High Street to the west are to be applauded. Considered at this strategic level, the unlocking of this site to allow for a wider green space network to emerge clearly illustrates the wider public benefit to be gained from such a move*".

V.5.26 The illustrative landscape plan also shows the provision of a shared surface along Coffey Street. Illustrative designs propose an area of high quality shared space along Coffey Street with a flush connecting surface between St Paul's Church and the main open space on site. This would comply with the *North Lewisham Links Strategy* for the area and create a strong visual link between the church and the open space.

V.5.27 Vehicular access and areas of parallel parking would be retained (design principle DEPCS.02); however the space would be designed to give pedestrians and cyclists priority. The street could also be planted with large London Plane trees to create a formal avenue promoting east-west movement. This would also tie in to the character of the wider landscape of the churchyard.

V.5.28 In line with the NPS, the proposed designs at Deptford Church Street evolved throughout the development of the project, through the iterative consideration of alternatives and from feedback received during the consultation periods. These are detailed in Section 25 of the *Design and Access Statement*.

V.5.29 The functional and engineering constraints at this site are relatively restrictive and there is limited scope to change the overall layout of the construction and permanent works. Detailed design proposals to define the final external appearance and landscaping details are to be agreed with the London Borough of Lewisham should development consent be granted. The landscaping designs are illustrative only and may be subject to changes following further consultation with the local community and London Borough Lewisham. They demonstrate, however, the quality of what can be achieved.

Managing construction impacts

V.5.30 The *CoCP* submitted as part of the application sets out how the environmental effects resulting from the construction of the project would be managed. The *Draft DCO* includes requirements to ensure that the construction works are carried out in accordance with Part A (project-wide) and Part B (site-specific) of the *CoCP*.

V.5.31 Design measures to manage the impacts of construction traffic are outlined in the *CoCP* Part A. This includes the provision of site-specific transport management plans to set out how vehicular access to the site would be managed in order to minimise the impact on the local area. The plans would communicate these strategies to the council and other stakeholders.

V.5.32 Further specific design measures to minimise temporary construction impacts at this site are outlined in the *CoCP* Part B and include use of hoarding of a height and extent to achieve appropriate visual screening and noise attenuation. Public facing sections of hoarding would be planted and site cabins and welfare facilities would be dark green to tie in with them.

V.5.33 The construction site layout would consider the external noise receptors and locate equipment and operations away from St Joseph's and St Paul's Church where possible. Enhanced noise barriers would be erected on site and consideration would be given to limiting high noise generating activities during church services and school exam periods. Extended working hours would be avoided where practical when there are special events in the church.

V.5.34 The contractor would liaise with St Paul's Church to coordinate traffic movements to and from the site limiting vehicle movements during funeral arrivals and departures and facilitating horse delivery lorries for horse-drawn hearses.

V.5.35 The proposals for Deptford Church Street were carefully developed through a collaborative process of design review and extensive consultation. The key functional requirements at this site relate to the need to intercept the Deptford Storm Relief CSO and ventilate the tunnel

in an efficient manner. The aesthetic components relate to the creation of a new, high quality landscaped open space which enhances the historic setting of the site and relates positively to the surrounding environment. The function and aesthetic elements were combined to create an attractive, usable and adaptable space in accordance with paras. 3.5.1 to 3.5.3 of the NPS.

Water quality, resources and flood risk

V.5.36 In terms of ground water resources there are no licensed groundwater abstractions from the River Terrace Deposits or upper aquifer located within 1km of the Deptford Church Street site, however there is one licensed groundwater abstraction from the chalk or lower aquifer located 0.9km to the south of the Deptford Church Street site that is held by Thames Water Utilities Limited. The groundwater abstracted is used for public supply purposes.

V.5.37 Measures to protect water quality and resources during construction are detailed in the *CoCP* Part A and referred to in the project-wide assessment. In accordance with the approach suggested in the NPS, the *CoCP* covers activities that are subject to pollution control and incorporates good practice.

V.5.38 A Flood Risk Assessment including the sequential and exception test undertaken in accordance with Section 4.4 of the NPS is provided within the *Environmental Statement* (Vol 3, Section 15; Vol 23, Section 15).

V.5.39 The *Environmental Statement* concludes that, after taking into account the measures incorporated into the design and *CoCP*, potential impacts on surface water resources, river flows, groundwater resources and flood risk are predicted to be manageable.

V.5.40 The site therefore meets the decision making principles set out in the NPS because no adverse effects are expected on water quality or water resources and the Environment Agency has no outstanding concerns.

Air quality, emissions, dust and odour

V.5.41 The project-wide air management plan is designed to ensure that the air in the tunnels is kept fresh, that a low pressure is maintained within the tunnels to prevent unwanted releases and that when air is released it is treated. This would be achieved by a combination of forced or active ventilation and treatment and passive air treatment. In addition, at all sites there are to be ventilation structures which would allow air to enter and leave the tunnel system.

V.5.42 When the tunnels are empty, clean air would be drawn into the tunnels at specific sites by the extraction of air at other specific sites so as to keep the air in the tunnels fresh. This means that odours would not build up while the tunnels are empty. As the tunnels fill, air displaced from the tunnels would initially be extracted and treated at the active ventilation sites before being released and later, depending of the level of filling, would pass through the passive carbon filters. These filters clean the air and remove any odours before it is released.

V.5.43 At passive ventilation sites such as Deptford Church Street, a passive carbon filter would be installed within a below ground chamber. During a typical year this treats all the air displaced from the particular shaft which would occur only when the shaft is drowned by the rising wastewater in the tunnel. During infrequent, extreme storm events (about once in 15 years), the air that is pushed out of the shaft could exceed the capacity of the passive filter and would be released untreated through a pressure relief structure to prevent damage to the passive filter. For 100 per cent of the time during a Typical Year, all air released would be treated, which means that all regulatory requirements would be met and there would be no nuisance odours or loss of amenity due to odours.

V.5.44 The London Borough of Lewisham has four Air Quality Management Areas that cover the northern half of the borough. The site is located within the London Borough of Lewisham's northernmost Air Quality Management Area and is well separated from neighbouring Boroughs for the purpose of air quality analysis. Local monitoring data indicates that there are currently exceedences of the air quality standard for nitrogen dioxide and particulate matter in the vicinity of the site. The nearest sensitive receptors are local residents and those attending St Joseph's and Tidemill Academy.

V.5.45 Through the measures included within the *CoCP* all reasonable steps have been taken, and would be taken, to minimise detrimental impacts on amenity resulting from air quality, emissions and dust as required by NPS para. 4.12.10. As a result of these measures it is reported in the *Environment Statement* that effects from dust and emissions during construction and within 20m of the site would not have any adverse impacts and could be sufficiently managed. Beyond the 20m threshold expected effects are predicted to be negligible.

V.5.46 The consideration of odour impacts is also set out in the project-wide section of the *Planning Statement*. The ventilation strategy for the project is designed to ensure that there would be no loss of amenity, and no nuisance, as a result of odour from the operation of the scheme at all locations.

V.5.47 The construction and operational effects with regard to air quality and odour would be consistent with the NPS policy objectives to minimise detrimental impacts on amenity and the likelihood of nuisance (paras. 4.12.3, 4.11.4 and 4.11.5) at Deptford Church Street. Appropriate measures are proposed to ensure that proposals would not lead to any substantial changes in air quality, emissions, dust or odour or a significant loss of amenity during construction or operation.

Biodiversity and geological conservation

V.5.48 The Deptford Church Street site is not designated for its geological or geo-morphological importance, and there are no internationally (Special Protection Areas, Ramsar sites) or nationally designated ecological sites (Sites of Special Scientific Interest, Marine Conservation Zones) in the vicinity of the site.

V.5.49 The site falls within an area designated as a SINC that also includes the St Paul's Churchyard. The Sue Godfrey Nature Reserve is located 30m to the north of the site and is also designated as a SINC. All other designated sites are isolated from the Deptford Church Street site and would not be affected by the proposals.

V.5.50 In respect of aquatic ecology, construction effects are not assessed as there would not be any works in proximity to a waterway. During operation the interception of the CSO would result in reduced discharge of sewage into the tidal Thames, with consequential beneficial effects on ecology.

V.5.51 In terms of terrestrial ecology, the surveys undertaken predict that no significant effects are anticipated at this site. The site largely comprises species-poor amenity grassland with scattered trees and a small area of semi-improved grassland with tall ruderal vegetation that contains fiddle dock, which is a scarce plant species in Lewisham. The *Environmental Statement* (Vol 23, Section 6) concludes that, whilst site clearance would result in temporary loss of habitat, this would be reinstated on completion of works and opportunities would be taken to enhance the value of the restored site. The works would not have a substantial negative effect on terrestrial habitats or species.

V.5.52 Covering the roof of the electrical and control kiosk with materials such as low nutrient rubble and gravels would promote natural colonisation by brown field plants of particular value to insects and birds. The *CoCP* requires an ecological management plan to be prepared for the site, and details the approach to managing effects on ecological receptors.

V.5.53 In accordance with NPS policy, the proposed development would avoid significant harm to biodiversity and geological conservation interests. Thames Water also sought to take advantage of the opportunities to conserve and enhance biodiversity and the works proposed to restore the open space following construction would significantly improve the quality of the site. The reinstatement of habitat on site could include wildflower grassland, fiddle dock, hedgerows and scrub that are ecologically beneficial. Where trees are to be provided, they could include fruiting and nectar rich trees which would provide an environment for invertebrates, birds and bats and native species in accordance with the principles of the *Biodiversity Action Plan*. These measures would be addressed through final landscape designs to be discussed with and approved by the London Borough of Lewisham, and allow for the maximisation of opportunities for building in beneficial biodiversity features as part of good design (NPS para. 4.5.14).

V.5.54 As required by the NPS (para. 4.5.17), the footprint of the proposals is no greater than it needs to be and measures are in place to mitigate any adverse effects and enhance the value of long-term habitats on the site.

Landscape and visual impacts

V.5.55 Thames Water took into account the designation and setting of St Paul's and Deptford High Street Conservation Areas although conservation area appraisals are yet to be produced by the London Borough of Lewisham.

V.5.56 The site also falls partly within a protected London Panorama from Blackheath Point to St Paul's Cathedral and this was also taken into account in accordance with para. 4.7.14 of the NPS.

V.5.57 The existing on-site townscape conditions at Deptford Church Street are fair with some components in need of repair. The immediate townscape is dominated by St Paul's Church and the railway viaduct, interspersed with some commercial, retail, leisure and recreational uses. The surrounding townscape is generally good and locally valued. The viewpoints which inform the visual assessment in the *Environmental Statement* were discussed and agreed in advance with the London Borough of Lewisham.

V.5.58 The nature of the construction works is such that they would result in impacts on the character of the site with effects arising from the removal of trees and the demolition of the brick wall which crosses the site. This would be clearly apparent within St Paul's Conservation Area which incorporates the site, although these effects would not extend outside the immediate local area.

V.5.59 Construction activity would result in temporary but adverse visual impacts. Whilst there would be high quality planted hoardings to screen views into the site during construction, at a limited number of viewpoints adverse effects would remain and the hoardings themselves would replace current views across the site. Such viewpoints would include views from residences on Berthon Street and Deptford High Street, close to Diamond Way as well as views from the steps of St Paul's Church.

V.5.60 Since there would be little above-ground activity associated with the operational phase of the project, apart from infrequent maintenance visits, and given the limited nature of the above-ground structures, the proposed development as a whole would have a limited adverse effect on the character of the site, surrounding townscape and views from receptors.

V.5.61 The proposed development, however, provides the opportunity for a permanent enhancement of the townscape character and visual amenity of the site. As reflected in the design principles, a new area of high quality public realm would be created with sensitive landscaping which respects the historic setting of the site. The above-ground structures and newly planted trees along with clearance of existing structures including fencing around the site and the rectory brick wall which are detrimental to the existing townscape would result in overall improvements to the townscape character and to views from surrounding properties.

V.5.62 The adverse effects identified within the *Environmental Statement* would be limited and relate to the temporary construction works only. The NPS recognises in para. 1.4.4 that NSIPs are likely to take place in mature urban environments, with adverse townscape and visual effects within a built up environment, with many possible receptors. Large-scale construction works are commonplace in London and Deptford, as a regeneration area, is subject to a significant amount of construction activity. The construction effects of the project are unavoidable and temporary and should be considered in this context.

V.5.63 Once construction is complete Thames Water's proposals for an enhanced high quality public space would benefit townscape and visual amenity. The landscape and design proposals for the site would bring about significant longer term benefits.

V.5.64 Accordingly, the proposals are consistent with the approach required in Section 4.7 of the NPS because they were designed taking careful account of the landscape characteristics of the area, to minimise adverse effects during the construction phase and to increase long-term landscape and visual benefits.

Land use including open space, green infrastructure and green belt

V.5.65 The impact of the proposals on neighbouring land uses and land use designations (as identified in the *Core Strategy* and retained *UDP* policies) was a key consideration in the project's site selection process and on-going design development. A land use plan is provided in Annex V.

V.5.66 The existing use of the site is as a public open space known as Crossfield Street Open Space. The open space is approximately 0.6ha in size and categorised as a 'pocket park' under the Greater London Authority Open Space Hierarchy meaning that it would typically serve a catchment of less than 400m. The London Borough of Lewisham's *Leisure and Open Space Study* identifies the space as an area of "*visual amenity green space - areas that improve the visual appearance of residential or other areas*". The study assesses the open space as being of "*average*" quality (35 per cent). At this level it falls below the proposed quality standard for amenity green space set in the study (46 per cent).

V.5.67 The open space is divided into two portions by a high brick wall which cuts across the site from north to south so that it does not function as a single space. Both sections are accessible to the public at all times. The space is not formally landscaped although it is planted with a number of semi-mature and mature trees.

V.5.68 The open space provides opportunities for both passive recreation and small scale informal active recreation, although there are no visitor amenities such as benches or lighting.

V.5.69 The usage surveys carried out as part of the *Environmental Impact Assessment* found that both sections of the open space were lightly used. The vast majority of users recorded (over 80 per cent) used the space for walking and exercising dogs, and then almost always within the fenced off eastern portion of the space. The western portion of the space was rarely recorded in use and then usually by pedestrians traversing between Crossfield Street and Coffey Street. The western section of the open space is currently used by St Joseph's as an emergency mustering point.

V.5.70 Construction works would temporarily remove Crossfield Street Open Space from public use for three and a half years. However, there are several other open spaces within 400m of the site to the north and east which are listed below:

a. St Paul's Churchyard (within the churchyard walls) to the north

b. a lawn to the east of St Paul's Churchyard walls at the junction with Deptford Church Street and Coffey Street

c. the Sue Godfrey Local Nature Reserve to the east beyond Deptford Church Street, which contains some seating and the adjoining Ferranti Park, which contains seating and a playground area

d. a small playground to the north of the St Paul's Churchyard at Mary Ann Buildings.

V.5.71 The alternative spaces are each of a similar or slightly larger size and, based upon the *Leisure and Open Space Study*, are of better quality than Crossfield Street Open Space. Whilst the exercising of dogs is prohibited at Sue Godfrey Nature Reserve, the lawn to the east of St Paul's Churchyard provides an alternative space for such activities in close proximity to the Crossfield Street Open Space.

V.5.72 An alternative emergency mustering point for St Joseph's would be provided during construction. It is proposed that pupils would muster outside the school to the north of the construction site and, if necessary, proceed to the grounds of St Paul's Churchyard. Following the completion of construction works, the Crossfield Street Open Space would once again provide a suitable mustering point for school pupils and this requirement is reflected in Thames Water's design proposals.

V.5.73 Once construction works are complete, the site would be returned to public open space, although it is proposed that the space would be significantly enhanced with the provision of high quality public realm and sensitive landscaping adding value to its function. As illustrated in Section 25 of the *Design and Access Statement*, Thames Water developed two options for this site to illustrate two different ways in which a new community-orientated public park could be created. The proposals show how the park could become a local destination for residents and their families for a mixture of formal and informal activities. The open space would provide flexible space to meet, walk or play sport with attractive hard and soft landscaping reflecting local heritage and biodiversity. Major improvements to the open space can be achieved.

V.5.74 In undertaking the balancing exercise envisaged by paras. 4.8.13 and 4.8.14 of the NPS, the temporary loss of open space therefore needs to be weighed not just against the benefits associated with the interception of the CSO, but also against the benefits of the longer term enhancement of that space. The permanent works including the re-provision of an enhanced park and high quality public realm scheme would significantly improve the open space.

V.5.75 The proposed works would not prevent the beneficial continuation of surrounding land uses, either during construction or operation. Similarly, no extant planning permissions, committed developments, or policy allocations for future development within the surrounding area would be adversely impacted as a result of the works.

Noise and vibration

V.5.76 The current noise conditions at the Deptford Church Street site are predominantly generated from road traffic with additional noise from the railway to the south of the site. Children playing in the playground at St Joseph's during break times and before and after school also create noise at the site.

V.5.77 The nearest residences to the site are to the east, set back from Deptford Church Street, at Congers House, Farrer House and Berthon Street. To the south, beyond the railway viaduct residential properties are located on Resolution Way and to the west of the site are the rear façades of the mixed residential and commercial properties on Deptford High Street.

V.5.78 The *Environmental Statement* provides an assessment of expected noise effects at residential properties during the construction phase. The assessment concludes that noise levels are not estimated to exceed the permitted threshold for any residential receptors. Accordingly, there would be no significant noise impacts on residential properties surrounding the Deptford Church Street site as a result of the proposed works.

V.5.79 The noise levels predicted at St Joseph's and at St Paul's Church during construction would potentially be significant due to the proximity of these receptors to the proposed construction site. At St Joseph's school the worst case predicted noise level during the daytime is greater than the current ambient noise level, for a total period of eight months. Whilst it is likely to be noticeable inside the school buildings, it is not predicted to exceed guideline noise levels for classroom use. It is anticipated that noise effects would be more noticeable on the upper levels of the school, but it is not anticipated that these would be disruptive to classes. It is possible that during the construction period there may be short periods of time during which guideline noise levels may be exceeded but further measures would be implemented to help mitigate this impact as explained in V.5.83 below.

V.5.80 St Paul's Church is located approximately 35m from the site boundary and the church windows would be largely screened by the proposed site hoarding. However, modelling predicts that construction noise would exceed existing ambient noise during the daytime for a period of 25 months during construction, and that the average noise level inside the church is expected to exceed guideline noise levels based on typical noise insulation for a façade of this type for a period of eight months. No noise exceedences at St Paul's Church during the evening are expected. Noise insulation in the form of secondary glazing is not a viable option for this Grade 1 listed Building, as it would detract from the heritage significance of the building.

V.5.81 At phase two consultation English Heritage stated that "*the Church of St Paul's is also used for recording music, something requiring very significant levels of tranquillity, and which is a vital source of income for the Church*". The noise assessment did take into account the potential for a recording use and, as set out in the *CoCP*, the project would manage the works in a manner which would minimise the disturbance from noise

and vibration. This would include liaising with the church and wherever possibly amending working schedules to limit activities during church services and other events at the church.

V.5.82 Measures to minimise potential adverse impacts from noise are detailed in the *CoCP* and are embedded within the project design, compliance with which is secured through a site-specific Requirement. The measures include operating in accordance with best practice, selection of the quietest cost-effective plant available, and optimising plant layout to minimise noise emissions.

V.5.83 In addition, the contractors site layout and operation would take into consideration the proximity to both St Paul's Church and St Joseph's and site-specific mitigation measures would include enhanced noise barriers (additional, high and/or double skinned barriers),and careful design of the egress gate through the hoarding on Coffey Street. An operating strategy would be prepared which would commit to gate closure during sensitive periods, amending work schedules and limiting activities during church services and school exam periods where practical and avoiding extended working hours when there are special events in the church. These measures are set out in the *CoCP* Part B, and would be secured through a Requirement.

V.5.84 Vibration effects are also assessed in the *Environmental Statement* and no adverse effects are anticipated during construction or operation that would cause cosmetic damage to buildings or harm to humans.

V.5.85 The occupants of St Joseph's and St Paul's Church may be eligible to apply for compensation through the Thames Tideway Tunnel Project compensation programme (included within Schedule 2 to the *Statement of Reasons*, which accompanies the application). This was established to address claims of exceptional hardship or disturbance.

V.5.86 The NPS recognises that NSIPs are likely to take place in mature urban environments and in the short term lead to noise disturbance during construction. The proposed works may cause some short term noise impacts at St Joseph's and at St Paul's during construction. The design of the site was developed as far as practical to minimise adverse noise effects on these and other sensitive receptors and the proposed mitigation measures seek to manage and control noise and minimise the impacts upon health and quality of life as far as practical, in accordance with NPS paras. 4.9.8 and 4.9.9.

Historic environment

V.5.87 The *Environmental Statement* and *Heritage Statement*, which accompanies the application, both describe the importance of the heritage assets that may be affected by the proposed development and the contribution of their setting to their significance.

V.5.88 The site is located within the St Paul's Conservation Area with the Deptford High Street Conservation Area located to the west of the site and the Deptford Creekside Conservation Area located to the east of the site. The site also lies within the Upper Deptford Archaeological Priority Zone.

V.5.89 The site does not contain any nationally designated heritage assets. The Grade II listed mid-19th century London to Greenwich Railway viaduct is located adjacent to the south eastern corner of the site. Listed buildings in proximity to the site include the Parish Church of St Paul's (see Figure V.7) which is a Grade I listed building, constructed in 1730 which is located to the north of the site. The Grade II listed walls of its churchyard and the Grade II listed walls of the former graveyard belonging to the Old Baptist Chapel are sited to the north of the site, on the opposite side of Coffey Street.

Figure V.7 View of St Paul's Church

V.5.90 Six known burial areas are also identified within the assessment area, but none within the site, as detailed in the *Environmental Statement* (Vol 23, Section 7).

V.5.91 Construction of the main shaft would entail deep excavations whilst the associated culverts and chambers would also require excavation works but they are less intensive. The works would potentially harm any archaeological assets within each area of excavation. The assessment identifies that the main potential in terms of buried heritage assets is for post medieval remains in the form of footings from a 19th century building, however the likely effects of construction works upon these assets would be minor.

V.5.92 There would be no significant effect from ground movement on Grade I listed St Paul's Church and its boundary walls. The building may experience settlement of between 1mm and 3mm, with the greatest settlement at its western (tower) end and to the western stretch of the boundary walls. The listed London and Greenwich railway viaduct may also experience settlement to a maximum of 6mm. The damage

assessment predicts the damage risk to both the church and the viaduct as negligible. The listed buildings would be monitored during the works, and in the event of damage to their significance caused by ground movement, would be repaired on conclusion of the works, in accordance with the *CoCP* (Section 12), using standard conservation methods, to produce a like for like repair.

V.5.93 The NPS recognises that NSIPs are likely to take place in mature urban environments and as such have adverse effects on archaeology and cultural heritage. Mitigation during construction works would be carried out in accordance with a scope of works (*Site-specific Archaeological Written Scheme of Investigation*), which would be agreed in advance with statutory consultees, to ensure that the scope and method of fieldwork are appropriate.

V.5.94 In terms of potential effects on the historic environment arising from the construction works, the assessment undertaken in the *Heritage Statement* assesses the effects on the historic character of St Paul's Conservation Area and setting of the listed church and reports that the effects of the proposed development on buried heritage assets within the site during the construction phase could be successfully mitigated by a suitable programme of archaeological investigation before and/or during construction, in accordance with the written scheme of investigation.

V.5.95 While the majority of the proposed permanent structures are underground, the design principles and parameters for the ventilation columns and electrical and control kiosk were carefully chosen to ensure that they are sensitive to and would not adversely affect the setting of local heritage assets. The finish of ventilation columns and electrical and control kiosk are proposed to reflect the history of the area. The finishes would be subject to the approval of the local planning authority in due course, but the expectation is that there would be black cast iron finishes to the ventilation columns reflecting the industrial heritage of the area and York stone cladding for the electrical and control kiosk reflecting the materials of St Paul's Church. The electrical and control kiosk could further respond to the historic context of the site by incorporating interpretive material such as an information board explaining the history of the site.

V.5.96 Landscaping proposals for the enhanced public space were also designed in the light of the site's historic setting. The old brick wall, which is undesignated and has no significance in heritage terms, would be removed during construction and it is proposed that its route would be recognised with the use of seasonal planting. In addition, native London Plane trees would create a promenade along Coffey Street to enhance the setting of St Paul's Church and tie in with the wider character of the churchyard.

V.5.97 Once operational, improvements to the character of the conservation area are anticipated due to the proposed open space enhancements and potential. Such improvements would also enhance the setting of the listed St Paul's Church. The improved planting, amenity value, connectivity and integration between the open space and the churchyard would attract more footfall and would therefore improve public access and public

appreciation of the significance of the church as the centre of the conservation area, reintegrating the conservation area's disparate elements.

V.5.98 The proposals therefore were developed with the benefit of a thorough understanding of the significance of the site and heritage status and characteristics of its neighbours. The design developed, as far as practical, to minimise the adverse effects of the historic environment and to take opportunities to enhance the long term setting of nearby buildings.

Light

V.5.99 Through the measures included within the *CoCP* all reasonable steps were considered, and would be taken, to minimise detrimental impact on amenity resulting from artificial light.

V.5.100 The surrounding area is well lit in the early evenings by street lighting and by light spill from surrounding buildings.

V.5.101 A screening assessment carried out into the daylight/sunlight impacts of the proposed development concluded that there would be no material impact on sunlight or daylight from either construction or the permanent works.

V.5.102 Any site lighting during construction would be capped and directional so as to ensure minimal light spill in accordance with the mitigation measures set out in the *CoCP* and the resulting effects would be negligible from residential and other viewpoints.

V.5.103 The operation of the proposed development would have no substantial lighting requirements apart from reinstatement street lighting.

V.5.104 All reasonable steps have been taken to minimise any detrimental effects arising from the use of artificial lighting at the site.

Traffic and transport

V.5.105 The *Environmental Statement* and *Transport Assessment* consider the likely transport effects at this site in respect of the proposals for both the construction and operational phases. The project-wide approach to managing transport is set out in the *Transport Strategy*, which accompanies the application.

V.5.106 The site is located in an area which has good access to public transport. Deptford Rail Station provides access to Southeastern train services between Dartford and London Bridge and is approximately 300m walking distance to the southeast of the site. The Deptford Bridge Docklands Light Rail station is approximately 600m walking distance from the site and provides a connection between Lewisham and Bank. Six daytime and three night time bus routes operate within walking distance of the site serving local destinations.

V.5.107 There are no strategic cycle routes in the immediate vicinity of the site. The nearest cycle route within the area is National Cycle Network Route 21 which runs along Creekside to the east of the site and connects to National Cycle Network Route 4 to the north on Creek Road (A200) which connects to central London. Barclays Cycle Superhighway CS4 is a

planned future route running between Woolwich and London Bridge which is expected to open by the second year of construction. The route runs along Creek Road (A200), approximately 200m to the north of the site. By 2013, Barclays Cycle Superhighway CS5 should also have opened, running from Lewisham to Victoria. It would travel east to west in the area of the A2, some 565m to the south of the site.

V.5.108 Vehicular access during construction would comprise a one-way system with vehicles entering the site via an access point on Crossfield Street with vehicles exiting onto Coffey Street. Vehicles would travel to the site from Blackheath Road (A2) and travel north along Deptford Church Street. Vehicles exiting the site on Coffey Street would turn left onto Deptford Church Street and return to the A2 via Creek Road, Norman Road and Greenwich High Road (A206).

V.5.109 During construction typical vehicle movements would take place on weekdays between 8am to 6pm and on Saturdays from 8am to 1pm with up to one hour before and after these hours for mobilisation and demobilisation of staff. In exceptional circumstances HGV and abnormal load movements could occur up to 10pm for large concrete pours and later at night on agreement with the local authority. Thames Water would require contractors to produce a green travel plan to encourage the use of public transport by those working on the project.

V.5.110 Works proposed at this site are split into three construction phases. The first two phases would primarily comprise site preparation and construction of the shaft and during these phases a hoarding would run around the perimeter of the Crossfield Open Space. There is no requirement to close the highway. Phase three involves construction of other on site structures with the primary works being construction of the interception chamber within Deptford Church Street. The chamber is the key structure which allows the Deptford Storm Relief to be intercepted. During this phase the hoarding would be extended east to include the two north bound lanes of Deptford Church Street. These lanes are anticipated to be temporarily stopped up for a period of approximately 11 months.

V.5.111 Works proposed at the site would also require an area of highway in front of St Joseph's to be temporarily stopped up to form a fire assembly point and small areas of highway on both Coffey Street and Crossfield Street to be temporarily stopped up to facilitate site access for the period of the works.

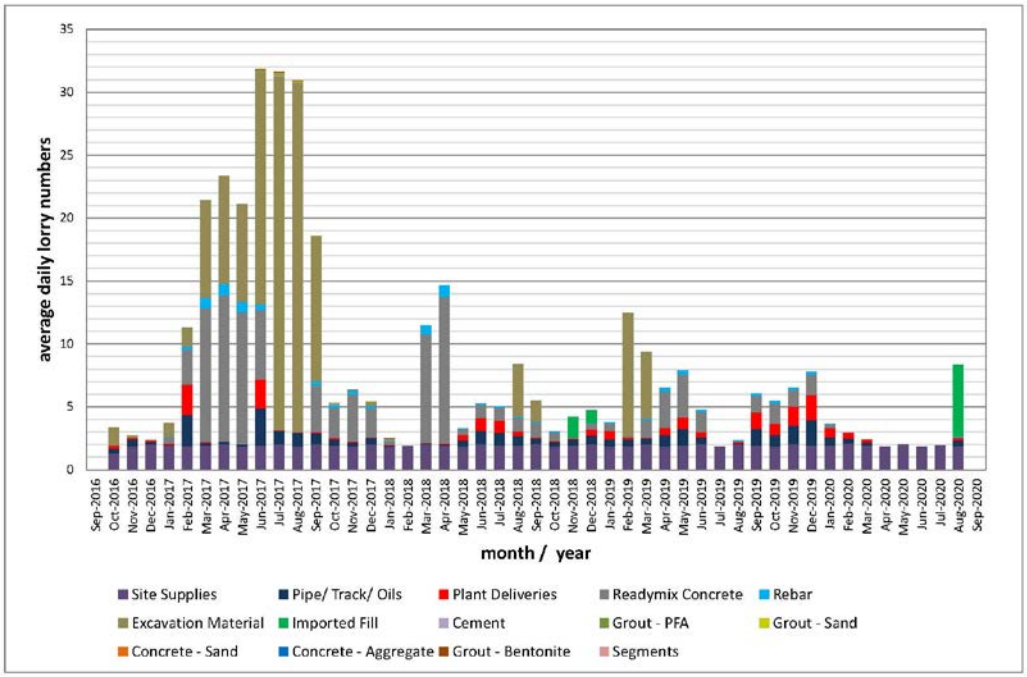
V.5.112 During construction bus stops on either side of Deptford Church Street would need to be relocated. The bus stops to the south would be relocated 3m whilst the bus stops to the north would be relocated 10m.

V.5.113 At this site shaft excavated material as well as imported materials would be transported by road. In line with sustainable waste management practices, the reuse of excavated material on site would minimise the number of HGV movements to and from the site. On average a peak of 64 traffic movements (32 two-way trips) is expected during shaft construction works which corresponds with the peak of construction activity on the site during year one for a period of seven months. At other times in the construction period, vehicle flows would be lower than this

average peak figure. The average daily lorry numbers at this site are shown graphically in Figure V.8 overleaf.

V.5.114 The *Environmental Statement* predicts a worst case scenario of 104 vehicle movements a day during the months of greatest activity during year one of construction. Given the traffic flows projected, some minor delays to journey times may be experienced during this peak period; however such delays would not have a significant impact on the road network surrounding the Deptford Church Street site. During construction phases 1 and 2, the maximum increase to delay would be approximately 30 seconds per vehicle during the PM peak hour. There would be a maximum increase of approximately 49 seconds delay on the Deptford Broadway (ahead and right movement) during the PM peak hour. The predicted delays to journey times as a result of construction traffic are predicted to have a negligible impact on the road network surrounding the Deptford Church Street site.

Figure V.8 Estimated construction lorry profile



V.5.115 During all phases of construction, the footways surrounding the site would be affected by the works. Footways on the south side of Coffey Street, the north side of Crossfield Street and the west side of Deptford Church Street (A2209) would be temporarily closed and diverted as they would form part of the construction site. Pedestrians would be diverted to the north footway of Coffey Street and the south footway of Crossfield Street.

V.5.116 The pedestrian diversions would result in a worst case total journey time increase of approximately two minutes for those using the western footpath of Deptford Church Street during phase three of construction. Other journey times would have less delay. The impact upon pedestrians as a result of the proposed diversions is potentially significant, in light of the increase in journey time; however, every attempt would be made to

limit the duration of the diversions. During construction, the works would not significantly impact cycle routes and facilities, public transport routes and patronage, parking or the highway network.

V.5.117 Measures to further reduce transport impacts are detailed in the *CoCP*. These include heavy goods vehicle management and control measures such as defining designated routes for construction vehicles.

V.5.118 During the operational phase there would be very occasional vehicle trips to and from the site for maintenance activities. These would have a negligible effect on the surrounding transport networks.

V.5.119 The proposed works at Deptford Church Street were designed to ensure that the construction works do not give rise to substantial impacts on the surrounding transport infrastructure. The potential disruption to pedestrians caused by footway diversions would be minimised as far as practical within the constraints of the construction requirements on site.

Waste management

V.5.120 The Waste Strategy was developed to provide a framework for the management of materials and waste that would be produced throughout the construction and operational phases of the project. This ensures that the requirements set out in para. 4.14.6 of the NPS would be satisfied, and the Waste Strategy would be secured via a Requirement/obligation in accordance with para. 4.14.7 of the NPS.

V.5.121 No particular site-specific waste issues arise at this site.

Socio-economic

V.5.122 The project-wide socio-economic issues and benefits of the project both during construction and operation are detailed in Section 8 of the *Planning Statement*.

V.5.123 The area surrounding the site is in mixed use with elements of residential, commercial and a number of community uses. Two schools are located within 100m of the site. There are also a number of recreational land uses including green space within the site and to the north and north east within the church grounds and within the Sue Godfrey Nature Reserve.

V.5.124 With the exception of the highways works the proposed main construction site is a public open space (approximately 0.6ha) the public use of which would be lost temporarily. Works at the site are expected to take approximately three and a half years.

V.5.125 During construction the relatively poor quality of the existing space and the availability of alternatives nearby means that there would be no substantial socio economic effects arising directly from the temporary loss of the open space

V.5.126 This site is expected to require a maximum workforce of 40 workers. These jobs and training opportunities would provide a stimulus to the local economy

V.5.127 Negligible effects on amenity for staff and pupils are anticipated at Tidemill Academy during construction however potential adverse effects as a result

of noise are predicted at St Joseph's and St Paul's Church. Measures incorporated within the *CoCP* would limit these impacts, particularly during sensitive periods and these properties may be eligible for compensation through the Thames Tideway Tunnel Project compensation programme.

V.5.128 The contractors site layout and operation would take into consideration the proximity to both St Paul's Church and St Joseph's and site-specific mitigation measures include enhanced noise barriers (additional, high and/or double skinned barriers),the design of the egress gate on Coffey Street, gate closure during sensitive periods, and limiting activities during church services and school exam periods. Extended working hours would be avoided where possible when there are special events in the church as set out in the *CoCP* part B.

V.5.129 No socio-economic effects are expected during the operational phase that would require mitigation. Once construction is completed, it is anticipated that the redesigned and landscaped open space would represent a significant improvement on the existing condition of the space. The works of restoration are also likely to enable the open space to provide for a more varied range of recreational activities as well as improved accessibility and transparency. It is expected that this would lead to an appreciable increase in the number of people using, and benefitting from, the redesigned space, leading to a step change in the way it is used and the intensity of that new use by the local community.

V.5.130 The illustrative proposals demonstrate that the site could be used by school children from nearby St Joseph's. The design could include a community garden or educational play space and flexible grassed areas that could be used for educational purposes and informal recreation. The detailed design could incorporate opportunities for natural and equipment-based play, tailored for the needs of young children and toddlers. The open space would also re-provide the existing fire mustering point for use by the school.

V.5.131 In accordance with the NPS, the project undertook an initial *Equalities Impact Assessment* in order to identify potential (direct or indirect) adverse, differential or positive impacts on equalities groups and to determine whether a full *Equalities Impact Assessment* should be undertaken. Given the scale of the project and the potential for impacts on certain equalities groups, it was determined that a full assessment should be undertaken.

V.5.132 The *Equalities Impact Assessment* concluded that, during the temporary construction period, equalities groups would be disproportionately affected by noise and the diversion of footways and pedestrian crossing relocation. The impact on construction on open space, highway layout changes and movement of bus stops would have a further disproportionate impact on children and pregnancy and maternity groups. However, the permanent enhancement of the open space would be beneficial to the same equalities groups.

V.5.133 Whilst the proposed works would cause short term inconvenience for some local residents and for the users of the adjacent school and church,

these would be limited in time and mitigated as far as practical. In the longer term, benefits would arise from the enhanced nature of the park.

V.6 Overall conclusions

V.6.1 The project is proposed to prevent large volumes of sewage discharging into the tidal Thames.

V.6.2 There is a need to intercept the Deptford Storm Relief CSO. The Environment Agency identified it as one of the 34 CSOs that require control through the project. In the typical year, the CSO discharges approximately 1,470,000m^3 of untreated sewage into the tidal Thames in front of the AHOY sailing club at Borthwick Wharf. Interception of the CSO would make a fundamental contribution to meeting the wider need for the project identified in the NPS.

V.6.3 Deptford Church Street was selected after extensive consideration and engagement as the appropriate site on which to meet the need. The site is suitable and the application proposals would meet the identified need.

V.6.4 Given the site's location close to two schools, listed structures and residential dwellings, it is inevitable there would be some disturbance during the construction period. While Thames Water sought to minimise any disturbance that would be experienced through sensitive design and mitigation, some negative effects are likely to remain. These comprise principally:

a. noise effects at St Paul's Church and St Joseph's during construction

b. townscape and visual effects during construction

c. adverse socio-economic effects on the amenity of staff and pupils of St Joseph's and St Paul's Church during construction

d. the temporary loss of open space.

V.6.5 The assessment above explained that the proposals incorporate measures to limit the effect of each of these impacts. For each of these effects, the project design was refined and all practicable mitigation identified and committed to, in accordance with the advice in the NPS. The residual impacts are an unavoidable consequence of intercepting the CSO which runs beneath Deptford Church Street, in a dense urban environment.

V.6.6 The reduction of discharges from the Deptford Storm Relief CSO would improve the water quality in the Thames with consequent benefits to water quality, ecology, recreation and amenity. This would also help reduce sewage derived litter and the health risks to river users.

V.6.7 The proposals at Deptford High Street would also give rise to a number of significant beneficial effects, including:

a. a significant improvement to the existing open space at Crossfield Street with the creation of an attractive, flexible and accessible open space

b. significant beneficial effects on the townscape character of the site and nearby views through the introduction of an improved area of high quality public realm, high quality ventilation structures and thoughtfully designed landscape planting

c. improvements to the setting of the Grade I and II listed structures located in close proximity to the site through the provision of a high quality public space, shared surface treatment to Coffey Street and improvements to east-west linkages across Deptford.

V.6.8 The proposed works at the Deptford Church Street site, and the mitigation measures that have been developed and advanced as part of the application for development consent, directly accord with the approach required by the NPS. Adverse effects have been minimised as far as possible and opportunities have been taken to enhance the local environment and leave a positive legacy.

V.6.9 Section 8 of the *Planning Statement* considers the implications of the local effects of the works at Deptford Church Street and the other sites, and describes the overall balance between impacts and benefits associated with the project as a whole, against the guidance in the NPS. It concludes that the works at Deptford Church Street, and the project as a whole, are compliant with the NPS and that development consent should be granted.

Annex V: Drawings for Deptford Church Street

List of drawings

Deptford Church Street: Location plan

Deptford Church Street: As existing site features plan

Deptford Church Street: Construction phases plans

Deptford Church Street: Land use plan

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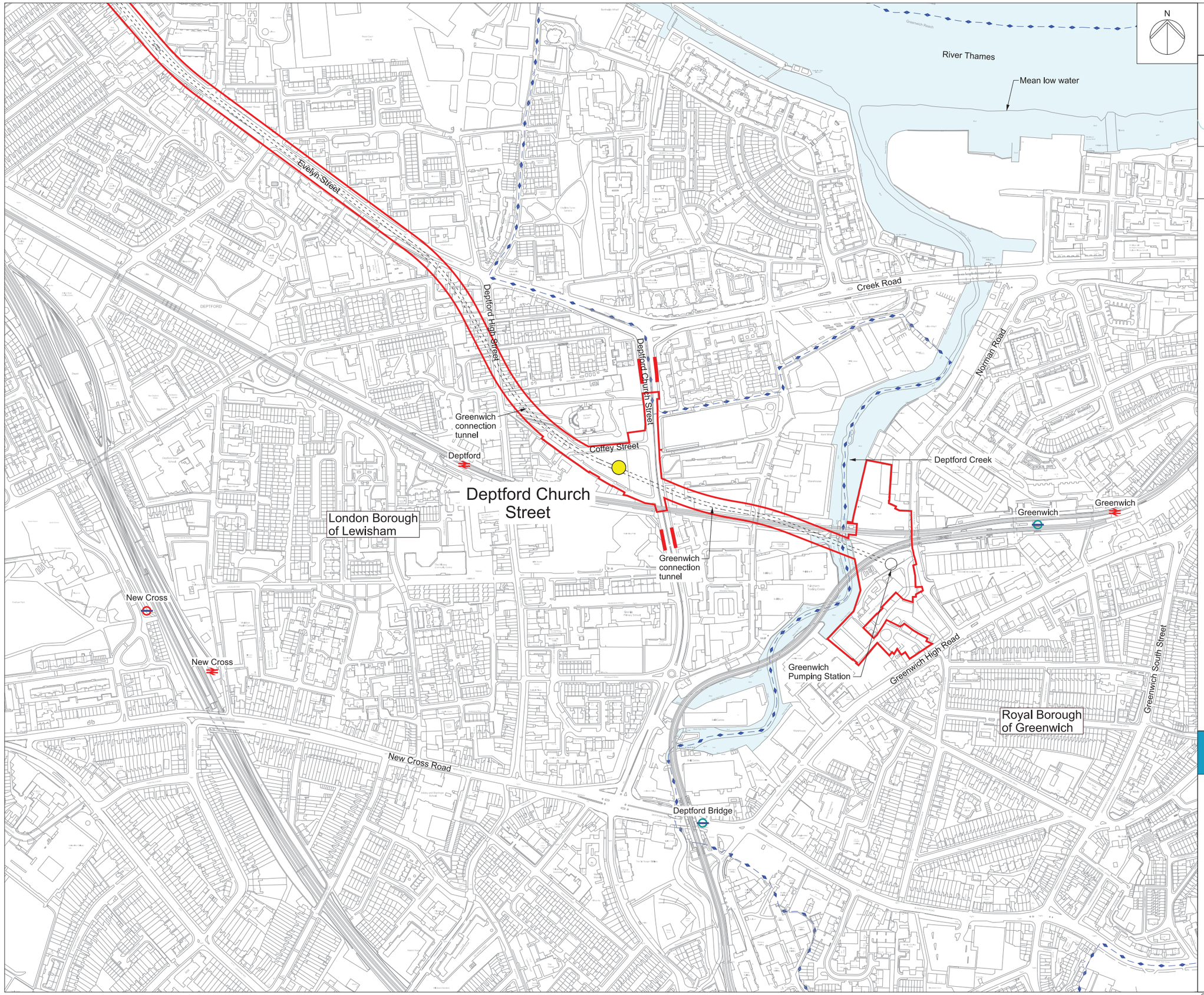


Keyplan:

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

Key:

- Local authority boundary
- Order limits
- Tunnel
- Shaft

Notes:

1. The alignment of the tunnels are illustrative within limits of deviation.

100m 0 100m

Scale 1:2500 at A1
1:5000 if reproduced at A3

FOR INFORMATION

Location

Deptford Church Street
London Borough of Lewisham

Document Information

Application for Development Consent

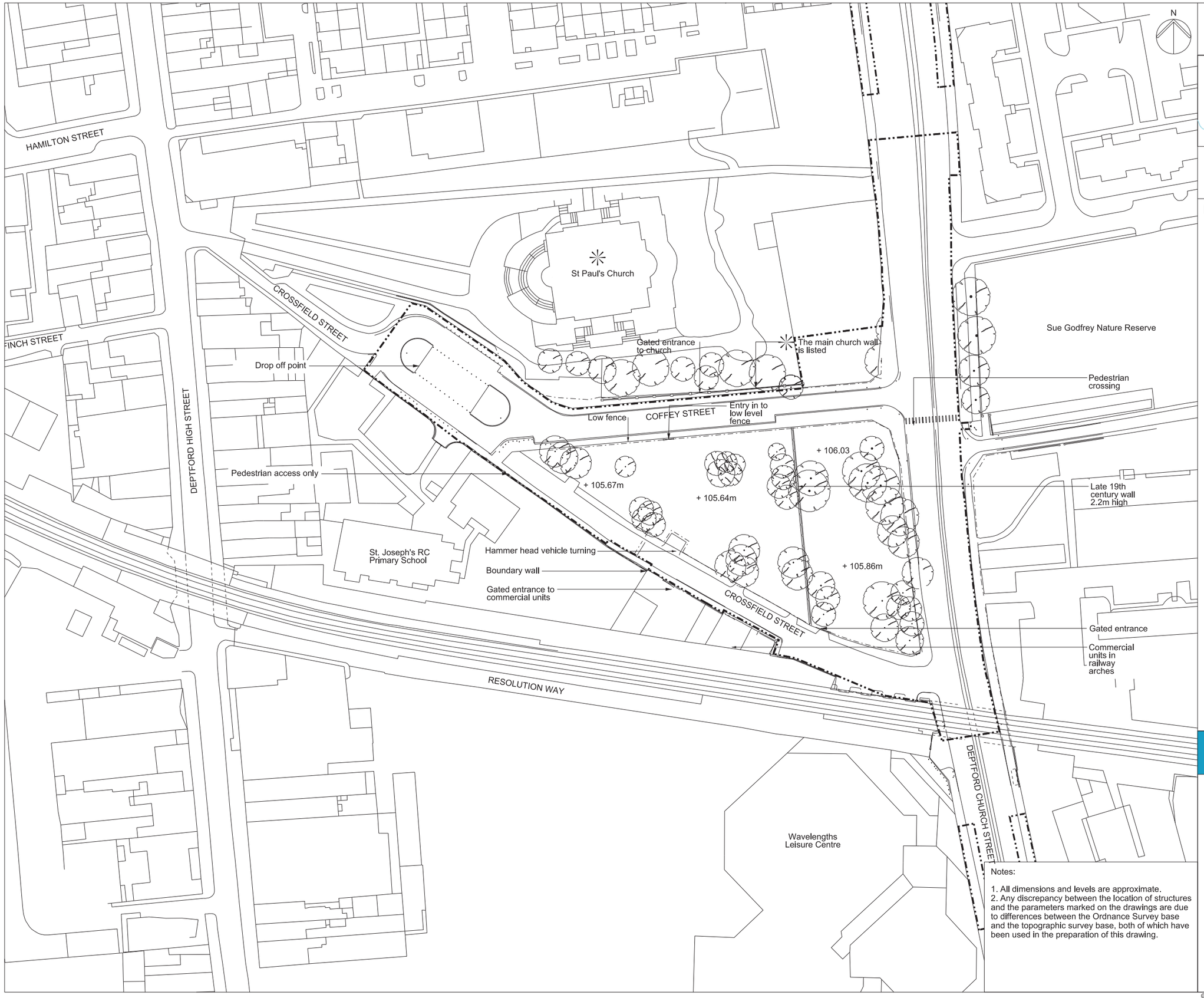
Location plan

Book of plans - section 23

DCO-PP-22X-DEPCS-230001
January 2013

Thames Tideway Tunnel
Creating a cleaner, healthier River Thames

Thames Water



Keyplan:

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

Key:

- Limits of land to be acquired or used (LLAU)
- + 105.40m — Existing levels (shown in metres above tunnel datum)
- Listed buildings/structures
- Existing trees within surveyed area (trunk sizes vary)

10m 0 40m

Scale 1:500 at A1
1:1000 if reproduced at A3

FOR INFORMATION

Location
Deptford Church Street
London Borough of Lewisham

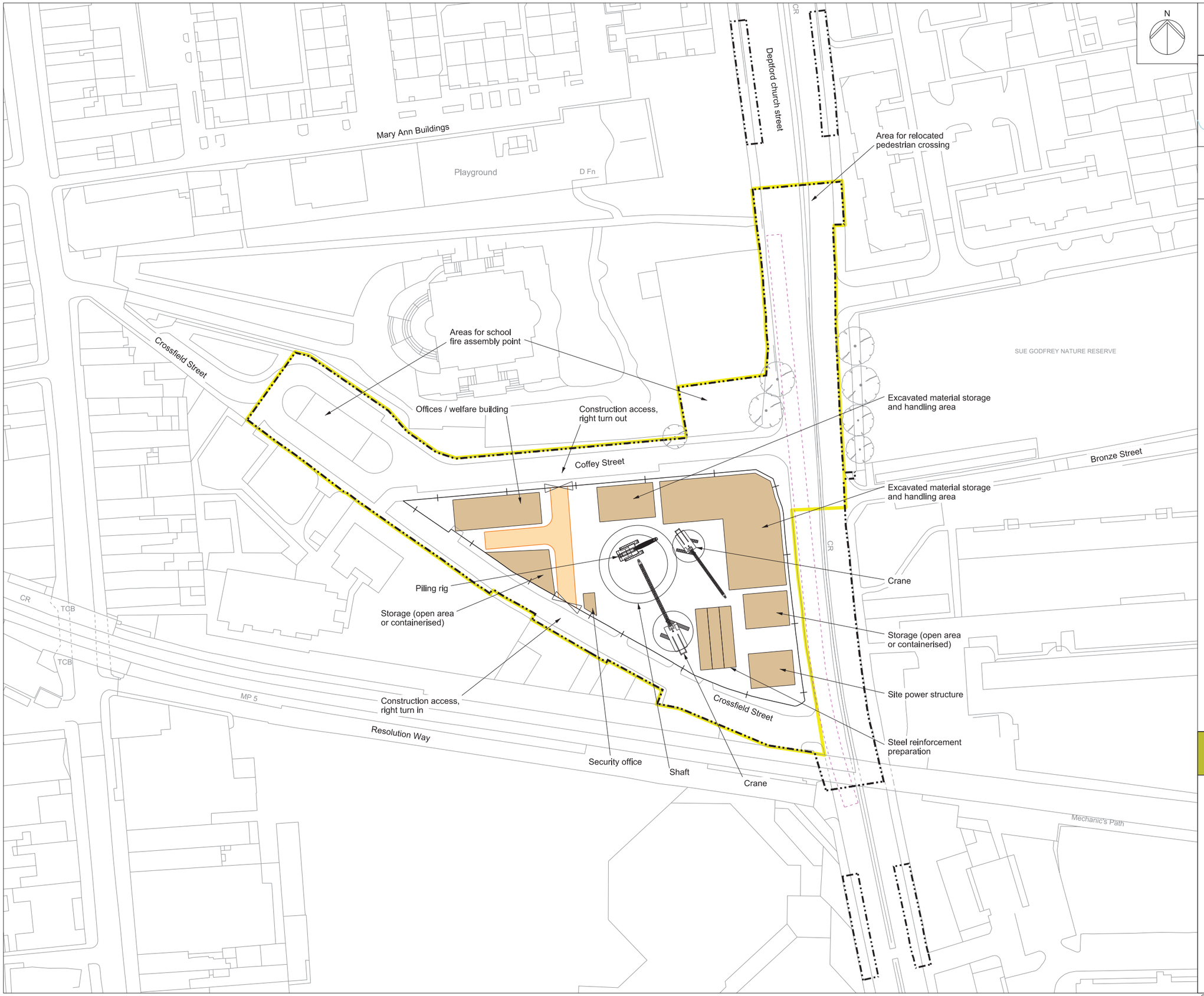
Document Information
Application for Development Consent
As existing
Site features plan
Book of plans - section 23
DCO-PP-22X-DEPCS-230002
January 2013

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.

Thames Tideway Tunnel
Creating a cleaner, healthier River Thames

Thames Water



Keyplan:

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

Key:

- Limits of land to be acquired or used (LLAU)
- Hoarding
- Maximum extent of working area
- Site access
- Access / haul route
- Existing sewers

Notes:

1. These construction phasing plans have been prepared to illustrate possible site layouts for the principal 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.

10m 0 40m

Scale 1:500 at A1
1:1000 if reproduced at A3

ILLUSTRATIVE

Location

Deptford Church Street
London Borough of Lewisham

Document Information

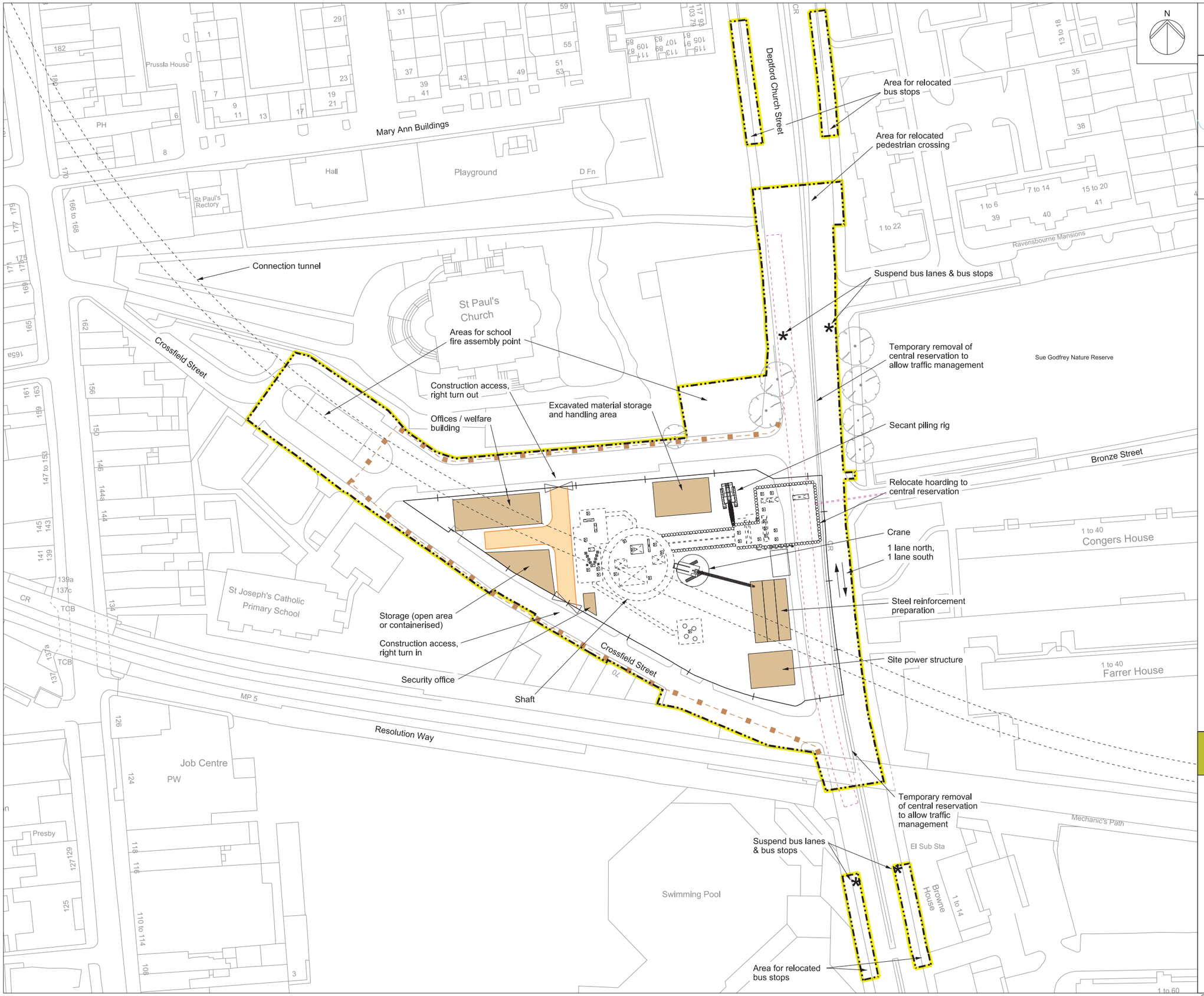
Application for Development Consent

Construction phases - phase 1
Site setup & shaft construction
Book of plans - section 23

DCO-PP-22X-DEPCS-230013
January 2013

Thames Tideway Tunnel
Creating a cleaner, healthier River Thames

Thames Water



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Keyplan:

Coordinates are to be Ordance 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
- Route of temporary diversion of footway
- Site access
- Access / haul route
- Existing sewers

Notes:

1. These construction phasing plans have been prepared to illustrate possible site layouts for the principal 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.

10m 0 40m

Scale 1:500 at A1
1:1000 if reproduced at A3

ILLUSTRATIVE

Location

Deptford Church Street
London Borough of Lewisham

Document Information

Application for Development Consent

Construction phases - phase 2
Construction of other structures
Book of plans - section 23

DCO-PP-22X-DEPCS-230014
January 2013

Thames Tideway Tunnel
Creating a cleaner, healthier River Thames

Thames Water

Keyplan:

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 B2-B8 (General Industrial / Storage or Distribution)
- Class C1 (Hotels)
- Class C3-C4 (Dwelling Houses)
- Class D1-D2 (Non Residential Institutions (Community Facilities) and Assembly and Leisure)
- Mixed Use
- Other
- Open Space

50 25 0 50 m

Scale 1 : 2,500 at A3

FOR INFORMATION

Location

Deptford Church Street

London Borough of Lewisham

Document Information

Planning Statement

Land use

1PL03-MG-00816

January 2013

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-070100