

Thames Tideway Tunnel
Thames Water Utilities Limited



Application for Development Consent

Application Reference Number: WWO10001

Heritage Statement

Doc Ref: **5.3**

Appendix N

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

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Creating a cleaner, healthier River Thames

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Thames Tideway Tunnel

Heritage Statement Appendix N: Greenwich Pumping Station

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Appendix N: Greenwich Pumping Station

N.1 Site location and context

- N.1.1 The proposed Greenwich Pumping Station development site is located in the Royal Borough of Greenwich immediately to the west of the administrative boundary with the London Borough of Lewisham.
- N.1.2 The site itself comprises Thames Water's existing operational Greenwich Pumping Station and associated buildings, two railway viaducts that bisect the site, Phoenix Wharf and a builder's yard. The two railway viaducts serve Network Rail and the Docklands Light Railway (DLR). The former is listed Grade II.
- N.1.3 The site also includes a shared pedestrian and cycle path, which runs alongside the National Rail lifting bridge from Creekside, enters the site over the Ha'penny pedestrian bridge, continues diagonally across the site under the DLR viaduct and connects to Norman Road.
- N.1.4 The Network Rail viaduct and the buildings associated with the pumping station are Grade II listed, including the east and west 19th century beam engine houses that adjoin the pumping station building, which are linked by a boiler house, and two 19th century coal sheds to the southwest of the pumping station.
- N.1.5 As an important piece of infrastructure, the operational pumping station is subject to security considerations and requires additional security fencing within the compound.
- N.1.6 The site lies in the floodplain of the River Ravensbourne, the lower part of which is known as Deptford Creek. The site falls within the tidal Flood Zone 3 of the River Thames and Deptford Creek, which is protected by flood defences. Deptford Creek is designated as a Site of Importance for Nature Conservation (Metropolitan and Borough value).
- N.1.7 The creek and the site fall within a Royal Borough of Greenwich designated Area of Archaeological Potential. The designation also covers Greenwich Park (which is part of a World Heritage Site), Greenwich town centre historic settlement, and an area of the River Thames foreshore.
- N.1.8 The site also falls within a Protected London Panorama View from Blackheath to St Paul's Cathedral.
- N.1.9 The site is bounded by the Brook Marsh Trading Estate, a vehicle repair garage and offices to the north, Norman Road to the east, Greenwich High Road to the south, and Deptford Creek to the west.
- N.1.10 The area to the north of the site across Deptford Creek is predominantly industrial but also includes the Trinity Laban contemporary dance centre. To the northeast of Phoenix Wharf, the land uses are industrial and residential, including the multi-storey residential development on Tarves Way.

- N.1.11 Beyond Norman Road to the east lies the former Greenwich Industrial Estate, where an extant planning permission for a mixed-use development is currently being implemented.
- N.1.12 Beyond Greenwich High Road to the south lie a multi-storey residential development, a mix of residential apartment blocks, terraced housing and retail terraces. 98 to 104 and 165 to 167 Greenwich High Road are Grade II listed buildings. The Ashburnham Triangle Conservation Area, which includes several locally listed buildings, lies further to the south. The Premier Inn development forms the southwestern boundary of the site.
- N.1.13 The western banks of Deptford Creek are characterised predominantly by industrial and commercial development, including two- and three-storey warehouses ranging from small units to large-scale sheds. The development pattern is typical of industrial estates and there are various small access roads informally arranged between Deptford Creek and the DLR line. There are also a number cultural uses and residential properties beyond. The Creekside Centre contains an environmental centre and is a designated Site of Importance for Nature Conservation of local importance. The Sue Godfrey Nature Reserve lies 400m to the northwest of the site.
- N.1.14 The London Borough of Lewisham has recently designated a conservation area at Deptford Creekside opposite the site, to the west of Deptford Creek.
- N.1.15 There are no known burial grounds within or adjacent to the site. The nearest known burial ground to the site lies approximately 60m to the south, but does not fall within the site.

Historical context

- N.1.16 There is evidence of late medieval land reclamation along Deptford Creek near the site. Morris' and Sim's maps of 1832 and 1838 show industrial uses such as a tanning works nearby, and modest housing fronting onto but set back from the street. The main part of the site remained undeveloped.
- N.1.17 A major catalyst for development in the area was the construction of the London to Greenwich railway viaduct (now the Network Rail viaduct) across Deptford Creek.
- N.1.18 Greenwich Pumping Station and the associated buildings were built between 1859 and 1865 by the Metropolitan Board of Works. The coal sheds and various wharves formed part of the complex and there was a system of railways and turntables to transfer coal between the wharves, the coal sheds and the pumping station.
- N.1.19 The site around the operational buildings was largely open and trees extended as far as the railway viaduct. Railway Wharf and Phoenix Wharf were constructed to the north of the viaduct and terraced housing was introduced on Norman Road.
- N.1.20 In the second half of the 19th century, the site lay in an essentially industrial landscape; there was a gas works on the opposite bank of Deptford Creek and a soap works opposite Phoenix Wharf. The path

across the site and a pedestrian bridge across the creek were in place by this time.

- N.1.21 In the early 20th century, the housing on the southern part of the site was demolished and replaced by a new ancillary building as part of the pumping station complex. The main pumping station building was extended to the west, and various tanks were installed to the south of the railway viaduct. More recently, the shared pedestrian and cycle path was diverted to run obliquely alongside the Network Rail viaduct and fencing and other lightweight structures were added to the site.

N.2 Relevant local heritage policy and guidance

- N.2.1 As this application for development consent relates to a Nationally Significant Infrastructure Project the NPS is the primary basis for decision making on all planning issues raised by the application. When it comes to assessing the acceptability of the application proposals it is the NPS that sets the relevant criteria to be applied. However, the project has been developed in the knowledge of local planning policies and, particularly, local land use planning designations.
- N.2.2 The Royal Borough of Greenwich's Local Development Framework comprises the *Unitary Development Plan (UDP) (2006)* (saved policies) and policies and emerging policies in the Borough's draft Core Strategy with Development Management Policies which is anticipated to be adopted in 2013 .
- N.2.3 *Draft Core Strategy Policy DH1 (Design) states that development proposals should "provide a positive relationship between the proposed and existing urban context ".architectural, historical and archaeological features and their settings".*
- N.2.4 *Draft Core Strategy Policy DH3 (Conversation and Heritage) states that: "the character and appearance, archaeological, and historical value of the Borough's 20 Conservation Areas will be preserved and enhanced, and the almost 1,000 Listed Buildings and their settings will be protected".*
- N.2.5 *Draft Core Strategy Policy DH(h) (Conservation Areas) states that: "planning permission will only be granted for proposals which pay special attention to the desirability of preserving or enhancing the character or appearance of the Conservation Area. The local scale, the established pattern of development and landscape, building form and materials will all be taken into account".*
- N.2.6 *Draft Core Strategy Policy DH(i) (Locally Listed Buildings) states that: "in considering proposals affecting buildings on the Local List of Buildings of Architectural or Historic Interest, substantial weight will be given to protecting and conserving the particular characteristics that account for their designation".*
- N.2.7 *Draft Core Strategy Policy DH(j) (Thames Policy Area) states that: "the Council will seek a high quality of design respecting the special character of the River Thames within the Thames Policy Area defined on the Proposals Map".*

- N.2.8 *Draft Core Strategy Policy DH(k) (Areas of Special Character) states that: “within Areas of Special Character defined on the Proposals Map, special consideration will be given to the safeguarding, restoration and enhancement of character, scale and quality of open spaces and associated buildings. Skylines and distant views both to and from the Areas of Special Character will be protected”.*
- N.2.9 *Draft Core Strategy Policy DH(l) (Archaeology) states that: “the Council will expect applicants to properly assess and plan for the impact of proposed developments on archaeological remains where they fall within ‘Areas of Archaeological Potential’.*
- N.2.10 Saved *UDP Policy D1 (Urban Design) covers Draft Core Strategy Policy DH1 (Design) and states that development proposals should be of a high quality design and will be expected to “(i) provide a positive relationship between the proposed and existing urban context by taking account of [...] architectural, historical archaeological, biodiversity and their settings”.*
- N.2.11 Saved *UDP Policy D16 (Conservation Areas) covers Draft Core Strategy Policy DH(h) (Conservation Areas) and states that: “Planning permission will only be granted for proposals which preserve or enhance the character or appearance of Conservation Areas, taking into account local scale, the established pattern of development and landscape, building form and materials”.*

N.3 Description of heritage assets and significance summary

- N.3.1 The site contains three listed buildings; it falls within no conservation areas and there are a number of heritage assets (as defined in the NPS, para. 4.10.2) near the site. These heritage assets are illustrated in the Historic environment features map and Conservation areas map. The numbering on the Historic environment features map refers to the gazetteer in which the heritage assets are described in the *Environmental Statement*, which accompanies the application (Vol 13, Appendix E.1). The gazetteer is provided in this Appendix after the drawings.
- N.3.2 The heritage assets include:
- a. the Grade II listed pumping station building, with its East and West Beam Engine Houses and linking Boiler House
 - b. two Grade II listed coal sheds
 - c. the Grade II listed Network Rail viaduct
 - d. the Ashburnham Triangle Conservation Area
 - e. Deptford Creekside Conservation Area
 - f. the London Electric Supply Corporation Substation
 - g. a brick chimney
 - h. archaeological potential.

Greenwich Pumping Station

- N.3.3 Sir Joseph Bazalgette's Grade II listed Greenwich Pumping Station (refer to the Historic environment features map) was built in London Stock brick in an Italianate style. It dates to the early 1860s and forms part of Bazalgette's scheme to improve London's sewers.
- N.3.4 The main pumping station building consists of an East and West Beam Engine House, linked by a central boiler house. As the beam engine technology became redundant, the components of the building were adapted for other uses.
- N.3.5 The West Beam Engine House was extended and converted for the installation of new pumps in 1905. The extension was matched with the original style. It remains in use as a sewage pumping station today. Various additions have been made to the building to keep it operational such as providing louvers within existing window openings and protruding duct work. The West Beam Engine House, the 1905 extension and the Boiler House are currently occupied by Thames Water and used as an operational pumping station.
- N.3.6 At present, the East Beam Engine House is unoccupied and the original machinery has been removed. In the 1950s, the interior was stripped out and the basement area filled with rubble topped by a concrete 'floor'. However, some internal features of interest survive, for example, both beam engine houses feature large subterranean pump chambers, which are of heritage interest in their own right. The listing includes the northern entrance podium to the East Beam Engine House, its stone steps, associated cast iron handrail posts, and a staircase built against the western side of the podium, leading down the external auxiliary pump chamber to the west.
- N.3.7 Figure N.1 shows the beam engine houses, which are expressed externally as two-storey buildings.

Figure N.1 Exterior of the pumping station from the north (standard lens)



Coal sheds at Greenwich Pumping Station

- N.3.8 To the south of the pumping station are two 19th century coal sheds, which are separately listed as Grade II (refer to the Historic environment features map). There are no recent structures in the western coal shed and the original cobbled surface survives. They are constructed of cast and wrought iron, with slate covered roofs and wrought iron roof trusses. The cast iron columns are hollow and serve to drain rainwater.
- N.3.9 Coal was formerly unloaded from Deptford Creek at Greenwich Road Wharf and stored in the coal sheds. From there, the coal was loaded onto trolleys that ran along rails complete with turntables. The trolleys were pushed, probably manually, to the pumping station to feed coal into the Boiler House.

London and Greenwich Railway

- N.3.10 The London and Greenwich Railway was London's first passenger railway. It opened in 1836 and originally ran from Spa Road Bermondsey to Deptford; the extension to Greenwich opened in 1838. The brick-built viaduct crosses the northern part of the site and continues westward on the opposite side of Deptford Creek under a separate listing. The section from Greenwich to Deptford Creek is a Grade II listed structure. The railway viaduct now serves Network Rail (refer to the Historic environment features map).
- N.3.11 The associated lifting bridge structure runs over Deptford Creek at the western end of the site and is not covered by either listing.

Ashburnham Triangle Conservation Area

- N.3.12 The Ashburnham Triangle Conservation Area designated by the Royal Borough of Greenwich lies directly to the south of the site (refer to the Conservation areas map). Its northwestern boundary runs along the southern side of Greenwich High Road.
- N.3.13 The conservation area includes a rich variety of residential buildings, mainly from the early and mid-19th century, and some surviving earlier buildings. There are 26 statutorily listed and 210 locally listed buildings within the area.

Deptford Creekside Conservation Area

- N.3.14 Deptford Creekside Conservation Area designated by the London Borough of Lewisham lies directly to the west of the site (refer to the Conservation areas map). Its eastern boundary takes the line of the borough boundary which runs through the centre of the Creek.
- N.3.15 The conservation area has two distinct character areas: the southeastern part is characterised by a relatively intact industrial and warehouse buildings – the only coherent surviving industrial area on Deptford Creek; and the area to the north and the southwest is occupied by the Crossfield Estate. The Crossfield Estate is a typical 1930s London County Council estate that became a centre of the radical arts music scene in the 1970s and 1980s. The estate is bisected by the listed London and Greenwich railway viaduct, which forms the northern barrier of the southeastern,

industrial part of the conservation area. The eastern boundary of the conservation area in the vicinity of the site is dominated by the DLR viaduct. The coal sheds and pumping station building on the site harmonise with the industrial buildings by the creek and form part of the setting of this part of the conservation area, although much of the development on the east side of the creek and the DLR viaduct, detract from the character of the south eastern part of the conservation area.

N.3.16 The site does not form part of the setting of the Crossfield Estate.

London Electric Supply Corporation substation

N.3.17 Abutting the southwestern edge of the site boundary is a disused London Electric Supply Corporation Ltd electricity substation. The corporation was founded in 1888 and it built Britain's first large-scale electrical power station at the mouth of Deptford Creek to the north of the site. The engineer for the power station project was the prominent inventor and pioneer of the alternating current, Sebastian Ziani de Ferranti. The power station was subsequently demolished in the 1960s.

Brick chimney

- N.3.18 Within the Thames Water compound but outside the site boundary is a brick built chimney (refer to the Historic environment features map). The chimney sits to the southeast of the pumping station building. The exact function and date of the chimney are unclear.
- N.3.19 Figure N.2 shows the brick chimney.

Figure N.2 Brick chimney (standard lens)



Archaeology

- N.3.20 The site has high potential to contain palaeoenvironmental remains. It has low potential for archaeological remains dating to the prehistoric period and there are no known prehistoric features or finds within the assessment area. It also has low potential for archaeological remains dating to the Roman period, the early medieval period or the later medieval period.
- N.3.21 The site has high potential for archaeological remains dating to the post-medieval period. The main potential discovery is the footings of buildings shown on historic maps from the mid-18th century onwards, and for the buried remains of the original Bazalgette sewerage infrastructure. By the mid-18th century the site mostly comprised open fields; several buildings on the southern part of the site fronted onto Greenwich High Road. One of these buildings may have been a barn that was used as a chapel, according to documentary sources. From the 19th century, terraced

houses were built on the southern part of the site. The buried remains of these buildings (eg, footings and cellars) would be of low heritage significance based on their evidential and historical value.

- N.3.22 The site contains the meeting point of four of the original Bazalgette sewer lines: the combined contents of the Southern Low Level Sewers Nos. 1 and 2 and the Southern High Level Sewer were directed into the Southern Outfall Sewer, which lead eastward to Crossness. Buried remains of these sewers and other sewerage infrastructure may include cooling tanks, a penstock chamber, a pumping chamber, a well, a valve chamber, and the connecting pipes between the basin to the north of the pumping station buildings and the beam engine houses.

Significance summary

- N.3.23 An assessment of the significance of the heritage assets and the potential effects of the proposed works at this site is set out in the *Environmental Statement* (Vol 24). The significance of assets at the site is summarised below in Table N.1.

Table N.1 Significance of heritage assets at Greenwich Pumping Station

Heritage asset	Heritage significance	Reason for significance
Greenwich Pumping Station	High	Significance derives from their architecture and function as important elements of London's historic sewage system.
Coal sheds at Greenwich Pumping Station	High	Significance derives from its evidential, historical and aesthetic value.
London and Greenwich Railway	High	Significance derives from its evidential, historical and aesthetic value and its association with London's first passenger railway line.
Ashburnham Triangle Conservation Area	High	Significance derives from its rich variety of residential buildings mainly from the early and mid-19th century
Deptford Creekside Conservation Area	High	Significance of its south east part derives from its industrial creekside character.
London Electric Supply Corporation substation	Medium	Significance derives from its evidential and historical value.
Brick chimney	Medium	Significance derives from its historical value, likely age and probable association with the listed pumping station buildings nearby.

N.4 Description of proposals and required heritage consents

N.4.1 A summary of the proposed temporary and permanent works at Greenwich Pumping Station is set out below.

Temporary construction works

N.4.2 The temporary construction works would involve the construction of a CSO drop shaft, a CSO interception chamber, a high pressure relief ventilation structure and associated below-ground infrastructure.

N.4.3 This would necessitate the building of site fencing and temporary site services. In addition a crane, sited on a concrete base set into the ground, would be needed.

Permanent above-ground structures

N.4.4 Post construction, the visible structures on the site would include the raised CSO drop shaft structure to the north of the pumping station building, CSO interception and valve chambers to the west of the northern entrance podium to the East Beam Engine House, and high pressure relief ventilation structure.

N.4.5 The required ventilation equipment would be housed within the East Beam Engine House.

N.4.6 The proposed alterations and additions to the pumping station building take full consideration of its historic design, form and purpose.

N.4.7 The proposed works for this site are set out in detail in Section 26 of the *Design and Access Statement*, which accompanies the application. The design proposals are set out in the drawings within the *Book of Plans* and were developed in line with the *Design Principles* and the *Code of Construction Practice*, which also accompany the application, to minimise the impact of the proposed works and structures on their surroundings, in line with relevant national, regional and local policies.

N.4.8 The aspects of the proposed works that would affect the nearby heritage assets are set out below. The proposals that would normally require Listed Building Consent or Conservation Area Consent are also identified.

N.4.9 Refer to the Historic environment features map and Conservation areas map and the drawings listed below in Table N.2. This table sets out the heritage assets at the site and the associated drawings and plans submitted as part of the application, which are provided in A3 format at the end of this appendix. It also provides the status and location of the drawings within the application.

Table N.2 Drawings relating to heritage assets at Greenwich Pumping Station

Drawing title	Drawing status
Location plan	For information
As existing site features plan	For information
Demolition and site clearance plan (1 of 3)	For approval
Demolition and site clearance plan (2 of 3)	For approval
Demolition and site clearance plan (3 of 3)	For approval
Site works parameter plan	For approval
Proposed site features plan	Illustrative, save for scale of above-ground structures which is indicative
Existing floor plan with extent of loss	For information, save for maximum extent of loss which is for approval
Proposed floor plan	Indicative
Section AA	Illustrative
Section BB	Indicative
Section CC	Indicative
As existing and proposed north elevation	Illustrative
As existing and proposed east elevation	Illustrative
As existing Beam Engine House north elevation	For information
Proposed Beam Engine House north elevation	Indicative
As existing Beam Engine House south elevation with extent of loss	For information, save for maximum extent of loss of listed structures, which is for approval
Proposed Beam Engine House south elevation	Indicative
Existing Beam Engine House east elevation	For information
Proposed Beam Engine House east elevation	Indicative
Listed building internal elevations with extent of loss	For information, save for maximum extent of loss of listed structures, which is for approval
Listed structure interface: Entrance door	Indicative
Listed structure interface: Windows	Indicative
Construction phase 1: Site set-up and shaft construction	Illustrative
Construction phase 3: Tunnelling	Illustrative
Construction phase 2: Construction of other structures	Illustrative

The drawings are located in Section 24 of the *Book of Plans*.

Greenwich Pumping Station

- N.4.10 The East Beam Engine House is the main focus of the proposals. At present, the building is an empty shell, with a concrete floor from circa 1950 laid over cross walls of varying heights beneath the floor that supported the historic machinery. The building features cast iron-framed windows in varying condition. On the building's southern elevation, between the ground and first floors, are two slightly projecting timber doors with internal recesses, which indicate that they are original.
- N.4.11 The required ventilation equipment would be housed within the East Beam Engine House, and would vent through the openings between the former ground and first floor levels. Refer to the Demolition and site clearance plan (3 of 3), Site works parameter plan, As existing and proposed beam engine house elevations, Section CC, As existing and proposed elevations, Proposed beam engine house elevations, and the Listed structure drawings.
- N.4.12 The design principles for the final design of this site include the generic (project-wide) heritage design principles and the site-specific principles set out in Section 4.20 of the *Design Principles*. The heritage-related site-specific principles that relate to the significance of the pumping station include the following:

Reference	Site-specific design principles
GREPS.04	Any York stone slabs removed by construction works shall be re-used for the roof of the new interception chamber. If this is not possible, the chamber shall be finished in fair-faced concrete consistent with its functional nature and context.
GREPS.05	Access for Thames Water maintenance vehicles shall be via Norman Road. Modifications to the existing gates and wall shall be in character with the existing.
GREPS.09	The existing glazing of the East Beam Engine House shall be renovated or replaced as required. Any alterations to the glazing to facilitate the reuse of the building shall be sensitive to the building's significance.
GREPS.10	No new lighting shall be provided except for low level lighting to the steps to the shaft, which shall only be used during maintenance activities.
GREPS.11	Trees removed to improve access to the construction site shall be replaced elsewhere on the site.

Works normally requiring Listed Building Consent

- N.4.13 A new connection would be constructed between the CSO interception chamber and the CSO drop shaft. This would involve the reconfiguration of the unlisted auxiliary pump chamber. To achieve this, the listed staircase on the west side of the East Beam Engine House's would be temporarily removed. A new ventilation duct would be required between the CSO drop shaft and the East Beam Engine House, where the new

ventilation equipment would be installed. Additional ventilation would also be provided to the East Beam Engine House and its openings refurbished. Refer to the Demolition and site clearance plan (3 of 3), Site works parameter plan, As existing and proposed beam engine house elevations, Section CC, and the Listed structure drawings.

N.4.14 The connection and reconfiguration works would comprise:

a. Stairs and handrails

- i The listed sunken staircase to the west of the podium over the auxiliary pump chamber would be temporarily removed to reconfigure the unlisted auxiliary pump chamber to create a new connection between the CSO interception chamber and the CSO drop shaft. The west wall of the staircase is surmounted by an iron handrail, which is in poor condition with elements missing, although its posts survive.
- ii The western wall of the staircase, with its York stone coping and handrail, would be carefully dismantled, with a brick by brick drawing made of the wall to facilitate reinstatement.
- iii The York stone steps would also be drawn in detail, photographed and carefully removed and the components of the staircase stored for reinstatement in a stable environment.
- iv On reinstatement, a modern handrail would be provided for the staircase's western wall. The historic handrail posts on the staircase's western wall would be used to refurbish the handrails on the more significant original entrance podium to the east of the staircase, where the posts are partly missing. A new modern handrail would be built onto the coping of the staircase's western wall.
- v The historic handrail on the podium would be reinstated.
- vi A 20th century lamp post on the podium would also be refurbished.

b. Openings and ducts

- i A new below-ground duct would be constructed from the CSO drop shaft into the East Beam Engine House. The duct would enter the building at low level through the entrance podium and beneath the floor level of the East Beam Engine House.
- ii A smaller 350mm x 650mm opening for an electrical cable duct to connect to the CSO interception equipment would be made above ground towards the northern end of the western wall of the building.
- iii A blocked doorway towards the southern end of the western wall that formerly connected to the central boiler house would be opened up and a modern style door inserted. This doorway is not externally visible and the existing character of the adjacent part of the boiler house is modern, and it features modern partitions and finishes.

- iv The original openings in the southern wall of the East Beam Engine House between the former ground and first floors would be re-used and refurbished with modern louvered frames.
 - v Ducting and services for the new ventilation equipment would be attached to the internal walls of the building with as few fixings into the masonry units as practicable. Fixings would be set into mortar joints where practicable, to prevent undue damage to the masonry units.
- c. Floor surfaces
- i In order to accommodate the ventilation equipment, the concrete floor from circa 1950, which before that time only extended partly across the building, would be removed and the cross walls, which stand at varying heights beneath the floor would be lowered to a consistent height.
 - ii Fill between the cross walls would be stabilised to create an even foundation for the new floor.
 - iii A concrete floor would be laid, which would support the new ventilation equipment.
- d. Refurbishment and repair
- i The cast iron-framed windows, which are in varying condition, would be refurbished. Where possible, the existing glazing would be retained. Metal louvers would be set into boxes behind the lowest panes, of the windows indicated, and the lowest panes would be removed in order to provide adequate ventilation. This arrangement is designed to be reversible.
 - ii Louvers would be provided in the rectangular fanlight over the door.
 - iii Two new metal louvers for the outlet vents from the ventilation equipment would be set slightly proud of the wall face to replace the original, slightly projecting timber door openings in the south elevation between the former ground and first floor levels. Ducting and services within the building would be fixed minimally to the walls, and fixings would be inserted into mortar joints where possible.
 - iv Paint analysis would be undertaken to determine whether any historic paintwork survives on the windows or door of the building. The analysis would aim to identify either the earliest or another early appropriate historic colour scheme with which to paint the louvers, window frames and joinery.

Works not normally requiring Listed Building Consent

- N.4.15 The louvers of the East Beam Engine House's cupola would be repaired 'like for like' if the louvers are in need of repair.
- N.4.16 Outside the footprint of the East Beam Engine House is a small York stone surface over the former auxiliary pump chamber, which features a glazed access hatch. Once the connecting structures in the pump chamber have

been constructed, a York stone surface would be reinstated over the chamber, as a reference to the historic arrangement.

- N.4.17 It was determined that none of the proposed works at Greenwich Pumping Station would require Conservation Area Consent.

Coal sheds at Greenwich Pumping Station

- N.4.18 The listed coal sheds would be retained *in situ* and would be protected during construction (refer to the *Code of Construction Practice*, Part A and B for details, including the requirement for a heritage management plan). Refer to the Demolition site clearance plan (3 of 3) and Site works parameter plan.

- N.4.19 No heritage consent is required for non-intrusive protection works.

London and Greenwich Railway

- N.4.20 The proposals would have no physical impact on the Network Rail viaduct; however, some piping and ducting may pass through the viaduct vaults. Where work would be undertaken within the viaduct arches or where vehicular traffic would pass through them (except for the arch on Norman Road, which already encompasses a roadway), the viaduct piers would need to be protected.

- N.4.21 Physical barriers could be used and appropriate working practices would be developed and set out in the site-specific heritage management plan. Refer to the Demolition site clearance plan (3 of 3) and Site works parameter plan.

- N.4.22 No heritage consent would normally be required.

Ashburnham Triangle Conservation Area

- N.4.23 The proposals would have no physical or appreciable setting impact on the conservation area. Refer to the Demolition site clearance plan (3 of 3) and Site works parameter plan.

- N.4.24 No heritage consent would normally be required.

Deptford Creekside Conservation Area

- N.4.25 The temporary construction works would alter the setting of the south eastern part of the conservation area, by the introduction of cranes and other construction activity and structures.

- N.4.26 The permanent proposals would minimally alter the setting of the conservation area.

- N.4.27 No heritage consent would normally be required.

London Electric Supply Corporation substation

- N.4.28 The proposals would have no physical or significant setting impact on the substation. Refer to the Historic environment features map, Conservation areas map, As existing site features plan, Demolition site clearance plan (3 of 3) and Site works parameter plan. No heritage consent would normally be required.

Brick chimney

N.4.29 The proposals would have no physical or significant setting impact on the brick chimney. Refer to the Historic environment features map, Conservation areas map, Demolition site clearance plan (3 of 3) and the Site works parameter plan.

N.4.30 No heritage consent would normally be required.

Archaeology

N.4.31 Excavation works for the below-ground structures might uncover archaeological deposits. Any such deposits would potentially be adversely affected by the excavation; however, a number of mitigation measures would also be implemented (see 'Mitigation measures' below).

N.4.32 The archaeological considerations at the site would be addressed by means of the procedures set out in the *Overarching Archaeological Written Scheme of Investigation*, which accompanies the application. Refer to the Location plan and Conservation areas map.

N.4.33 No heritage consent would normally be required.

N.5 Heritage design considerations

N.5.1 As the majority of the infrastructure for the project would be below-ground, the key design objective of the permanent works would be to integrate the functional components of the system within their context. At Greenwich this means successfully integrating the works into a piece of existing historic infrastructure (the East Beam Engine House), which is a Grade II listed heritage asset.

N.5.2 An initial assessment was undertaken during the site selection process that took account of the potential to impact on the Grade II listed buildings, the setting of the Ashburnham Triangle Conservation Area, views to/from the conservation area and other local views.

N.5.3 A major consideration in the development of the design was the desire to preserve the special architectural and historic interest of the listed buildings and enhance their character by bringing the East Beam Engine House back into use. Reusing the building for its original purpose as an active component of the sewage processing system would also be the most appropriate conservation use. The design team sought to tie the design in with the historic features and character of the building and avoided introducing unnecessary new openings above ground floor level in order to preserve the original design intentions.

N.5.4 The louvered cupola would continue to ventilate the building, in accordance with the original design. The two unusual original openings between the ground and first 'floors' on the southern elevation would also be reused, rather than remaining redundant features.

N.5.5 In response to consultation, the design team made the following changes to accommodate the heritage considerations at the site:

- a. Although the historic interior walls of the East Beam Engine House comprise plain, un-rendered brickwork, the design team decided to fix the new ventilation equipment within the building to the new floor in order to minimise the physical impact on the original walls and piers.
- b. Where ventilation ducts and services would need to be fixed to the internal walls, fixings would be set into mortar joints, rather than into the masonry units, where practicable. This would make alterations reversible and minimise permanent damage to the bricks
- c. It was agreed that the clutter of steel palisade fencing to the north of the pumping station would be rationalised to improve the setting of the listed building and the listed Network Rail viaduct.
- d. It was decided to refurbish the fenestration and fixtures in the East Beam Engine House, such as the handrails on the northern entrance podium, in order to improve its setting.
- e. It was decided to retain the listed coal sheds, instead of temporarily removing and reinstating them as proposed earlier in the design, in order to avoid any loss of heritage significance.
- f. The design team also introduced the proposed York stone surface over the former auxiliary pump chamber in order to preserve and enhance the building's setting.

N.5.6 The Royal Borough of Greenwich confirmed that the auxiliary pump chamber, which is outside the building's footprint, is not listed [Meeting with Conservation Officer, January 2011].

N.6 Mitigation measures

N.6.1 Due to the presence of heritage assets nearby, the National Policy Statement for Waste Water (the 'NPS') requires the proposed development to minimise any impacts on their significance (paras. 4.10.11 and 4.10.14), minimise impacts on their setting (para. 4.10.17), mitigate any negative impacts (para. 4.10.18), and ensure that the proposals are of a high design quality (Section 3.5). These requirements are reinforced by policies in the *London Plan 2011*, the *Draft Core Strategy* and the Royal Borough of Greenwich's *Conservation Area Reports*.

N.6.2 The effects of the intrusive works to the East Beam Engine House would be largely positive and restore much of the building's intended appearance and purpose. Potential impacts would be mitigated by restoring the pattern of primary fenestration in order to re-create some aspects of the building's original design and grandeur. The building would also be used in the way it was originally intended. The new ventilation equipment would occupy the area originally filled with machinery that has been empty for some time. The cross walls would be used to support the equipment, as they originally supported the beam engine and associated machinery, and the louvered cupola and the openings between the ground and first floors would serve to ventilate it, as originally intended.

N.6.3 The alterations to the East Beam Engine House would also be mitigated by means of a programme of historic building recording to ensure that the

building's significance can be appreciated by future generations (as required by paras. 4.10.18 to 4.10.20 of the NPS and *London Plan* Policy 7.8). The refurbishment of the northern entrance podium would enhance the building's character. The need to perforate the eastern external wall in order to introduce a duct from the CSO drop shaft to the ventilation equipment would be mitigated by taking the duct through the podium and the front wall below ground. Ducting would be fixed into the mortar joints of the internal plain brick walls to avoid fixing into the masonry units, where practicable.

- N.6.4 The visual impact of the proposed above-ground structures and the alterations to the East Beam Engine House would be mitigated by means of sympathetic, high quality design that responds to the surroundings. The profile of the above-ground structures was kept low and the structures would be positioned so as not to compete with the historic buildings. The windows and doors of the East Beam Engine House would be restored in order to re-create its original appearance.
- N.6.5 An archaeological watching brief would be implemented during site preparation and construction. In view of the generally low archaeological potential of the site and the highly localised nature of the potential impacts from the proposed works, it is likely that this brief would be sufficient to mitigate impacts on any finds that might arise due to ground disturbance.
- N.6.6 The mitigation measures would be implemented in accordance with the *Overarching Archaeological Written Scheme of Investigation* accompanying the application. A *Site-specific Written Scheme of Investigation*, would be prepared at a later stage as set out in the *Code of Construction Practice* Part A, in order to satisfy the requirement to record any unavoidable losses in para. 4.10.18 of the NPS.
- N.6.7 For the duration of the construction phase, all heritage assets would be safeguarded by the provisions of the *Code of Construction Practice* Part A, including the requirement for a site-specific heritage management plan. This plan would be prepared by the contractor prior to commencing construction.
- N.6.8 Further site-specific requirements contained within Section 12 of the *Code of Construction Practice* Part B include the following:
- i An archaeological standing structure survey of the East Beam Engine House, including the temporary removal of steps, in order to mitigate the effects of the proposed modifications and provide a record to guide subsequent repairs and reinstatement
 - ii The existing stairs attached to the East Beam Engine House to be dismantled, stored and re-assembled
 - iii Protective measures will be put into place to prevent strike damage to the Grade II Listed Beam Engine Houses, and Central Boiler House, the Grade II Listed Coal sheds, and the Grade II Listed Network Rail viaduct

N.7 Assessment of effects

N.7.1 A summary of the assessment of effects on the heritage assets, based on the significance of the heritage assets identified in Section M.3, the impacts identified in Section M.4 above, and the mitigation measures described in Section M.6, is set out below.

East Beam Engine House

- N.7.2 The East Beam Engine House has been disused for over half a century. The proposed works would return it to a viable use and restore much of its original external appearance, particularly due to the proposed refurbishment of the windows and other openings. Features of the building would be used for the purposes for which they were originally designed, with the floor and cross walls supporting the machinery that would be central to the building's operation and the louvers and wall openings ventilating the building. The works would also require the removal of the 1950s concrete floor and other intrusive 20th century accretions, which currently detract from the significance of the building.
- N.7.3 The reduction in the amount of fencing to the north of the buildings, the improved landscaping and the establishment of a York stone surface over the location of the former auxiliary pump chamber would improve the settings of both the Grade II Listed Pumping Station and the Grade II listed Network Rail Viaduct.
- N.7.4 Figure N.3 illustrates the interior south wall of the East Beam Engine House and the openings with internal splays between the ground and first floors.

Figure N.3 East Beam Engine house interior south wall



Ashburnham Triangle Conservation Area

- N.7.5 As the proposed works would be mostly not visible from within the conservation area they would constitute less than substantial harm to the setting of the listed buildings and locally listed buildings within and near to Ashburnham Triangle Conservation Area.

Deptford Creekside Conservation Area

- N.7.6 The construction works would be visible from the wharfs on the east edge of the conservation area and from the railway viaduct and the path to its south. Although cranes and other activities would not have been out of place historically adjacent to the industrial wharfs of the conservation area, they would partly affect the quality of views of part of the pumping station complex from the south eastern part of the conservation area, and there would therefore be a minor negative effect on the setting of the conservation area as a whole. This would constitute less than substantial harm.
- N.7.7 The permanent proposals would improve the area to the north of the pumping station buildings and would have a minor positive effect on the conservation area's setting.

London Electric Supply Corporation substation

- N.7.8 The construction works and the permanent site changes would amount to less than substantial harm to the fabric of the substation and its setting.

Brick chimney

- N.7.9 The construction works and the permanent site changes would amount to less than substantial harm to the fabric of the chimney and its setting.

Assessment in relation to policy

- N.7.10 An assessment of the proposals in relation to relevant heritage policy is set out below.
- N.7.11 The fabric of the East Beam Engine House would remain largely intact, which would preserve its significance and avoid any substantial harm, in line with para. 4.10.11 of the NPS. This is also reflected in *London Plan* Policy 7.8.
- N.7.12 The temporary construction structures would have a minimal physical impact on the fabric of the building. The overall heritage impact of the temporary works would therefore be low, which satisfies the requirements of Section 4.7 and para. 4.10.11 of the NPS.
- N.7.13 Overall, the works to the building would improve views, protect or enhance the settings of nearby heritage assets and are designed to minimise harm to the significance of the heritage assets, which would be largely beneficial, which satisfies paras. 4.10.11, 4.10.14 and 4.10.17 of the NPS and reflects the requirements of Policies 7.8 and 7.29 of the *London Plan and Draft Core Strategy* Policy DH3 and DH(h)
- N.7.14 The high quality design of the structures would be a public benefit of the works, which would meet the requirements of Section 3.5 and para.

4.10.12 of the NPS. This is also reflected in *London Plan* Policies 7.8 and 7.29, the *Draft Core Strategy* and the *Conservation Area Reports*.

N.7.15 There would be some minor negative effects as a result of the works at this site; however none of these effects would amount to substantial harm. The works would also give rise to a range of benefits, which would outweigh any harm. This satisfies para. 4.10.14 of the NPS.

N.8 Conclusion

N.8.1 The NPS requires the proposed works to “*minimise harm to the landscape, providing reasonable mitigation where possible and appropriate*”. The works should take account of the local context and the significance of any nearby heritage assets, as well as any operational or other constraints from existing infrastructure on the layout and design of the works (para. 4.7.6).

N.8.2 The main potential heritage impact at this site would be the works to the listed East Beam Engine House. The works would have some impact on the historic fabric of the building; however, subsequent inappropriate accretions would also be removed and the original fenestration would be restored. This would enable the building to be viewed as the original designers intended – as a grand, high-quality Italianate engine house. It would also be partially restored to its original use as part of London’s vital sewerage infrastructure.

N.8.3 Any physical impacts would be minimised during the works and this assessment determined that the impacts would be acceptable. Existing views of the building would be preserved or enhanced. The impact on the setting of listed buildings on or near the site and the Ashburnham Triangle Conservation Area would also be acceptable.

N.8.4 There would temporarily be considerably less than substantial harm to Deptford Creekside Conservation Area as a whole during construction. The setting of Creekside Conservation Area would also be largely preserved and enhanced by the permanent proposals.

N.8.5 Potential impacts on other heritage assets such as buried archaeological deposits would be minimal or negligible, which is acceptable in heritage terms.

N.8.6 The impact of the structures required to construct the new CSO drop shaft structure would also be very low overall in heritage terms, as they would be temporary.

N.8.7 In summary, any potential negative impacts on the fabric and setting of nearby heritage assets would be minimised by the quality of the design, mitigation measures and construction management practices, in line with the requirements of the NPS, and would also reflect the policies of the *London Plan*, the *Draft Core Strategy*, the *UDP*, and the *Conservation Area Reports*. The proposed works would not cause substantial harm to any of the heritage assets on or around the site.

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Gazetteer of known heritage assets

Details of known heritage assets within the assessment area are provided in Table N.3 below as illustrated on the Historic environment features map.

All known heritage assets within the assessment area are referred to by a historic environment assessment (HEA) number. Assets within the site are referred to and labelled in the Historic environment features map with the prefix 1, eg, HEA 1a, 1b, 1c. References to assets outside the site but within the assessment area are referred to numerically from 2 onwards, eg, HEA 2, 3, 4, and 5). The gazetteer also appears within the *Environmental Statement*, Vol 24, Appendix E.1.

Table N.3 Historic environment: Gazetteer of known heritage assets within the site and assessment area

HEA Ref.	Description	Site code/ GLHER ref/ List Entry Number
1A	<p>Pair of beam engine houses with linking boiler house at Deptford Sewage Pumping Station (also known as Greenwich Pumping Station). Grade II listed.</p> <p>Opened 1865 and designed by John Aird and Sons, architects and engineers; extended 1905. English bond grey brick with limestone dressings; shallow-pitched hipped Welsh slate roofs. Italianate style. Each 2-storey beam house is of 3 by 5 bays and is articulated by giant order of Tuscan pilasters rising to parapet with moulded stone cornice. Each main elevation has steps with cast iron railings which rise to panelled double doors set in classical architrave with cornice above over light. Square-headed stone-corniced windows to ground floor and semi-circular arched windows to upper floor, all with small panes to cast-iron casements. Louvred lantern finials to roofs. Beam engine house extended to south in matching style in 1905. One-storey boiler house has similar casements set in semi-circular arched window architraves to front and 8-bay arcade of semi-circular arches on moulded impostes to rear, whence coal was brought via the coal sheds; continuous strip clerestory light to roof. Interior: roofs of slate on wooden plank construction are supported by wrought-iron trusses. Part of Sir J W Bazalgette's drainage scheme for London, pumping sewage from the three main south London sewers up to the level of the southern outfall sewer.</p>	1213334
1B	<p>Coal shed immediately to the southwest of the beam engine houses with linking boiler house at Deptford Sewage Pumping Station. Grade II listed.</p> <p>Coal shed. 1865. Designed by Sir J W Bazalgette. Iron construction; M-shaped hipped Welsh slate roof. Of 2 by 5 bays. Slate on wooden plank roof construction, with wrought-iron roof trusses supported on cast-iron Tuscan columns, which are linked by segmental arches with openwork spandrels. One of 2 coal sheds which form an integral part of Bazalgette's work for Deptford</p>	1289021

HEA Ref.	Description	Site code/ GLHER ref/ List Entry Number
	Sewage Pumping Station.	
1C	Southernmost of a pair of coal sheds to the southwest of a pair of beam engine houses with linking boiler house at Deptford Sewage Pumping Station. Grade II listed. Description as 1B.	1213549
1D	Concrete tanks or possible original cooling basin and associated features, situated below the present surface and to the north of the beam engine house. Also associated below ground pumping infrastructure consisting of pipework, penstock chamber, pumping chamber and well.	---
1E	<p>Deptford Creek, Creekside Road, SE8, SE10. An archaeological foreshore survey by Museum of London Archaeology Service (MoLAS, now MOLA) in 2002. A survey of the drift geology and archaeology, a photographic record of the principal riverine structures of late 19th century or earlier date and a record of the physical attributes of the creek bed and associated structures were undertaken. Amongst the latter were stretches of timber river walls, constructed in the mid-19th century; timber revetments; a masonry riverbed lining of c. 1838; a dock or inlet of 1876–94; barge-bed revetments; masonry and timber splash aprons for the sewage pumping station; outfall pipe of 1868; a masonry and timber drain of c. 1868; and a line of timber uprights which may be remnants of the river wall line predating the 18th century.</p> <p>The first bridge of the London and Greenwich railway, recorded in the Greater London Historic environment Record (GLHER), was built over Deptford Creek in 1836, closed in 1869, replaced in 1884 and replaced again by the current bridge in 1963. The Halfpenny Hatch footbridge ran along its south side until it was demolished at the beginning of the 20th century.</p>	FLS02 MLO2120 070263
1F	<p>Railway viaduct extending across the site from the platforms of Greenwich railway station c 150m east of the site, to the modern bridge over Deptford Creek on the west side of the site. Grade II listed. The section to the west of Deptford Creek is the subject of a separate listing (HEA 42).</p> <p>The viaduct for the London and Greenwich Railway: construction was authorised by Act of Parliament in 1833 and the railway opened from Greenwich to London in 1838. Grey brick; eighteen arches, each 20 feet wide from centre to centre and 22 feet high. The 28 feet-wide rail bed is enclosed by parapets roughly four and a half feet high.</p>	1253722
1G	Museum of London Archaeology was commissioned by Thames Water Utilities Ltd to investigate and record the two coal sheds and the northeastern of two beam engine houses, all listed buildings, at Greenwich Pumping Station. The survey was conducted in January 2012.	TWG12

HEA Ref.	Description	Site code/ GLHER ref/ List Entry Number
1H	Line of the Bazalgette Southern Low Level Sewer.	---
1I	Line of the Bazalgette High Level Sewer.	---
1J	Line of a Bazalgette sewer.	---
1K	Line of the Bazalgette East Greenwich Branch Sewer.	---
2	173–185 Greenwich High Street, MoLAS watching brief in 2001. In two trenches natural gravels were overlaid by subsoil which, in one, contained 17th century material. A number of pits of 18th or 19th-century date were also found in what would have been open ground. In another trench the cellar of a house was revealed; this was formerly No.175, possibly dating to the early 19th century and destroyed by bombing in 1944. Also recorded were brick foundations associated with the Greenwich Railway Terminus of 1840 and a late-19th century pit that may have been associated with a nearby public house.	GWH01
3	Nos.136 and 138 Greenwich High Road. Grade II listed.	1078996
4	<p>No.98 Greenwich High Road. Grade II listed.</p> <p>Early 18th century house of 3 storeys, 5 windows. High pitched roof, renewed in machine tile, partly concealed behind parapet. Brown brick with upper part renewed in pinkish brick after war damage. Gauged, shallow segmental brick arches to renewed sash windows, some of early 19th century, in near-flush box frames.</p> <p>Nos.100–104 Greenwich High Road. Grade II listed.</p> <p>Early 18th century terrace. Each house 2 storeys, attic and basement, 3 windows. Renewed, tiled mansard roof with one square dormer. Brown brick fronts. Upper parts and tall parapet renewed in unsuitable pale brick after war damage. Bands at cornice, 1st floor cills and 1st floor level. Gauged, very slightly cambered brick arches to 1st floor renewed sash windows in near-flush box frames.</p>	<p>1358974</p> <p>1220783</p>
5	Harold Wharf, 6 Creekside, Deptford, SE8. An archaeological watching brief by Chris Philpotts in 2001. Above the natural gravels 19th–20th century dumps and the boundary walls and outbuildings of a 19th century chemical works were recorded.	CEP01
6	MoLAS carried out an archaeological watching brief in 1997 on the Deptford Creek Viaduct Pier Bases in advance of the proposed Docklands Light Railway route. A series of timber stakes thought to date from the medieval to post-medieval period were recorded within the silt which extended to the base of the underlying peat. The stakes were probably the base of a wattle revetment on the eastern edge of the Ravensbourne of parallel water course such as a mill leat.	DXK96 MLO77153

HEA Ref.	Description	Site code/ GLHER ref/ List Entry Number
7	A Roman road as recorded on the GLHER. A more likely route may have been on the line of modern New Cross Road and Deptford Bridge, c. 500m to the southwest of the site.	MLO11490 70557
8	84 Norman Road, SE10. An archaeological evaluation by MoLAS in 1998. In one of two trenches, a compacted layer of crushed chalk - a yard surface or thoroughfare - was recorded above the natural gravel, sealed by a deposit of ashy waste containing a dense concentration of 19th century potsherds. The second trench had been subject to heavy disturbance in modern times, with the surviving deposits interpreted as ground-raising dumps, probably associated with 19th century industrial activity.	NRM98
9	The site of a gravel pit shown on Rocque's map of 1746. Recorded on the GLHER.	MLO72934 071818
10	Bronze Street, Deptford. The GLHER includes archaeological fieldwork in 1983 which recorded late 17th or early 18th century brick walls and mortar floors, and a pit lined with wedge-shaped bricks. A piece of medieval earthenware pottery was found in a wall composed of concrete and other pottery fragments, and assemblages of 18th century possibly industrial tiles and chimney pots were recovered (Richardson) ⁱ . Also the site of late 19th century cottages and late 19th/20th century pottery, flowerpots, drain pipes and tiles.	MLO11370 070061 MLO24486 070274
11	River Wall, Creekside, SE8. An archaeological survey by MoLAS in 2001. A topographic survey of the revetment on the west side of Deptford Creek was undertaken, as well as a plan of a crane base rail.	CEK01
12	53 Norman Road, SE10. An archaeological watching brief by MoLAS in 1996. Natural gravels were overlaid by river silt, interpreted as a floodplain deposit from Deptford Creek. Above this was a reclamation dump, followed by thick agricultural soil. The agricultural use of the site is documented from the 18th century and it continued until engineering works were constructed sometime in the 1860s; these were demolished recently. Also the site of a post-medieval gas works. Recorded on the GLHER.	NRG96 MLO67320 071369
13	No.165 Greenwich High Road. Grade II listed. No.167 Greenwich High Road. Grade II listed.	1078993 1078994
14	K2 telephone kiosk outside No.171 Greenwich High Road. Grade II listed.	1289165
15	The GLHER includes the site of a tannery shown on the Greenwich Tithe Map of 1844 on the east side of Deptford Creek. The complex is shown as four long and narrow buildings identified as stabling sheds. The tannery buildings appear to have been still standing in 1870, but by 1875 the site seems to have changed hands to become the Merryweather and Sons' Tram Locomotive	MLO98648

HEA Ref.	Description	Site code/ GLHER ref/ List Entry Number
	Works and a Fire Fighting Equipment Factory. Under these hands the site had a factory of three floors, an erecting shop, pattern makers and carpenters' offices, smithy buildings, a foundry, saw mills, wheelwright's shop and painter's buildings. Portions of the site were redeveloped as housing. Much of the site was damaged in the destruction caused by a V1 flying bomb in June 1944, to be redeveloped as further industrial units. Other buildings included a mid-20th century 'Engine House' building which replaced a building damaged in wartime, the 'Station House', 'Pump House', 'Brigade House', 'Siren and Bell House' and toilets. The 'Engine House' building was an industrial building constructed in English Bond brickwork, with concrete sills and lintels. Most of the original Crittal windows survived of this building, with steel support trusses and roofed with corrugated asbestos sheeting. The 'Station House' was of brick laid in stretcher bond of yellow stock brick. The 'Pump House' was of 1920s–1930s date of alternating colour brickwork, concrete coping and internal beams.	
16	The Miller General Hospital Royal Kent Dispensary. Grade II listed.	1078995
17	The projected extent of the Saxon and medieval settlement of Deptford. Recorded on the GLHER. The place name Deptford is derived from the Anglo Saxon for "deep ford", indicating the crossing of the Ravensbourne in this period. It was for a time known as West Greenwich and before that as Depeford. The Deptford Bridge area may have been the focus of settlement in the early to mid-Saxon period and the St Nicholas church area, to the north, a focus in the mid to late Saxon period.	MLO83376 MLO71960
18	The Miller General Hospital Miller General Wing (Rehabilitation Department). Grade II listed.	1220749
19	A congregational chapel and burial ground noted by Mrs Basil Holmes in 1896 (Holmes ¹⁸⁹⁶) ⁱⁱ .	Holmes ID 248
20	No.2 Burgos Grove. Grade II listed.	1358933
21	23 Greenwich High Street (East Mill). This appears to be the earliest surviving component of the Mumford's Mill complex. It was possibly constructed around 1817 and is the earlier of the two mill buildings on this site. Brick, with segmental-headed windows punctuating the English bond brickwork. An entranceway is set in an architraved entrance. The presumed location of the granary block is the site of the 1897 silo, and it is possible that the original mill may have extended as far north as the creek edge. There is some elaboration of the building with the string and dentil courses. The fourth floor may be an addition to the whole of the building, though this is uncertain. The interior of the mill was probably reached through the double doors set below the bow window of the manager's office or by doors in the now water tower block. The interior includes non-fireproof timber floors formed from timber beams, now largely changed to steel-framed floors of the later	MLO98653

HEA Ref.	Description	Site code/ GLHER ref/ List Entry Number
	19th century. The ground floor rests on the river bank - there is no basement. The steel girders also include ones with the legends of the makers. The fourth floor contains what was probably the original kingpost roof, possibly re-sited from the earlier roofline. A cast iron sprinkler system is present along the roof. Recorded on the GLHER.	
22	A late 19th century grain silo and flour mill. Recorded on the GLHER.	397897
23	Nos.1–40a, 40, 44–61, 65–74 Ashburnham Grove. Locally listed buildings. Built of yellow stock brick, with pitched slate roofs and stone window surrounds. Mostly two storey with basements, some three storey with parapet roofs.	---
24	Nos.10, 11, 13–27 Ashburnham Place. Locally listed buildings. Two storey with basements, mostly with plastered parapet roofs, stone window surrounds and bracketed cornices to the front doors.	---
25	Nos.4 and 6, 8-24 (evens) Burgos Grove. Locally listed buildings. Built in yellow stock brick with tiled and slated roofs, two storeys with basements. Stone window surrounds and corniced parapets to the roofline.	---
26	Deptford Creek, c. 250m to the north of the site. The remains of a timber river wall.	FLS02 A101
27	Devonshire Drive Baptist Church. Locally listed building. Rebuilt in 1955 in yellow stock brick, with decorative iron railings to front. Incorporates date stone from an earlier church building.	---
28	St Paul's Holy Trinity Church, Devonshire Drive. Locally listed building. Gothic church, built of Kentish ragstone with pantilled roof. Open belfry with weather vane. Designed by Teulon, but not completed.	---
29	Deptford Creek, c. 100m to the northwest of the site. The remains of a timber river wall, similar to HEA 26 above.	FLS02 A102
30	Deptford Creek, c. 80m to the west/southwest of the site. The location of a timber revetment formed of at least 26 upright round timbers which extend for c. 7m at a maximum surviving height of c. 0.2m.	FLS02 A105
31	No.135 Greenwich High Road. Locally listed building. Two bay three storey house, built in London stock brick with a parapet to the roofline. Wooden door case with reeded pilasters.	---
32	London Electric Supply Corporation electricity substation, built in the early–mid 20th century.	---
33	A medieval book fitting reported as found to the northwest of the site as part of the Portable Antiquities Scheme (PAS).	PAS-2E8D10

HEA Ref.	Description	Site code/ GLHER ref/ List Entry Number
34	Late 19th century chimney, on Thames Water land to the south the site and of Bazalgette's pumping station.	---
35	Deptford Creek frontages Package project. An archaeological watching brief by MOLA in 2009. Natural Thames terrace gravels were observed at between -1.0m OD and +1.0m Ordnance Datum (OD), equivalent to 99.0-101.0 ATD (above Tunnel Datum). The existing timber river walls were dismantled by machine and recorded photographically, and deposits in the foreshore were also observed. No structures or deposits earlier than the mid-19th century were definitively identified, although it is possible that some of the disturbed alluvial silts and gravels at the base were a century or so earlier. A timber revetment was observed at the upstream end of Hilton's Wharf, marking an earlier inland return prior to the construction of the existing Hilton's Wharf frontage. This structure could have been 19th century or earlier.	HTV09
36	Laban Centre, Creekside, Deptford, SE14. An archaeological evaluation by MoLAS in 2000. Above fluvial clays there was evidence of land reclamation, consisting of two unlined 18th century drainage channels. The earliest structural features on site were the foundations of an early 19th century brick boiler house, interpreted as part of the soap works that used to occupy the site. Part of the north wall of an infilled 20th century barge dock was also located.	LGR00
37	Deptford Creek, to the west of the site: the Halfpenny Hatch Bridge, a footbridge over the Ravensbourne beside the railway bridge.	FGW29 A102
38	Deptford Creek, to the west of the site: a masonry riverbed lining, probably related to the construction of the railway bridge or Halfpenny Hatch Bridge (HEA 37).	FGW29 A103
39	Deptford Creek, to the west of the site: a barge bed revetment is located here, consisting of a series of stout timber posts, retaining a wall of planks laid horizontally, forming a platform extending alongside the cast iron river wall of a former pumping station.	FGW29 A104
40	Deptford Creek, to the west of the site: a masonry and timber splash apron for the sewage pumping station.	FGW29 A105
41	Deptford Creek, to the west of the site: a masonry and timber drain. Deptford Creek: the remains of a timber barge bed revetment. Deptford Creek: masonry and timber splash apron for the sewage pumping station. Deptford Creek: the remains of a flood defence, consisting of upright timbers in the centre of the present channel which may once have formed a revetment or timber wall.	FGW29 A106 FGW29 A107 FGW29 A108 FGW29 A109
42	Railway viaduct to the west of the site between Deptford Creek	1253151

HEA Ref.	Description	Site code/ GLHER ref/ List Entry Number
	<p>and North Kent Junction. Grade II listed.</p> <p>Railway viaduct for the London and Greenwich Railway. Construction was authorised by Act of Parliament in 1833; the section from North Kent Junction (Bermondsey) to Deptford was opened in February 1836, that east to Deptford Creek in December 1836. The total length is 5,150 metres. Grey brick; each arch is 20 feet from centre to centre and 22 feet high. The 28 feet-wide rail bed is enclosed by parapets roughly four and a half feet high.</p>	

Table N.4 List of drawings in order

Drawing title
Historic environment features map
Conservation areas map
Location plan
As existing site features plan
Demolition and site clearance plan (1 of 3)
Demolition and site clearance plan (2 of 3)
Demolition and site clearance plan (3 of 3)
Site works parameter plan
Proposed site features plan
Existing floor plan with extent of loss
Proposed floor plan
Section AA
Section BB
Section CC
As existing and proposed north elevation
As existing and proposed east elevation
As existing Beam Engine House north elevation
Proposed Beam Engine House north elevation
As existing Beam Engine House south elevation with extent of loss
Proposed Beam Engine House south elevation
Existing Beam Engine House east elevation
Proposed Beam Engine House east elevation
Listed building internal elevations with extent of loss
Listed structure interface: Entrance door
Listed structure interface: Windows
Construction phase 1: Site set-up and shaft construction
Construction phase 3: Tunnelling
Construction phase 2: Construction of other structures

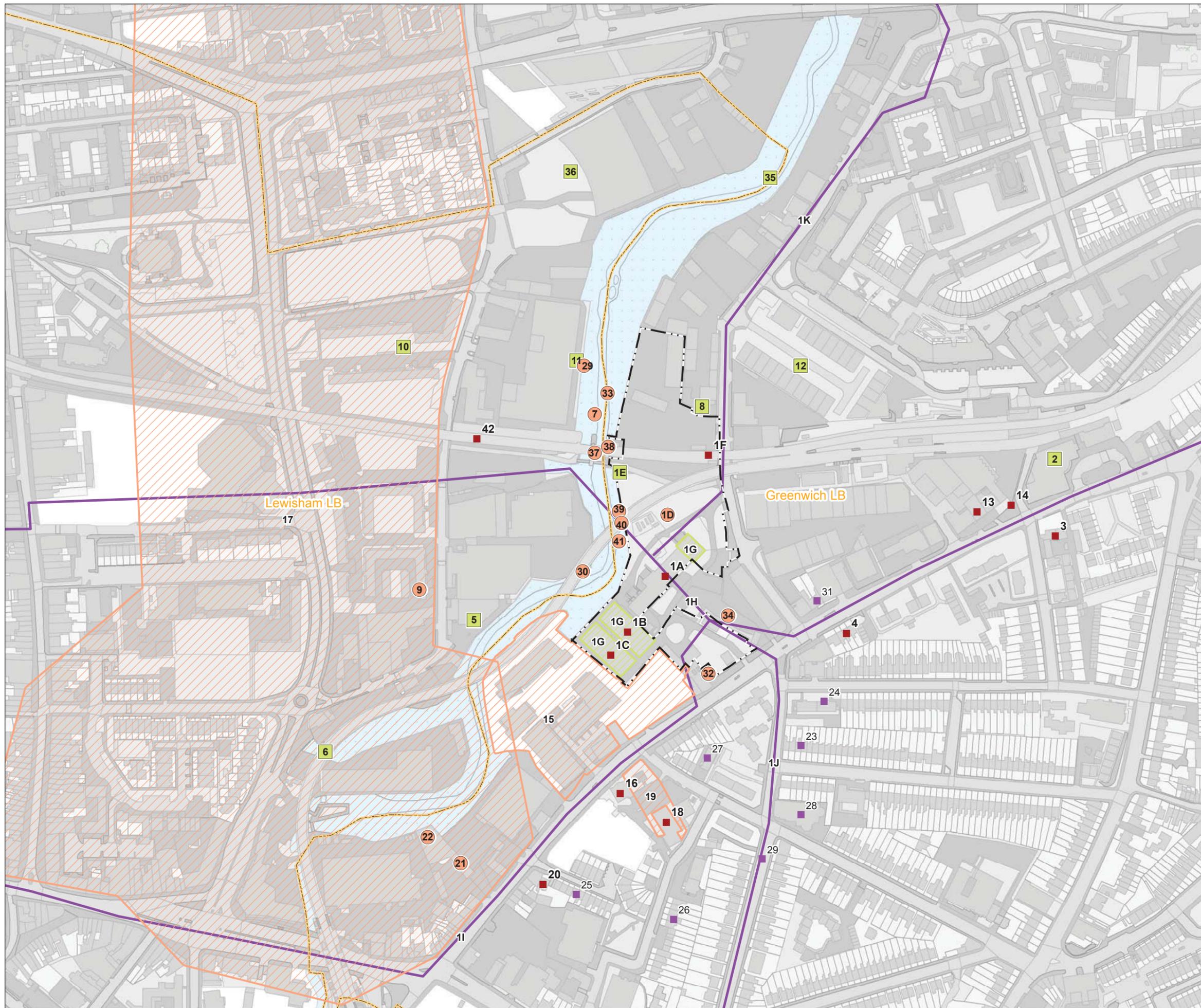
ⁱ Richardson, B. *Excavation Round Up: Bronze St, Deptford*. In *London Archaeologist* 4 (14), (388).

ⁱⁱ Holmes, Basil. (Mrs), *The London Burial Grounds: Notes on their history from the earliest to the present day*. New York: MacMillan & Co (1896).

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- Key**
- Limits of Land to be Acquired or Used
 - Local Authority Boundary
 - Heritage Feature/Findspot
 - Heritage Feature
 - Statutorily Listed Building
 - Locally Listed Building
 - Past Investigation
 - Past Investigation Area
 - Bazalgette sewer



The reference number for historic environment features correspond to the descriptions in the 'Gazetteer of known heritage assets' in Environmental Statement Vol. 24 Appendix E.1



FOR INFORMATION

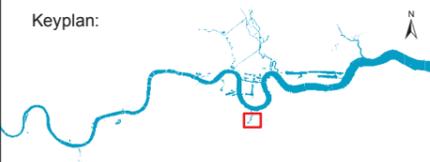
Location
Greenwich Pumping Station
 Royal Borough of Greenwich

Document Information
Heritage Statement
 Historic environment features map

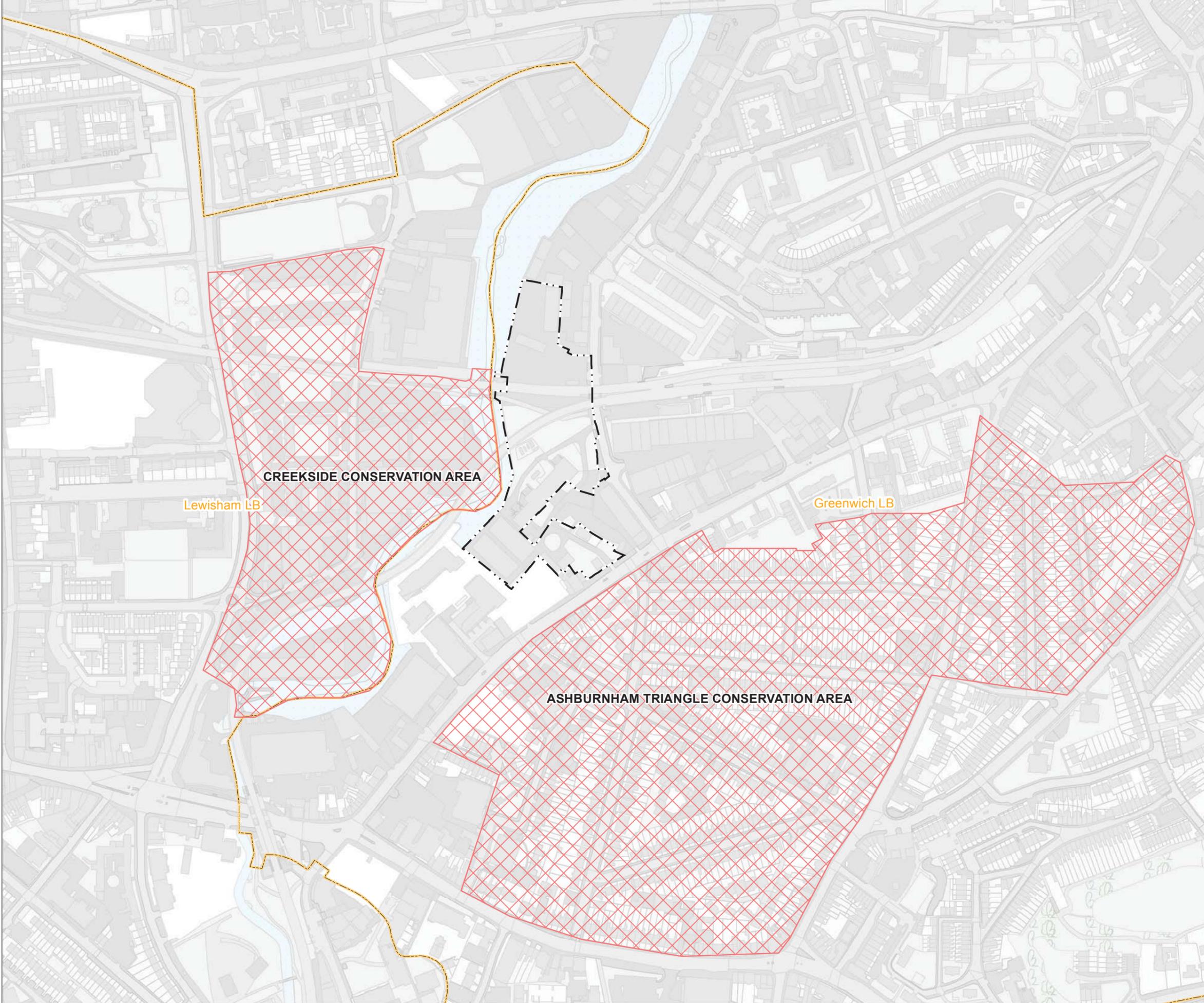
1PL03-HE-65220
 January 2013



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



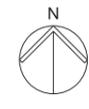
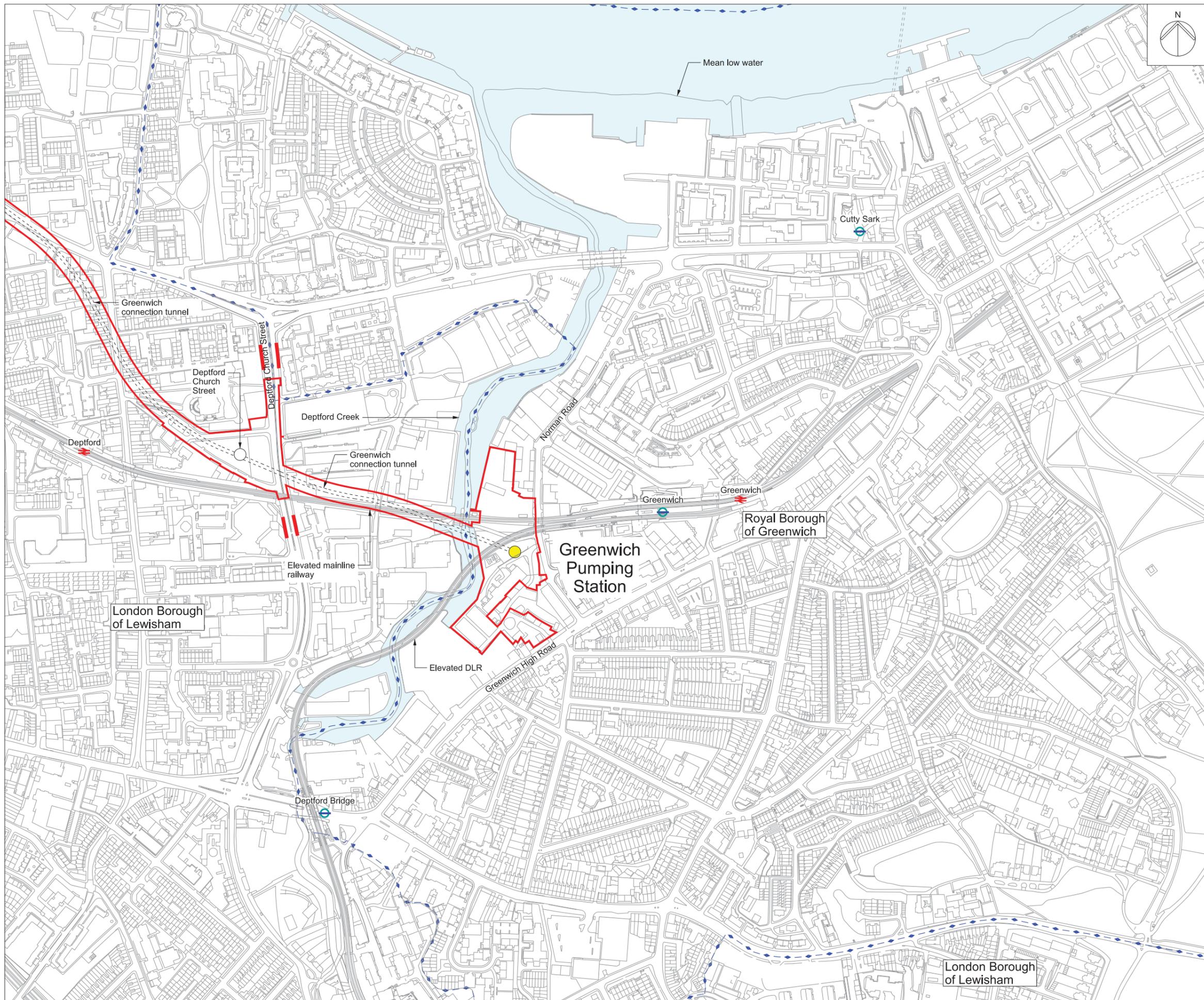
FOR INFORMATION

Location
Greenwich Pumping Station
Royal Borough of Greenwich

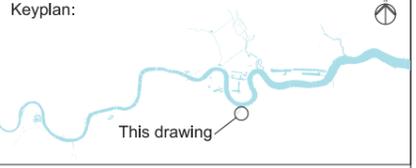
Document Information
Heritage Statement
Conservation areas map

PL03-HE-65235
January 2013





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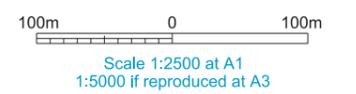


Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

- Key:
- Local authority boundary
 - Order limits
 - Tunnel
 - Shaft

Notes:

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



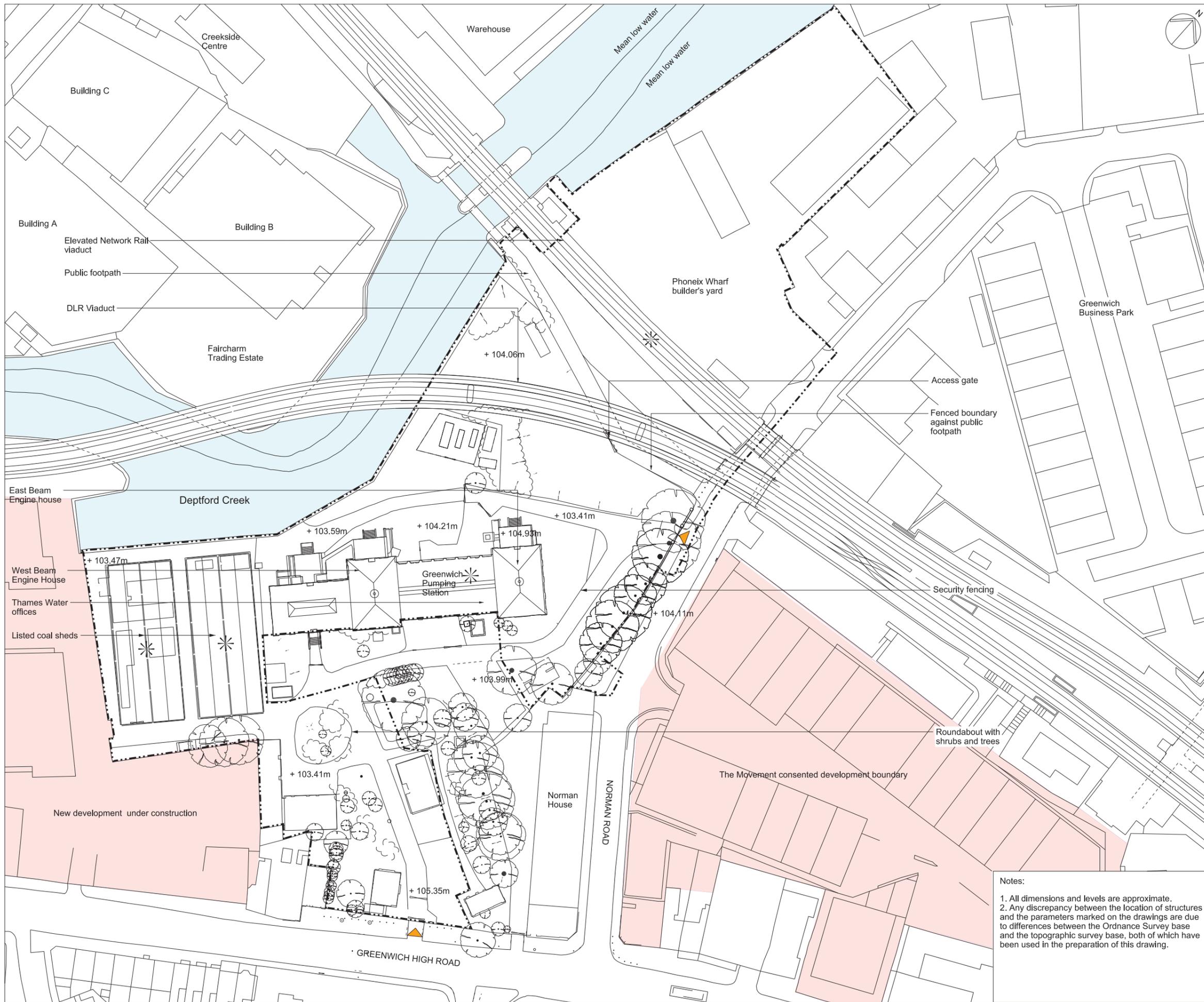
FOR INFORMATION

Location
Greenwich Pumping Station
 Royal Borough of Greenwich

Document Information
Application for Development Consent
 Location plan

Book of plans - section 24
 DCO-PP-23X-GREPS-240001
 January 2013





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- Key:**
- Limits of land to be acquired or used (LLAU)
 - Zone within which permanent above ground structures would be located
 - Zone within which required landscaping would be located
 - Maximum extent of foreshore structure
 - Authorised channel
 - + 105.40m Existing levels (shown in metres above tunnel datum)
 - Proposed levels (shown in metres above tunnel datum)
 - Consented development footprint (by others)
 - Listed buildings/structures
 - Approximate position of CSO outlet
 - Existing trees within surveyed area (trunk sizes vary)
 - Proposed trees
 - Thames Water access



FOR INFORMATION

Location
Greenwich Pumping Station
Royal Borough of Greenwich

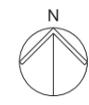
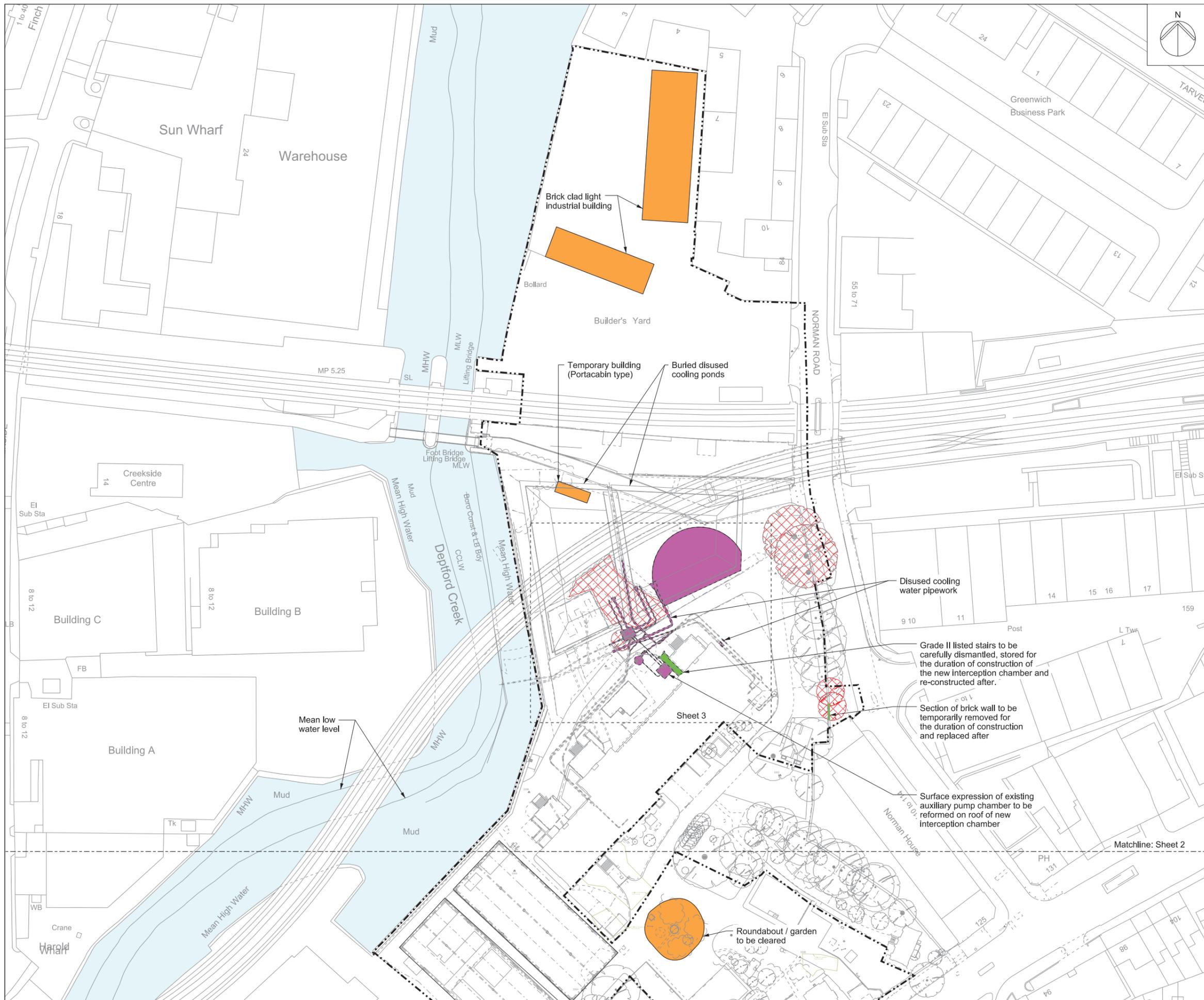
Document Information
Application for Development Consent

As existing
Site features plan
Book of plans - section 24
DCO-PP-23X-GREPS-240002
January 2013

Notes:

- All dimensions and levels are approximate.
- 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.





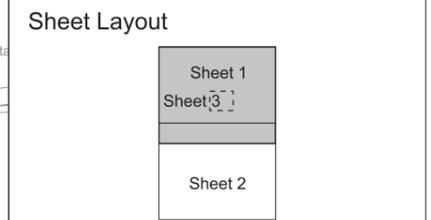
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Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

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

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

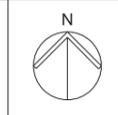
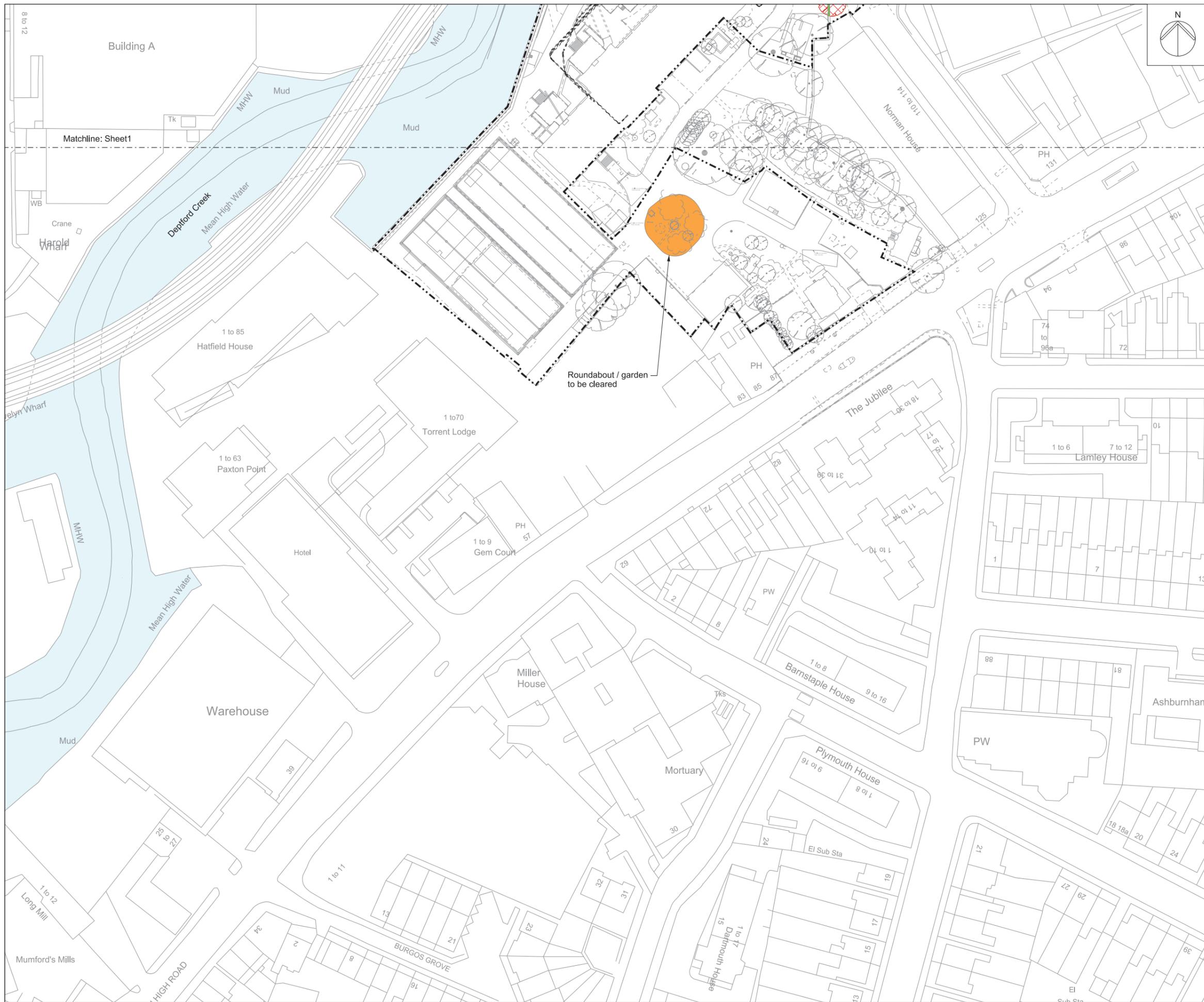


FOR APPROVAL

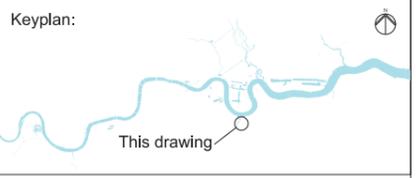
Location
Greenwich Pumping Station
 Royal Borough of Greenwich

Document Information
Application for Development Consent
 Demolition and site clearance
 Sheet 1 of 3
 Book of plans - section 24
 DCO-PP-23X-GREPS-240004
 January 2013





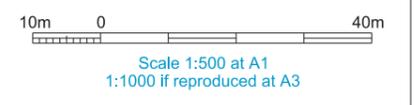
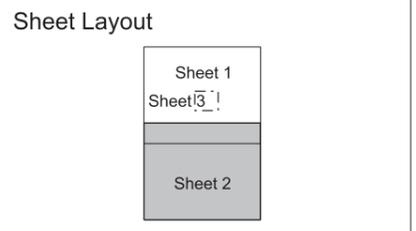
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Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

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

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

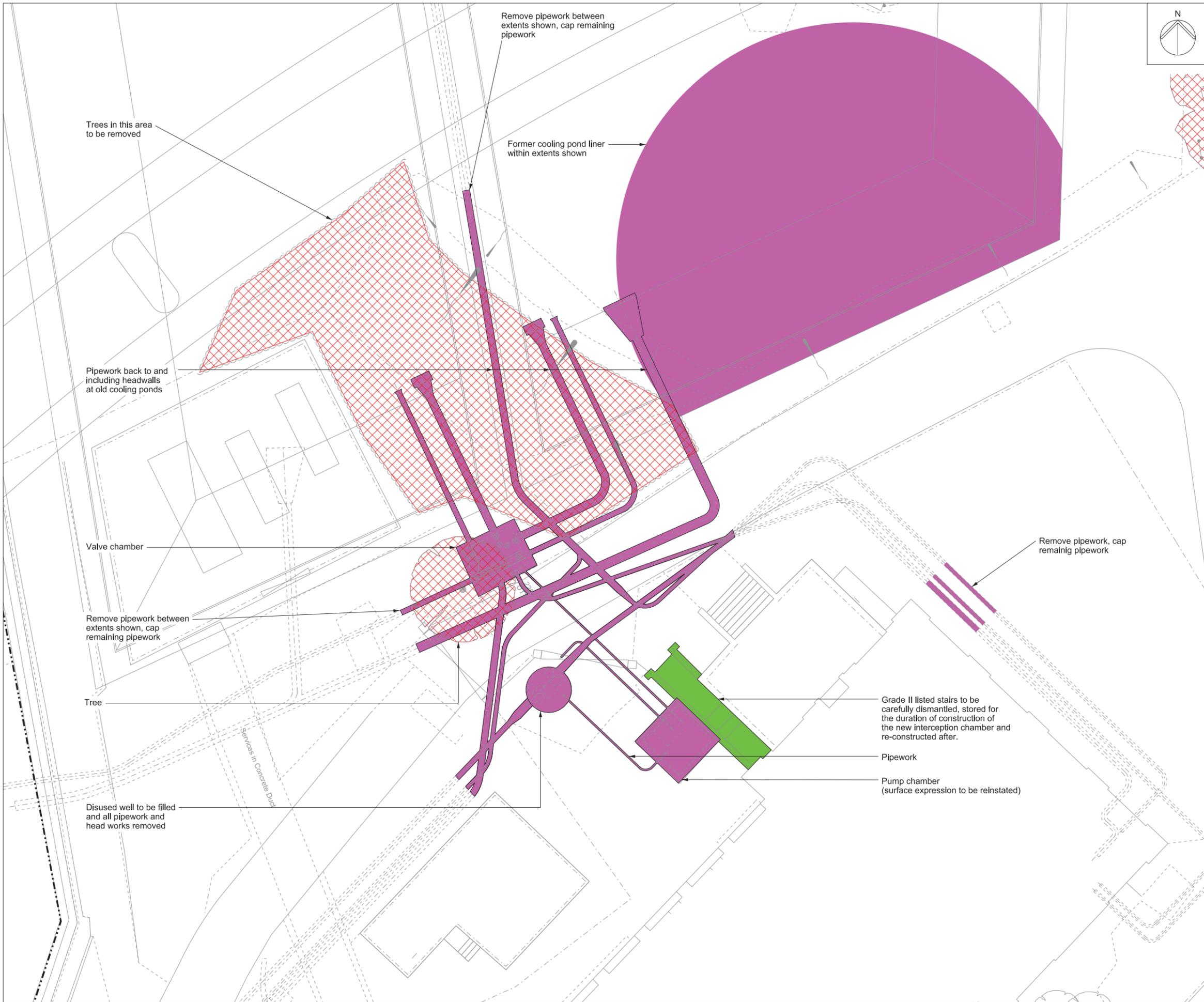


FOR APPROVAL

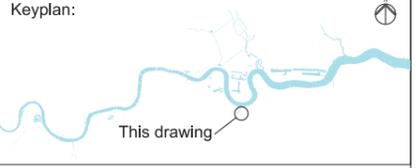
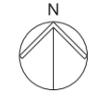
Location
Greenwich Pumping Station
 Royal Borough of Greenwich

Document Information
Application for Development Consent
 Demolition and site clearance
 Sheet 2 of 3
 Book of plans - section 24
 DCO-PP-23X-GREPS-240005
 January 2013





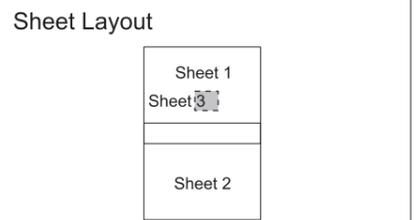
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Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

- Key:**
- Limits of land to be acquired or used (LLAU)
 - Trees to be removed
 - Below ground structures to be removed or infilled
 - Structure to be removed and relocated or reinstated

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



FOR APPROVAL

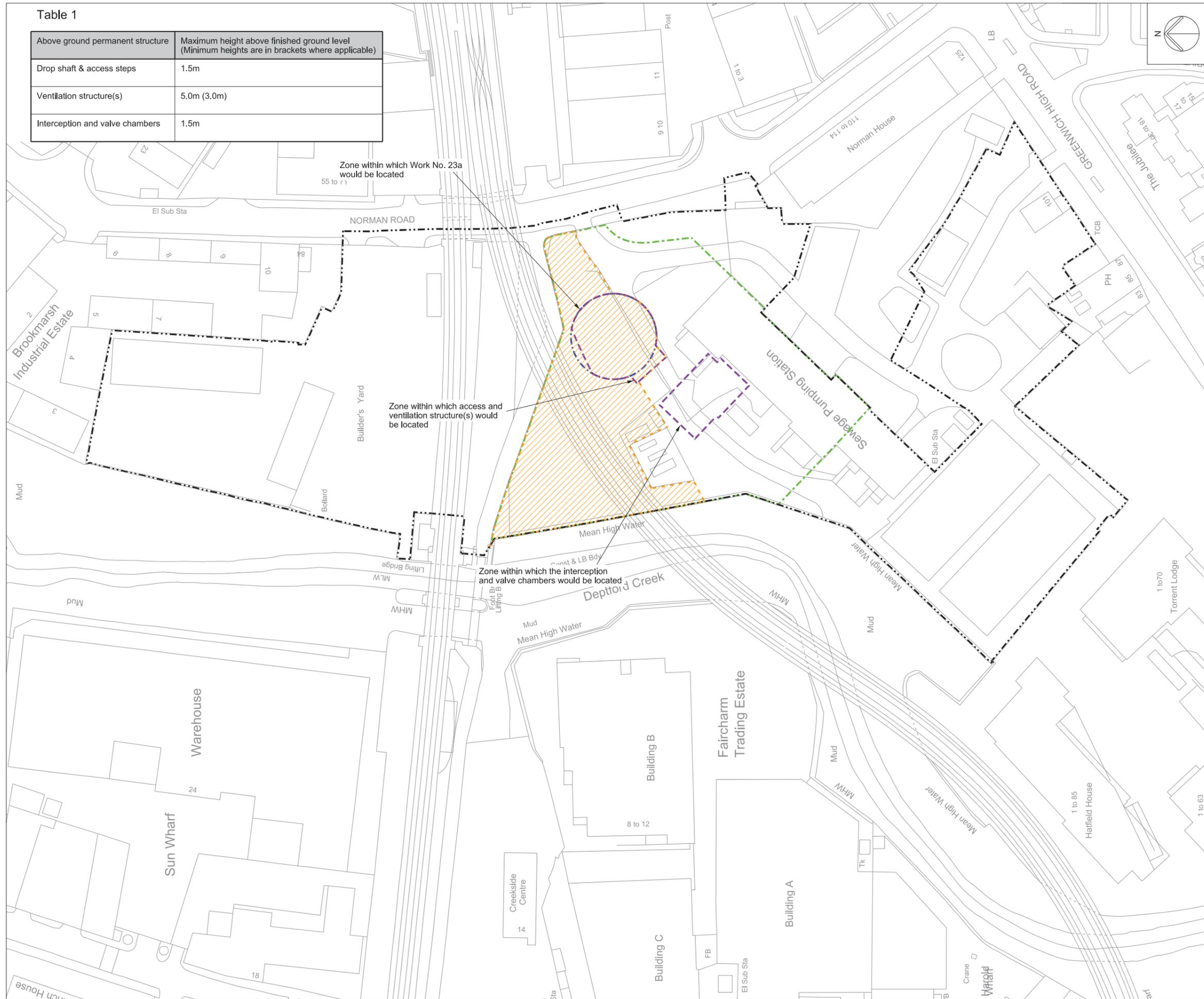
Location
 Greenwich Pumping Station
 Royal Borough of Greenwich

Document Information
 Application for Development Consent
 Demolition and site clearance
 Sheet 3 of 3
 Book of plans - section 24
 DCO-PP-23X-GREPS-240006
 January 2013

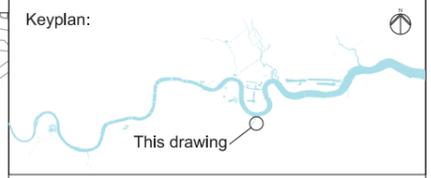


Table 1

Above ground permanent structure	Maximum height above finished ground level (Minimum heights are in brackets where applicable)
Drop shaft & access steps	1.5m
Ventilation structure(s)	5.0m (3.0m)
Interception and valve chambers	1.5m



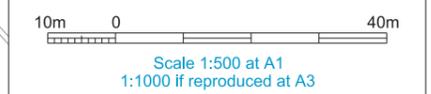
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- Key:**
- Limits of land to be acquired or used (LLAU)
 - Zone within which all permanent site structures would be located
 - Zone within which the shaft would be located
 - Zone within which permanent above ground structures would be located (those listed in Table 1)
 - Zone within which required landscaping would be located

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



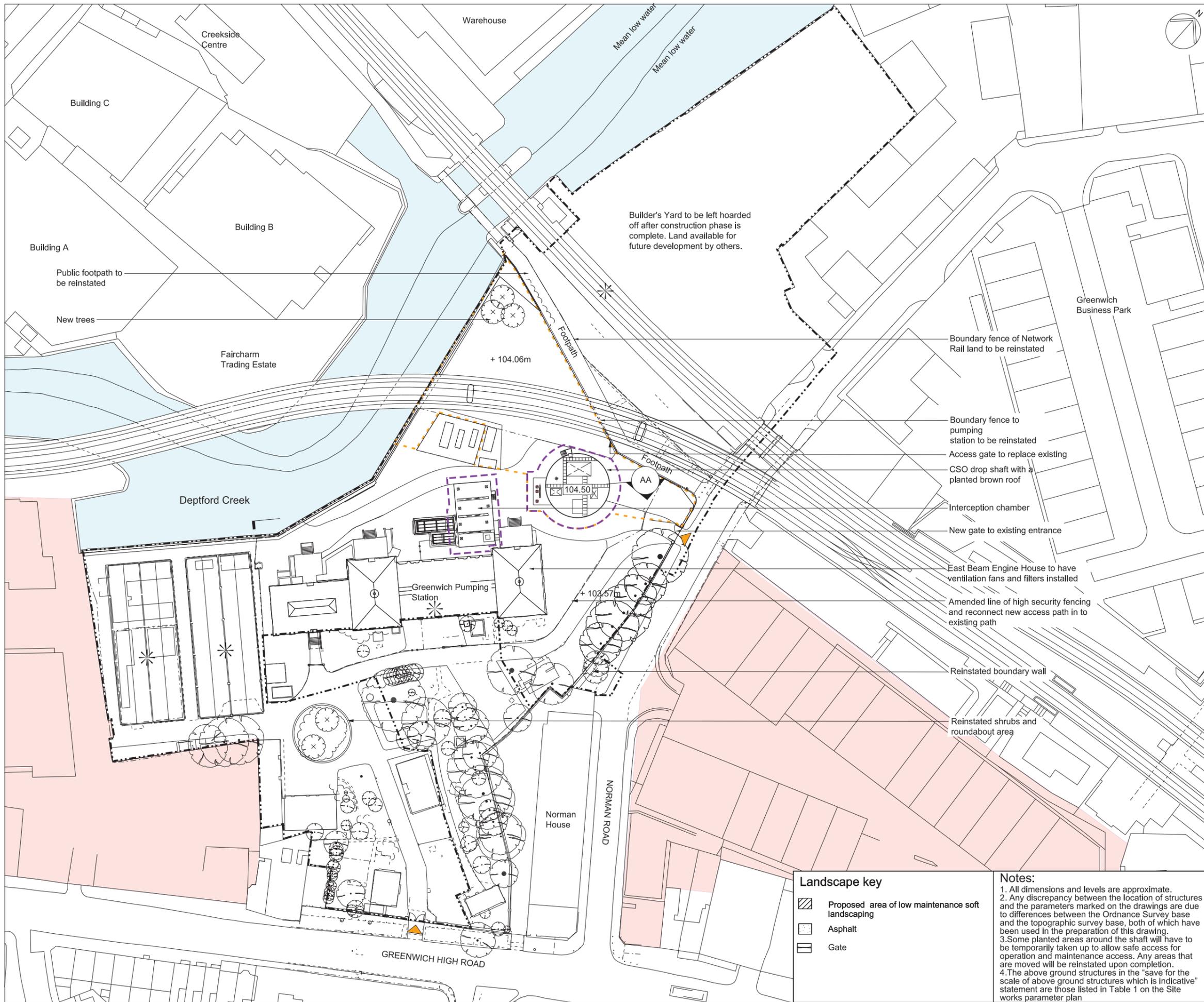
FOR APPROVAL

Location
Greenwich Pumping Station
 Royal Borough of Greenwich

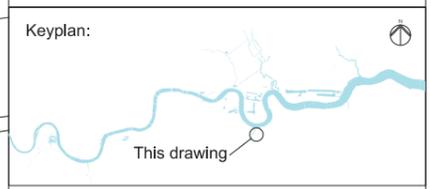
Document Information
Application for Development Consent
 Site works parameter plan

Book of plans - section 24
 DCO-PP-23X-GREPS-240007
 January 2013





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- Key:**
- Limits of land to be acquired or used (LLAU)
 - - - Zone within which permanent above ground structures would be located
 - . - Zone within which required landscaping would be located
 - Maximum extent of foreshore structure
 - + 105.40m Existing levels (shown in metres above tunnel datum)
 - 105.40 Proposed levels (shown in metres above tunnel datum)
 - Consented development boundary (by others)
 - Listed buildings/structures
 - Existing trees within surveyed area (trunk sizes vary)
 - Proposed trees
 - Thames Water access



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

Location
Greenwich Pumping Station
Royal Borough of Greenwich

Document Information
Application for Development Consent

Proposed
Site features plan
Book of plans - section 24
DCO-PP-23X-GREPS-240010
January 2013



- Landscape key**
- Proposed area of low maintenance soft landscaping
 - Asphalt
 - Gate

Notes:

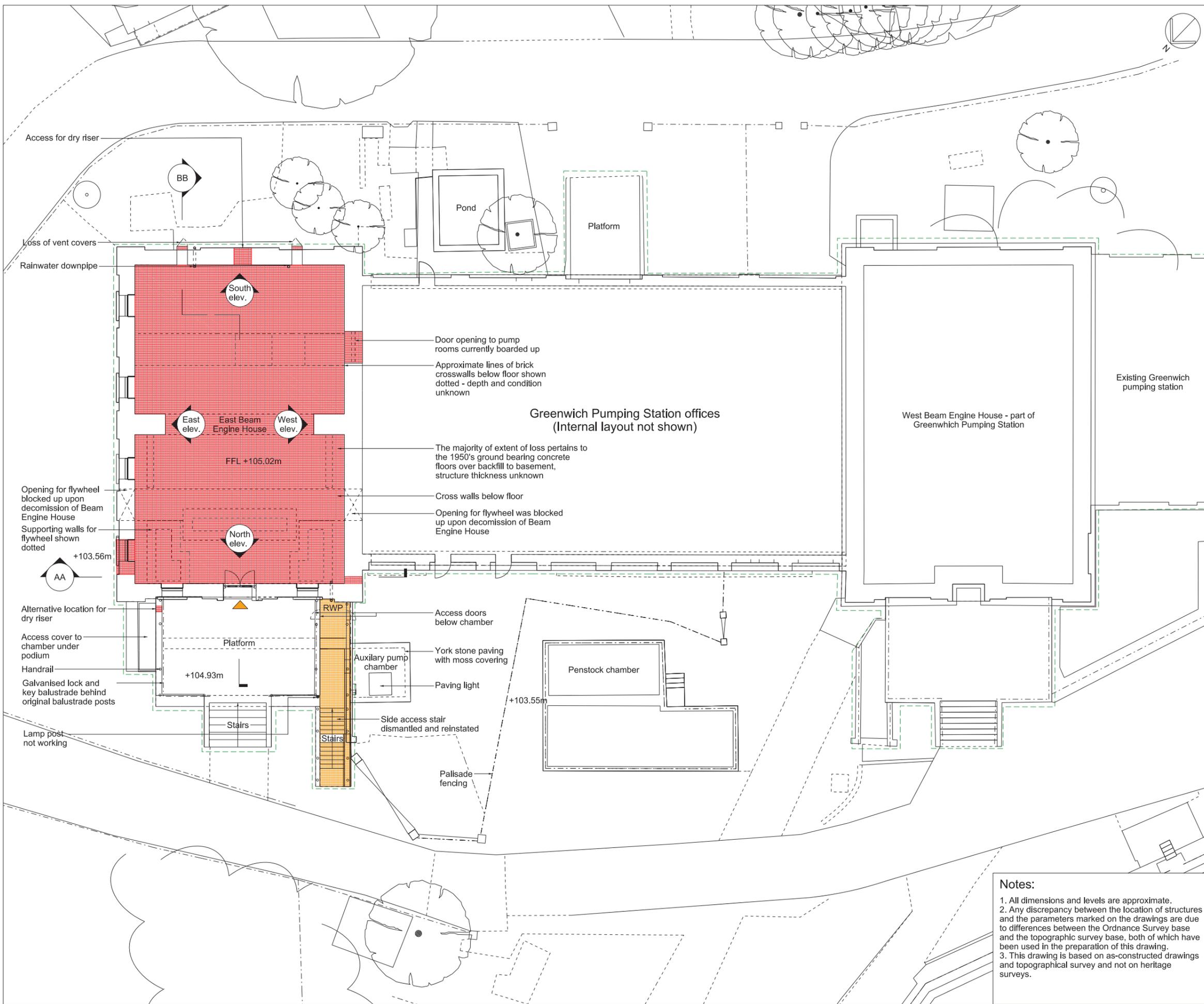
1. All dimensions and levels are approximate.
2. Any discrepancy between the location of structures and the parameters marked on the drawings are due to differences between the Ordnance Survey base and the topographic survey base, both of which have been used in the preparation of this drawing.
3. Some planted areas around the shaft will have to be temporarily taken up to allow safe access for operation and maintenance access. Any areas that are moved will be reinstated upon completion.
4. The above ground structures in the "save for the scale of above ground structures which is indicative" statement are those listed in Table 1 on the Site works parameter plan

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- Key:**
- + 105.40m Existing levels (shown in metres above tunnel datum)
 - Existing trees within surveyed area (trunk sizes vary)
 - Thames Water access
 - Extent of Listed buildings / structures within LLAU
 - Maximum temporary extent of loss of listed buildings / structures
 - Maximum permanent extent of loss of listed buildings / structures



1m 0 10m
Scale 1:100 at A1
1:200 if reproduced at A3

FOR INFORMATION
Save for maximum extent of loss of listed structures which is for approval

Location
Greenwich Pumping Station
Royal Borough of Greenwich

Document Information
Application for Development Consent
Existing
Floor plan with extent of loss
Book of plans - section 24
DCO-PP-23X-GREPS-240011
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.
3. This drawing is based on as-constructed drawings and topographical survey and not on heritage surveys.

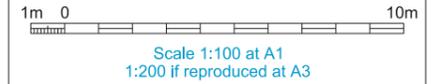
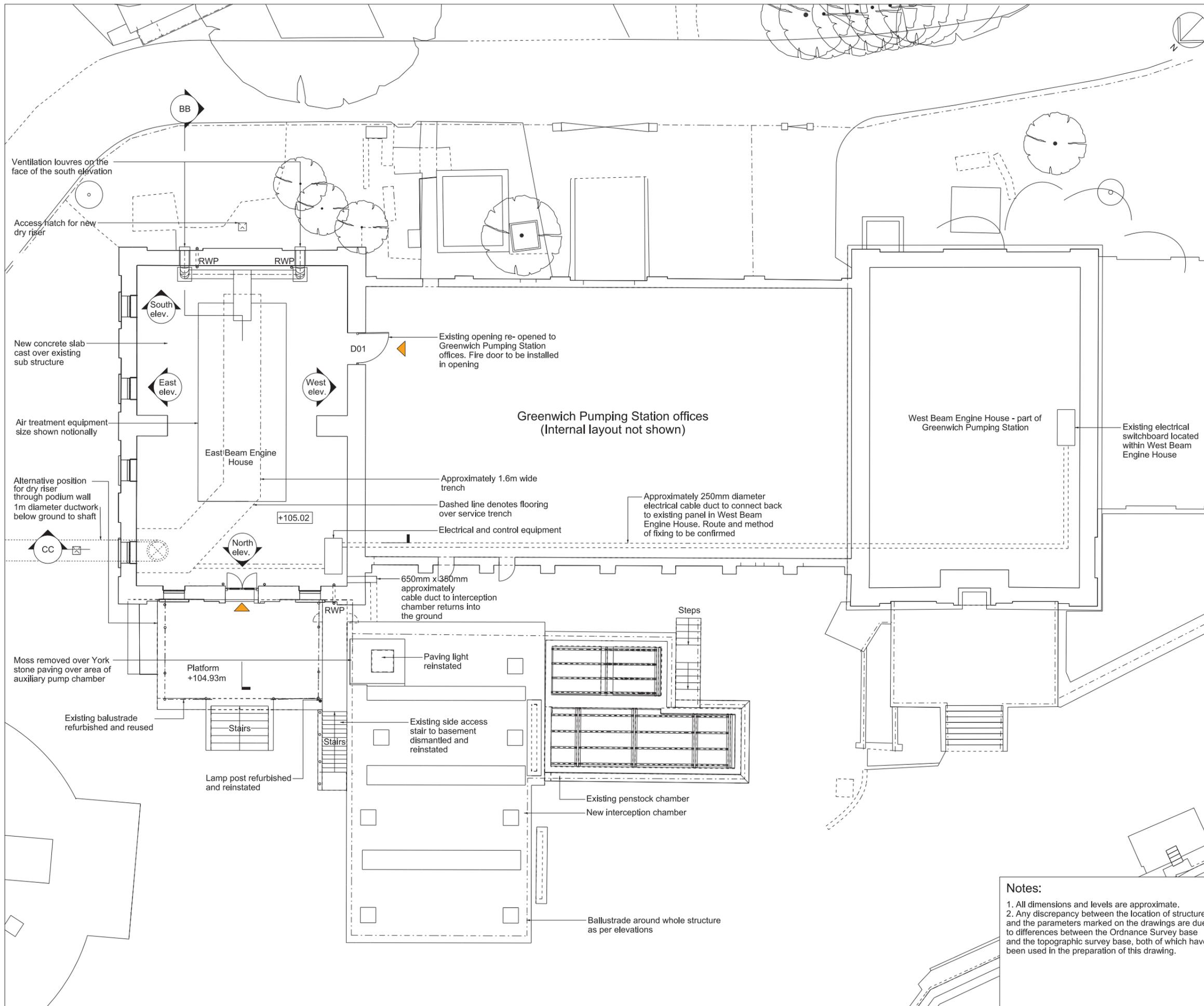


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Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

- Key:**
- + 105.40m Existing levels (shown in metres above tunnel datum)
 - 105.40 Proposed levels (shown in metres above tunnel datum)
 - Existing trees within surveyed area (trunk sizes vary)
 - Thames Water access



INDICATIVE

Location
Greenwich Pumping Station
Royal Borough of Greenwich

Document Information
Application for Development Consent

Proposed
Floor plan
Book of plans - section 24
DCO-PP-23X-GREPS-240012
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.

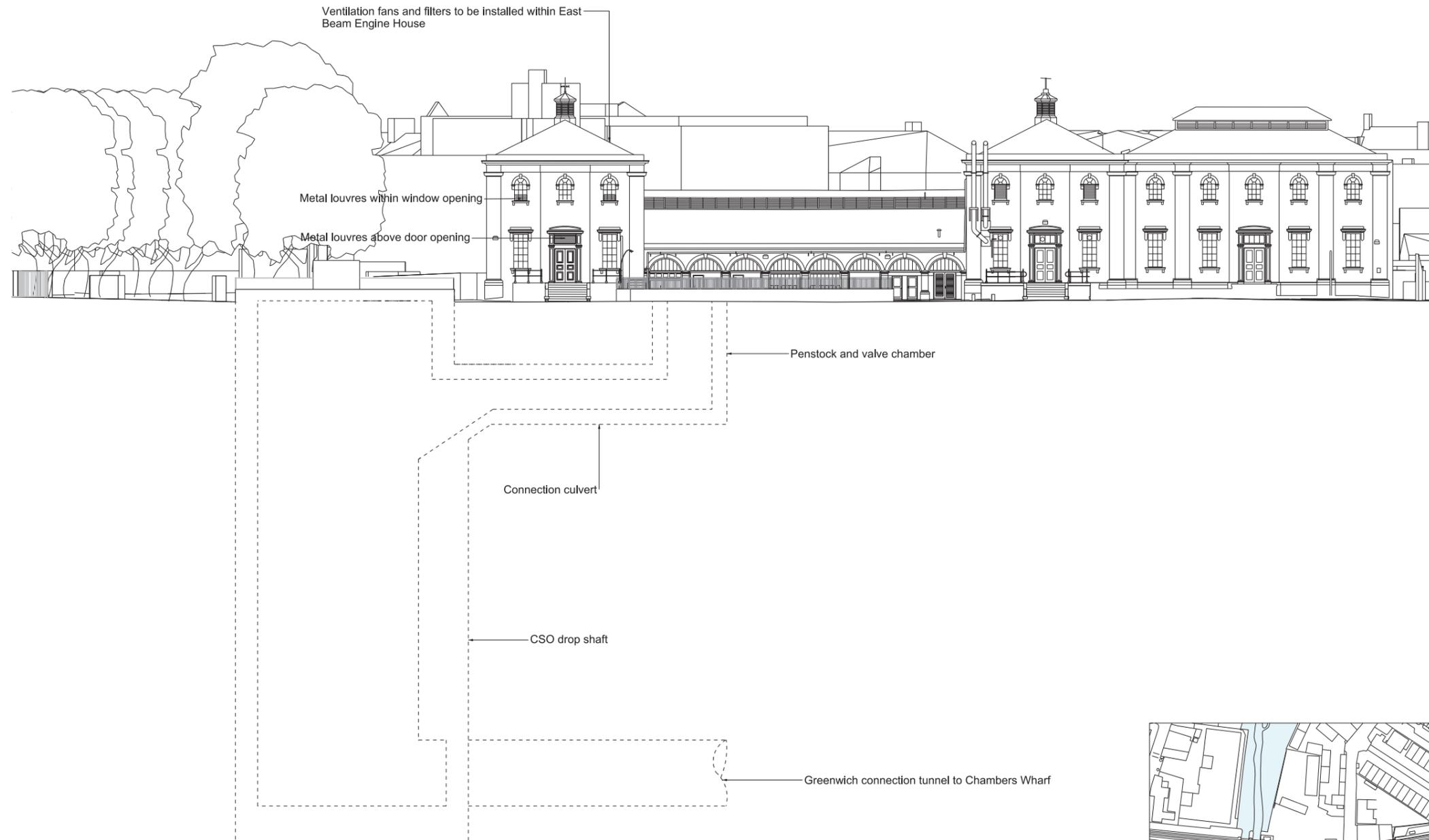
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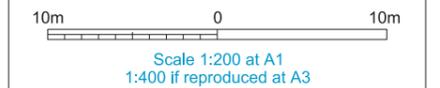
Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

Notes:

1. All dimensions and levels are approximate.
2. The purpose of this section is to show the scale of the below ground infrastructure to be provided.



Section AA



ILLUSTRATIVE

Location
Greenwich Pumping Station
Royal Borough of Greenwich

Document Information
Application for Development Consent
Section AA

Book of plans - section 24
DCO-PP-23X-GREPS-240013
January 2013

Thames Tideway Tunnel
Creating a cleaner, healthier River Thames



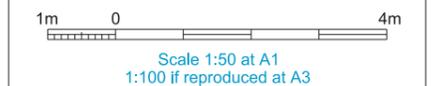


Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

Notes

1. Floor details shown are subject to an intrusive investigation of the existing in-fill to confirm the in-situ composition of the material and its density

-  Denotes new opening in existing wall
-  Tunnel ventilation routes
-  Natural ventilation
-  Electrical cable / ductwork route

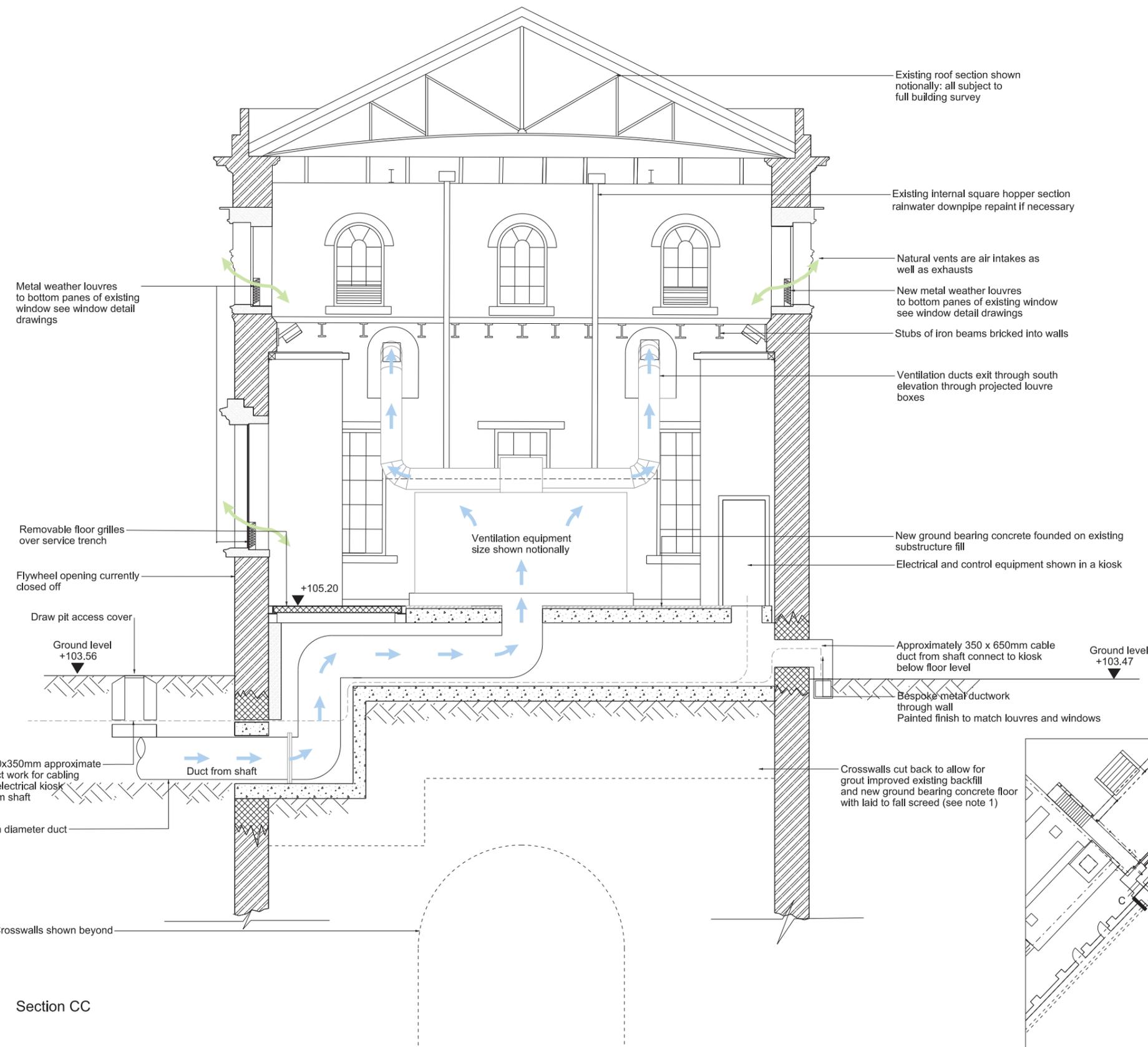


INDICATIVE

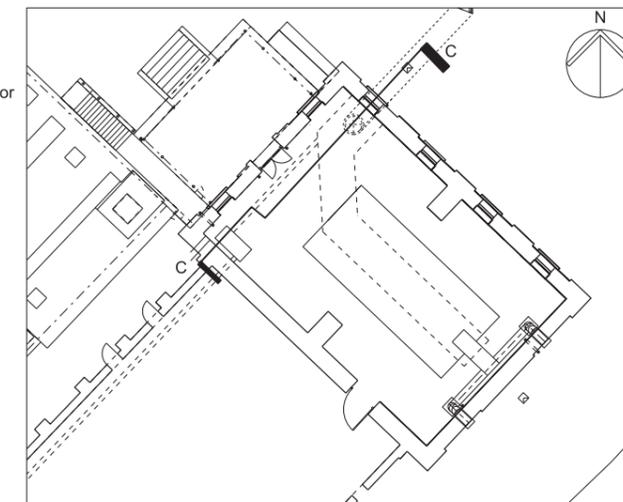
Location
Greenwich Pumping Station
Royal Borough of Greenwich

Document Information
Application for Development Consent
Section CC

Book of plans - section 24
DCO-PP-23X-GREPS-240015
January 2013



Section CC



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- Notes:
1. All dimensions and levels are approximate.
 2. Extent of restoration works to be confirmed pending full historic appraisal



East Beam Engine House Penstock chamber
Greenwich Pumping Station offices West Beam Engine House Thames Water sewage pumping station Coal sheds

As existing North elevation



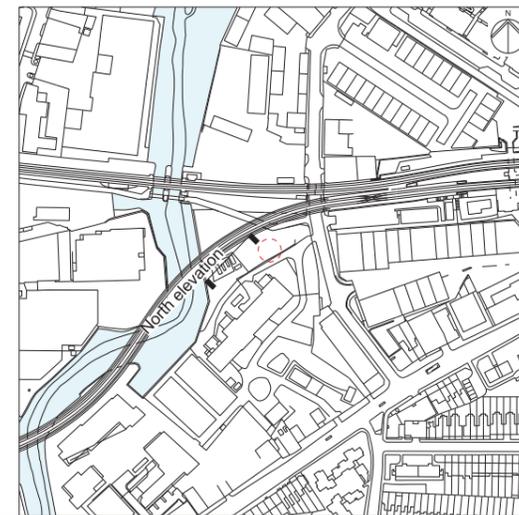
CSO drop shaft East Beam Engine House Interception and valve chamber

As proposed North elevation

10m 0 10m

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

ILLUSTRATIVE



Location
Greenwich Pumping Station
Royal Borough of Greenwich

Document Information
Application for Development Consent
As existing and proposed
North elevation
Book of plans - section 24
DCO-PP-23X-GREPS-240016
January 2013



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Keyplan:



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

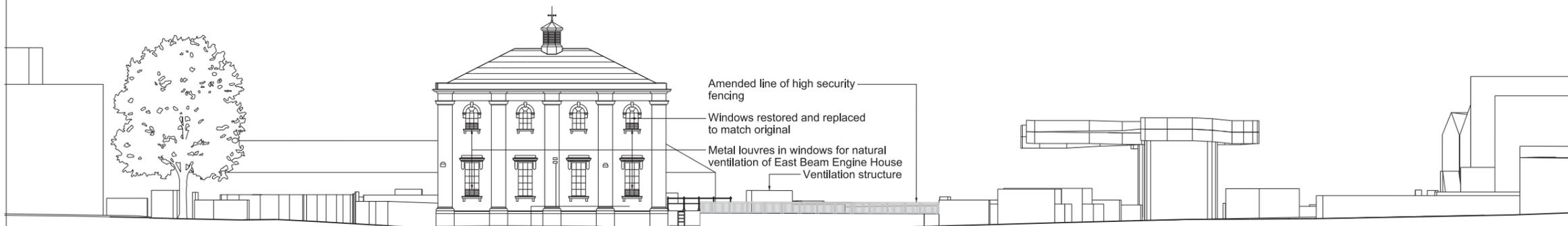
Notes:

- 1. All dimensions and levels are approximate.



Norman House Coal sheds East Beam Engine House Thames Water compound DLR Path Merchant's Yard

As existing East elevation



East Beam Engine House CSO drop shaft

As proposed East elevation

10m 0 10m
Scale 1:200 at A1
1:400 if reproduced at A3

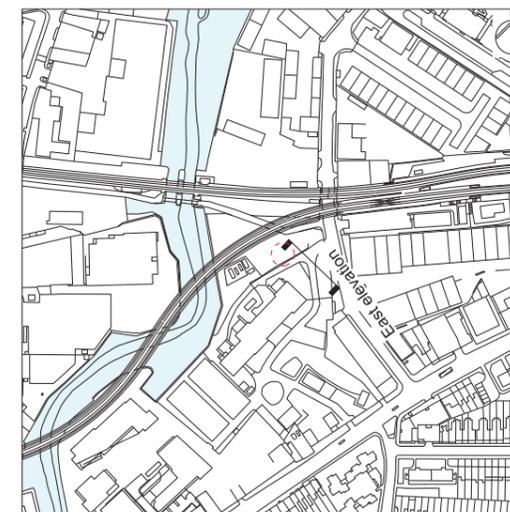
ILLUSTRATIVE

Location
Greenwich Pumping Station
Royal Borough of Greenwich

Document Information
Application for Development Consent

As existing and proposed
East elevation
Book of plans - section 24
DCO-PP-23X-GREPS-240017
January 2013

Thames Tideway Tunnel
Creating a cleaner, healthier River Thames

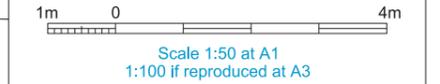


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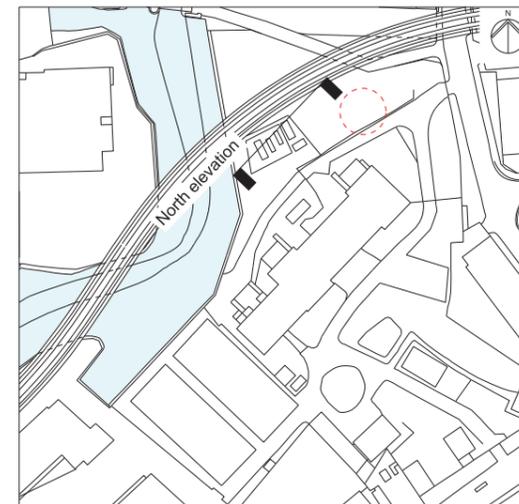


Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

Notes:
 1. All dimensions and levels are approximate.
 2. Extent of restoration works to be confirmed pending full historic appraisal



Existing north elevation



FOR INFORMATION

Location
 Greenwich Pumping Station
 Royal Borough of Greenwich

Document Information
Application for Development Consent
 As existing beam engine house
 North elevation
 Book of plans - section 24
 DCO-PP-23X-GREPS-240018
 January 2013



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Keyplan:



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

Notes:

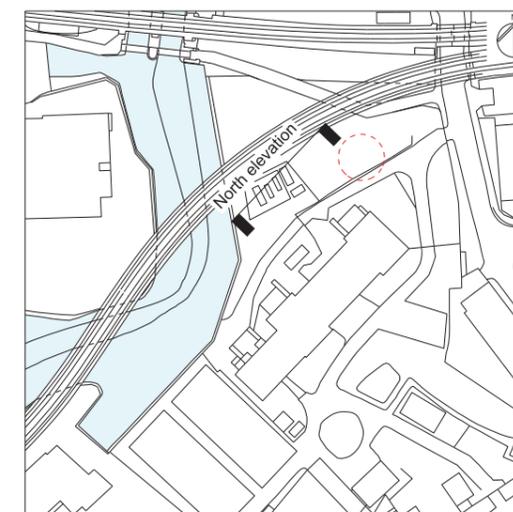
- 1. All dimensions and levels are approximate.



Proposed north elevation



Scale 1:50 at A1
1:100 if reproduced at A3



INDICATIVE

Location
Greenwich Pumping Station
Royal Borough of Greenwich

Document Information
Application for Development Consent
Proposed beam engine house
North elevation
Book of plans - section 24
DCO-PP-23X-GREPS-240019
January 2013

Thames Tideway Tunnel
Creating a cleaner, healthier River Thames



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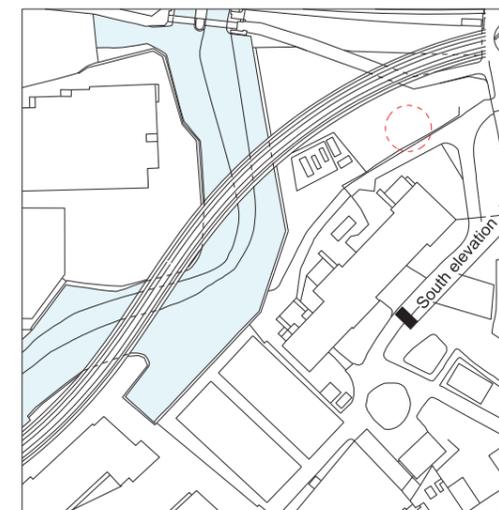
Key:
 Maximum permanent extent of loss of listed buildings / structures

Notes:
 1. All dimensions and levels are approximate.
 2. Drawing is based on as-constructed drawings and topographical survey and not on heritage survey.



Existing south elevation

1m 0 4m
 Scale 1:50 at A1
 1:100 if reproduced at A3



FOR INFORMATION

Save for maximum extent of loss of listed structures which is for approval

Location
 Greenwich Pumping Station
 Royal Borough of Greenwich

Document Information
 Application for Development Consent

As existing beam engine house
 South elevation with extent of loss
 Book of plans - section 24
 DCO-PP-23X-GREPS-240020
 January 2013



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Notes:
1. All dimensions and levels are approximate.
2. Extent of restoration works to be confirmed pending full historic appraisal

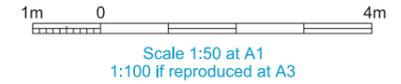


Refurbish existing window frames. Re-use existing glazing bars and glass where practicable. Replace to match where not. Paint window frames, colour to match original subject to 'paint analysis'.

Lantern used for natural ventilation to be refurbished and repainted

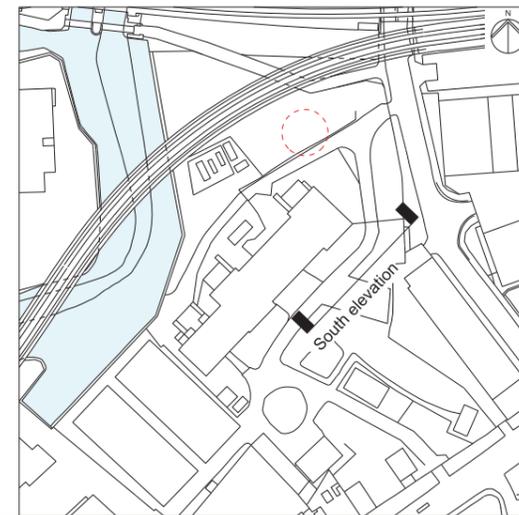
Slate roof repaired where necessary

Existing cover removed and existing opening used for tunnel ventilation outlet. Louvres and protruding metal box discharge air upwards. New metalwork to be painted to match glazing bars.



Proposed south elevation

INDICATIVE



Location
Greenwich Pumping Station
Royal Borough of Greenwich

Document Information
Application for Development Consent
Proposed beam engine house
South elevation
Book of plans - section 24
DCO-PP-23X-GREPS-240021
January 2013

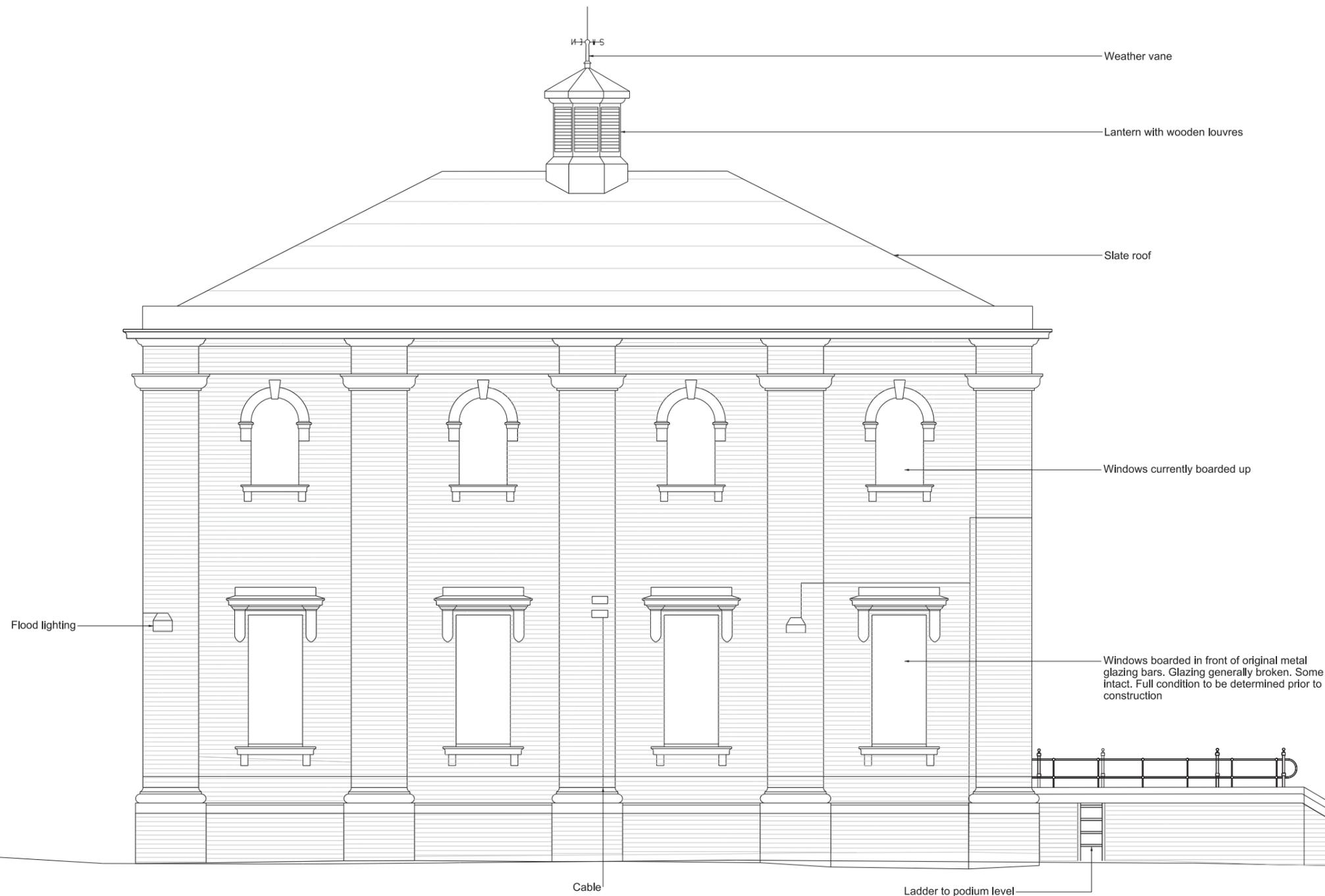


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Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

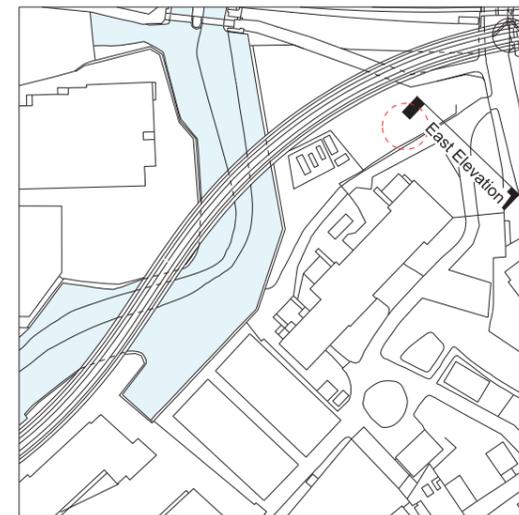
Notes:
1. All dimensions and levels are approximate.



FOR INFORMATION

Location
Greenwich Pumping Station
Royal Borough of Greenwich

Document Information
Application for Development Consent
Beam engine house
Existing east elevation
Book of plans - section 24
DCO-PP-23X-GREPS-240022
January 2013



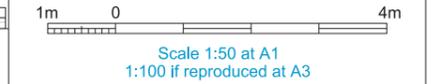
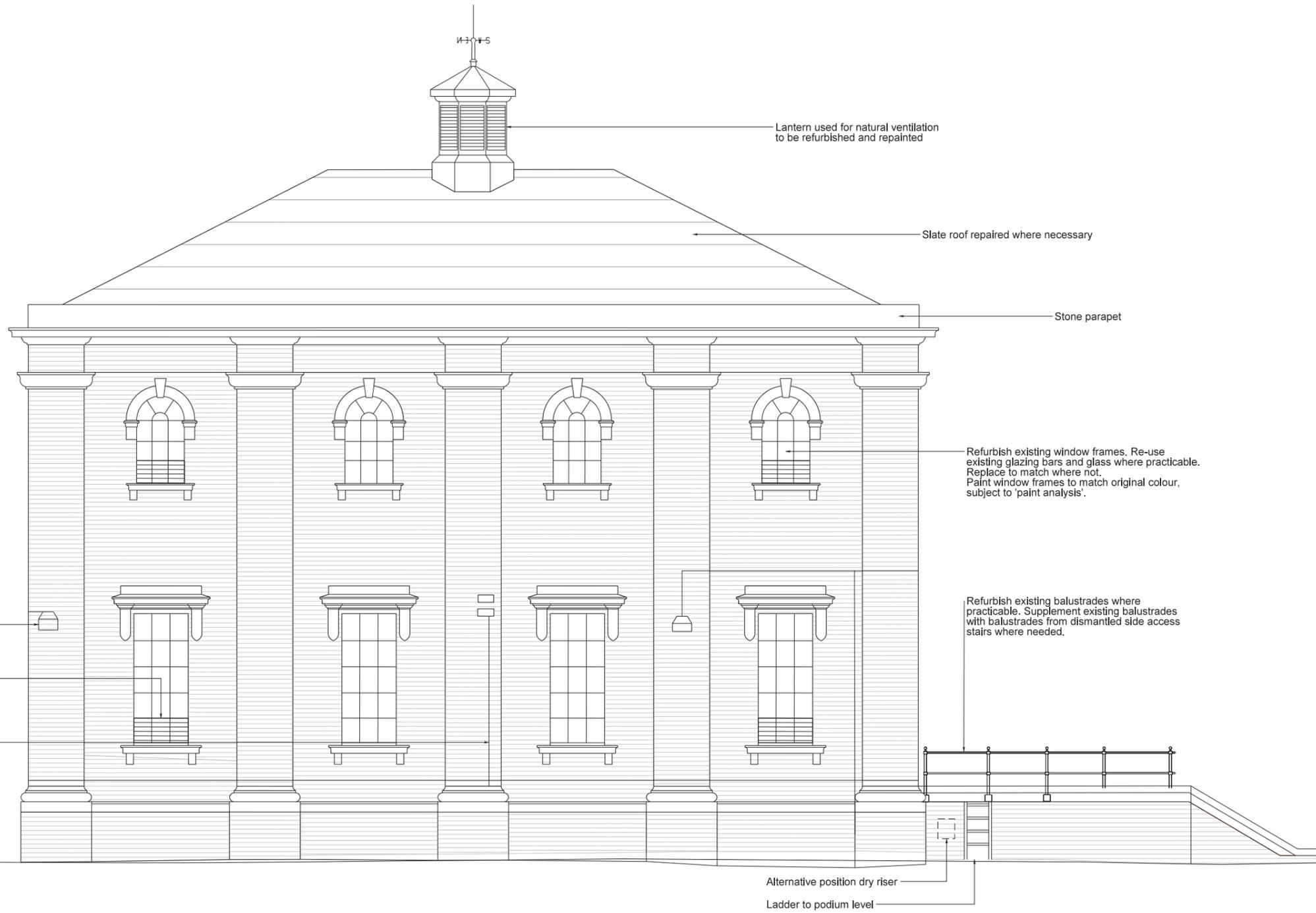
Existing east elevation

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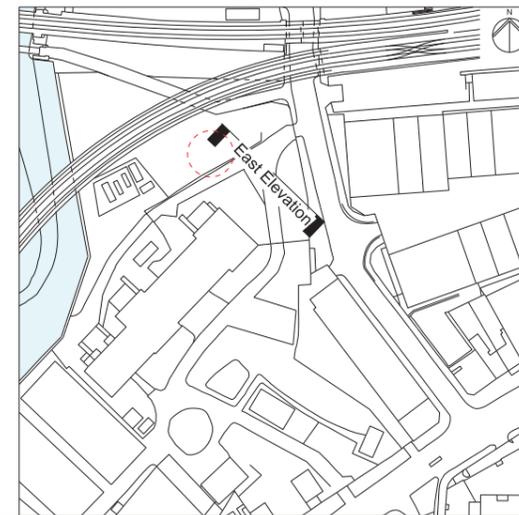


Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

Notes:
 1. All dimensions and levels are approximate.
 2. Extent of restoration works to be confirmed pending full historic appraisal



Proposed east elevation



INDICATIVE

Location
 Greenwich Pumping Station
 Royal Borough of Greenwich

Document Information
 Application for Development Consent
 Proposed beam engine house
 East elevation
 Book of plans - section 24
 DCO-PP-23X-GREPS-240023
 January 2013

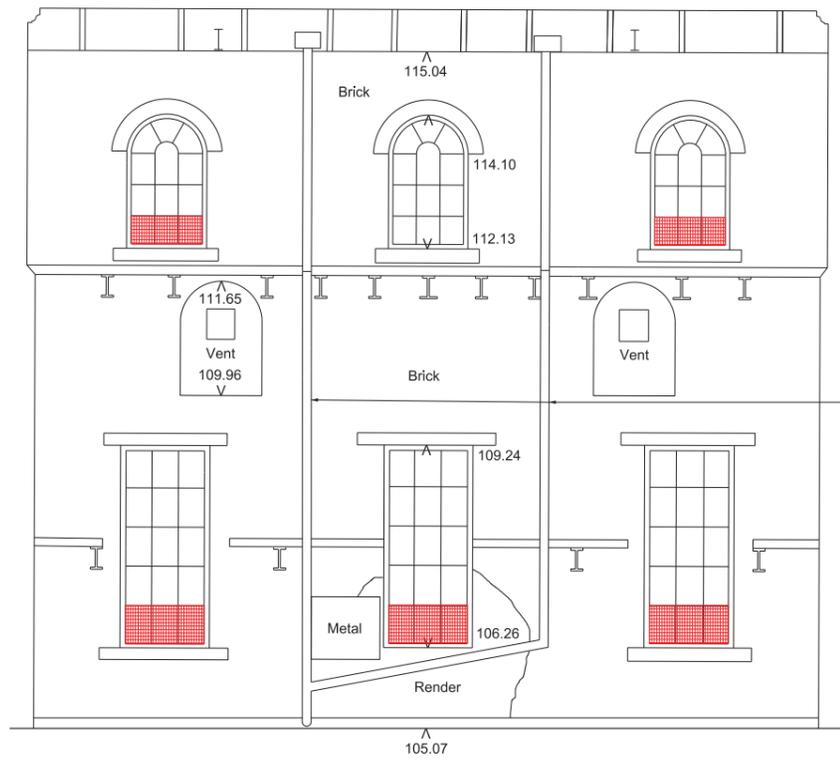




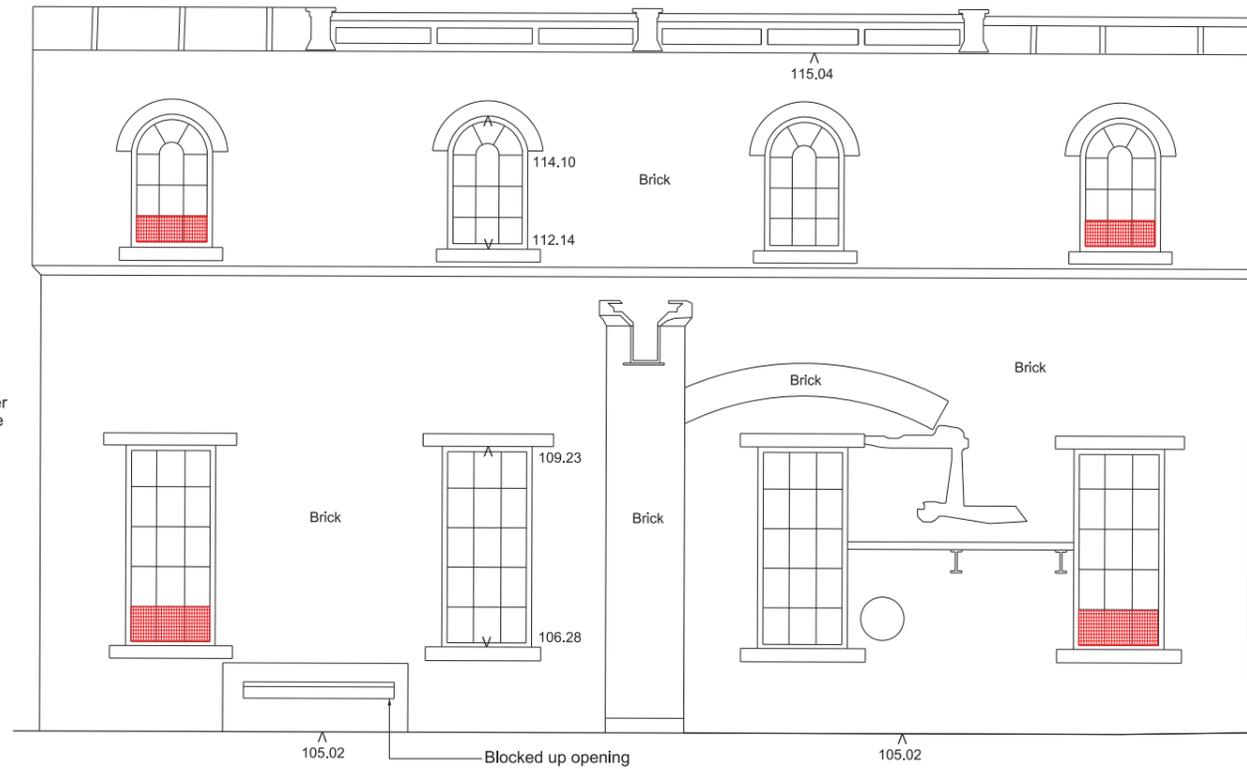
Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

Key:
 Maximum permanent extent of loss of listed buildings / structures

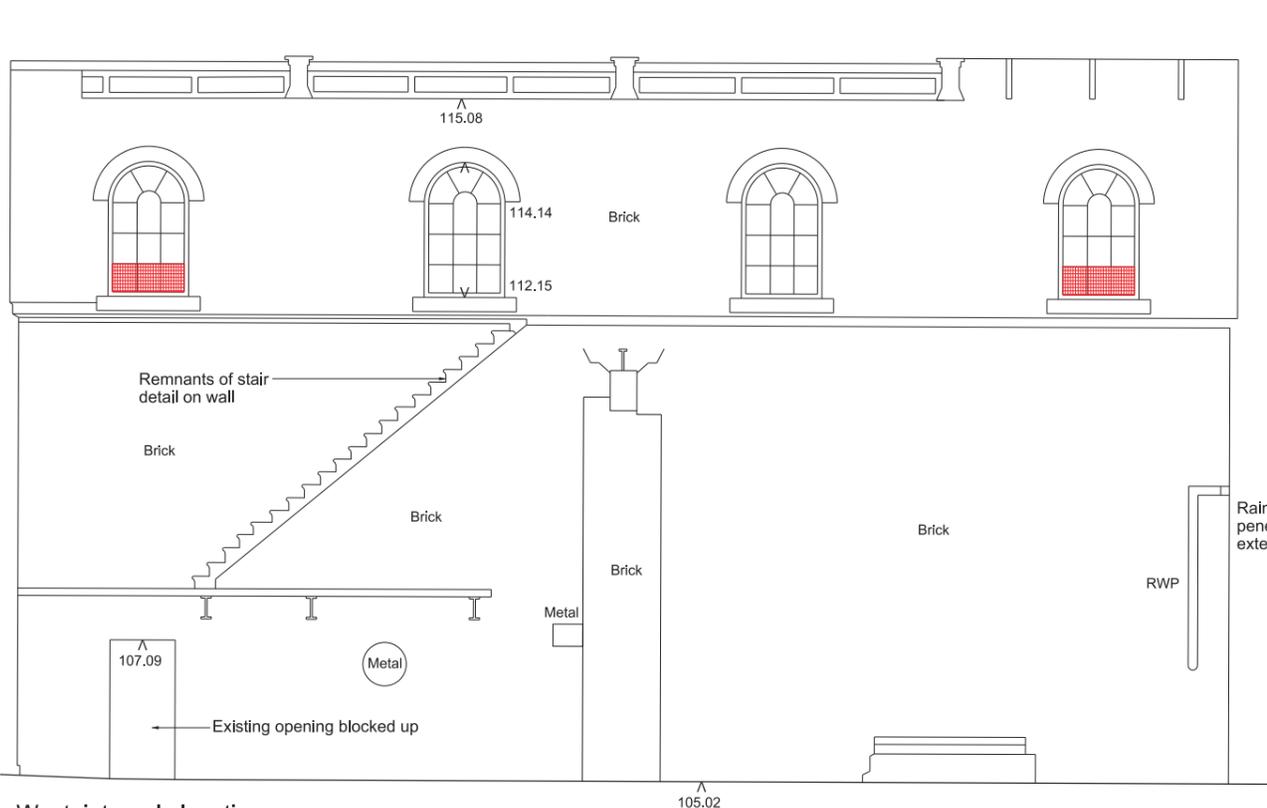
Notes:
 1. All dimensions and levels are approximate.
 2. Roof structure not included within survey



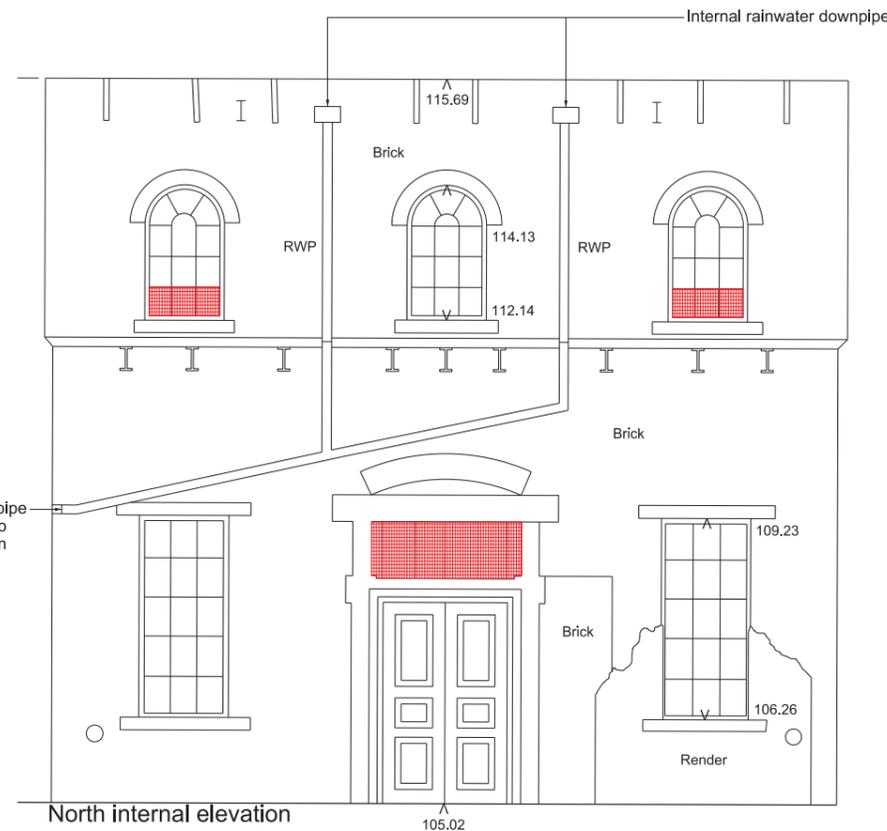
South internal elevation



East internal elevation



West internal elevation



North internal elevation



FOR INFORMATION
 Save for maximum extent of loss of listed structures which is for approval

Location
 Greenwich Pumping Station
 Royal Borough of Greenwich

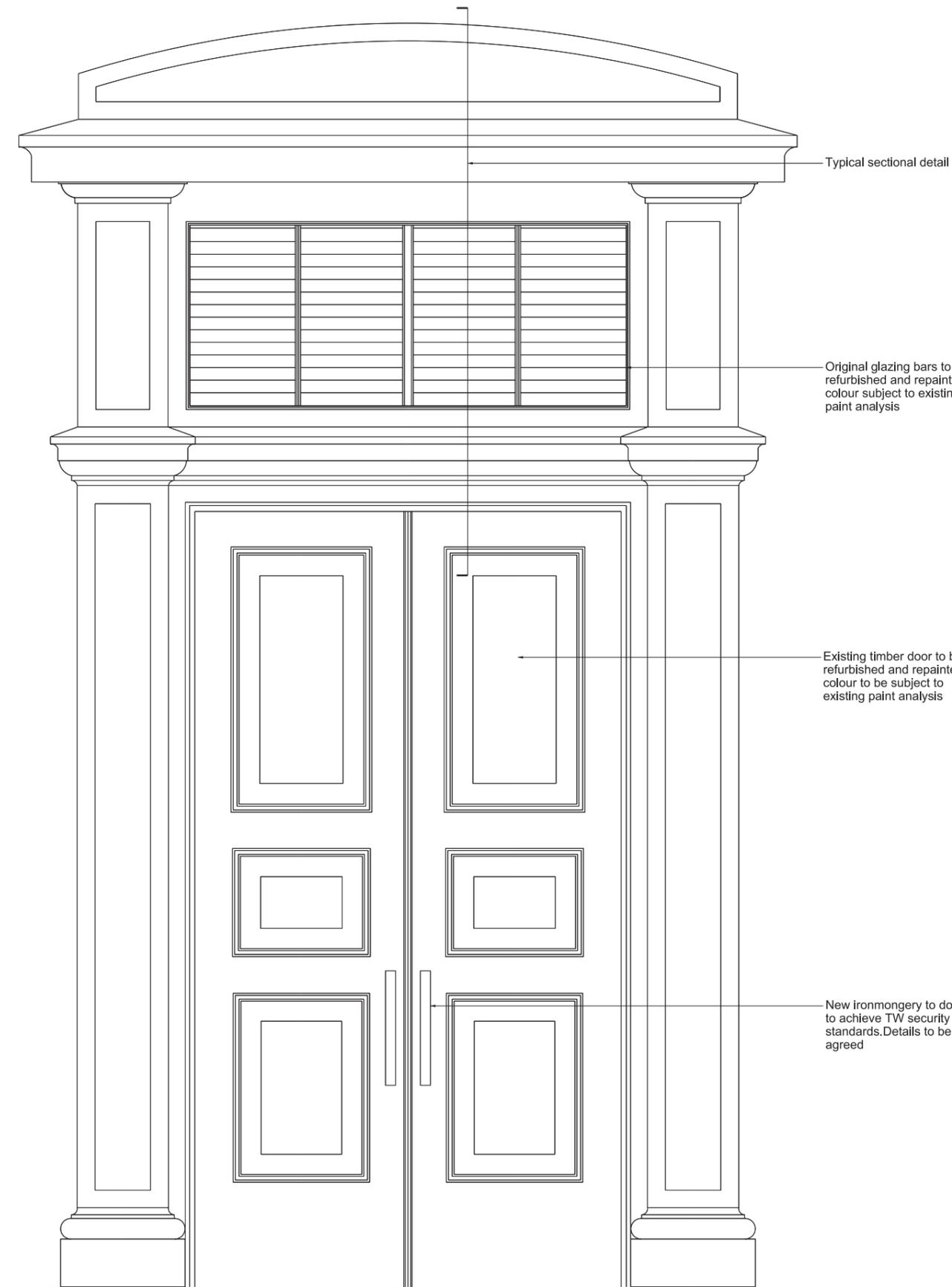
Document Information
 Application for Development Consent
 Listed internal building elevations
 with extent of loss
 Book of plans - section 24
 DCO-PP-23X-GREPS-240024
 January 2013



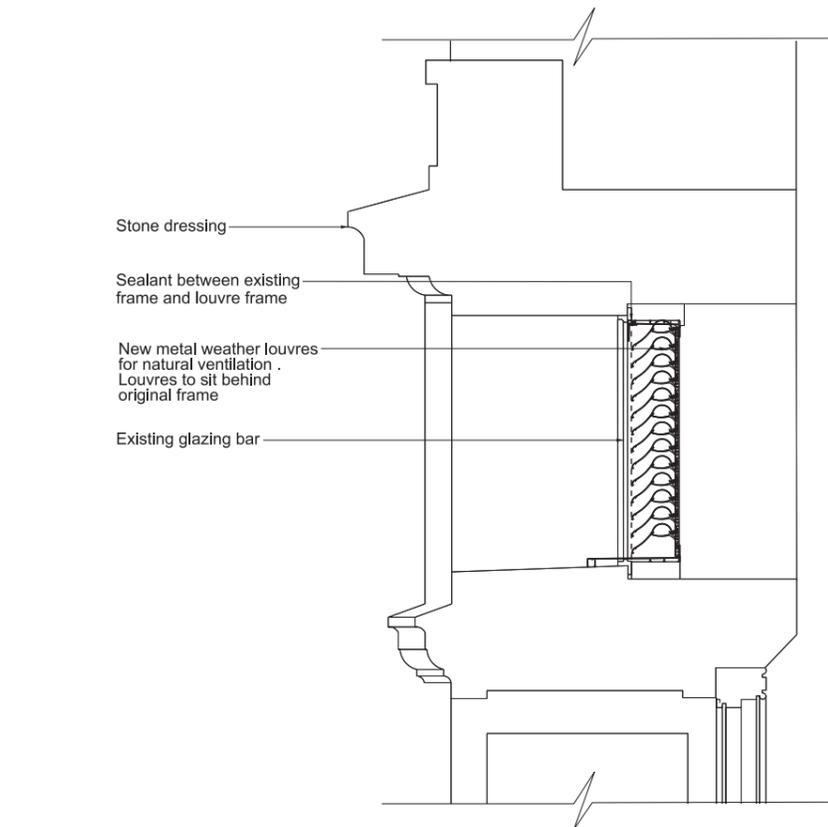


Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

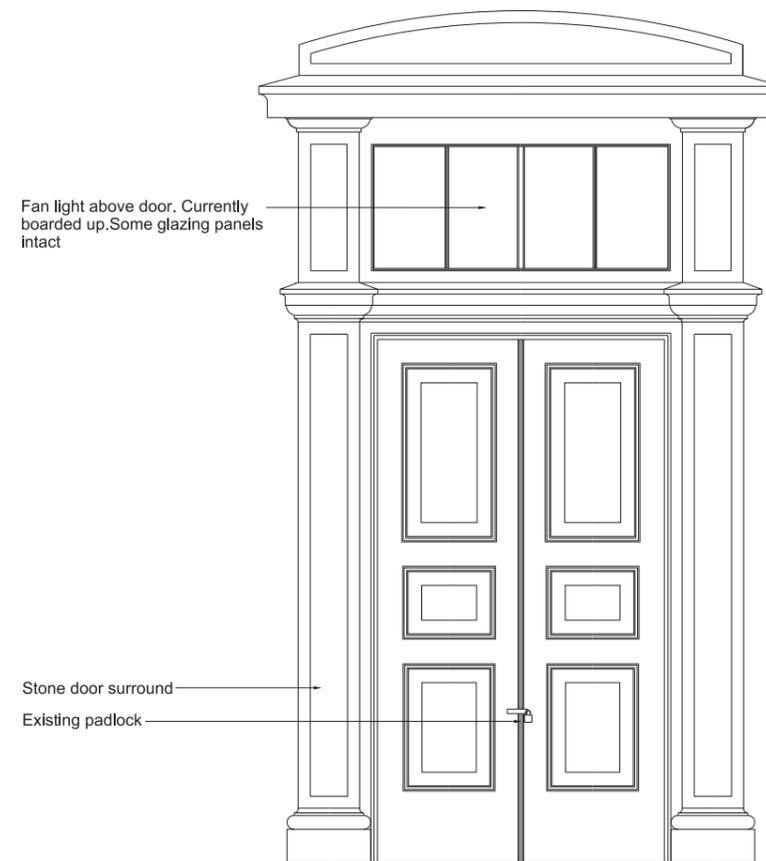
Notes:
1. All dimensions and levels are approximate.



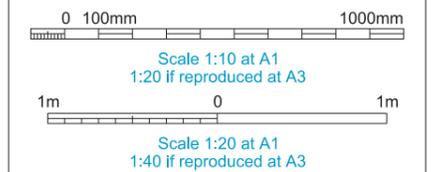
Proposed elevation (1:10 scale)



Proposed typical sectional detail (1:10 scale)



Assumed existing elevation (1:20 scale)



INDICATIVE

Location
Greenwich Pumping Station
Royal Borough of Greenwich

Document Information
Application for Development Consent
Listed structure interface - entrance door

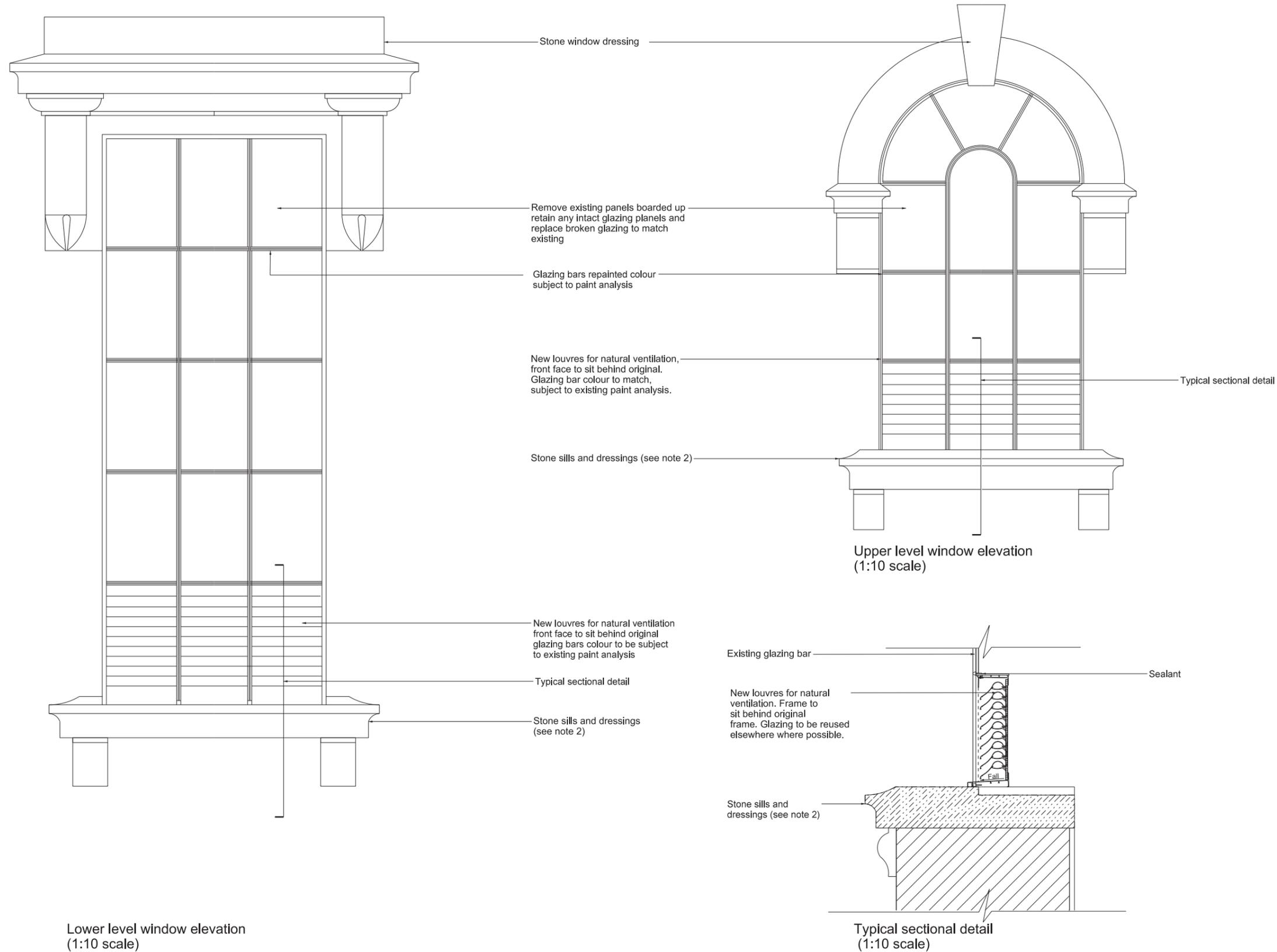
Book of plans - section 24
DCO-PP-23X-GREPS-240025
January 2013





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Notes:
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 2. Extent of restoration works is pending full historic appraisal.



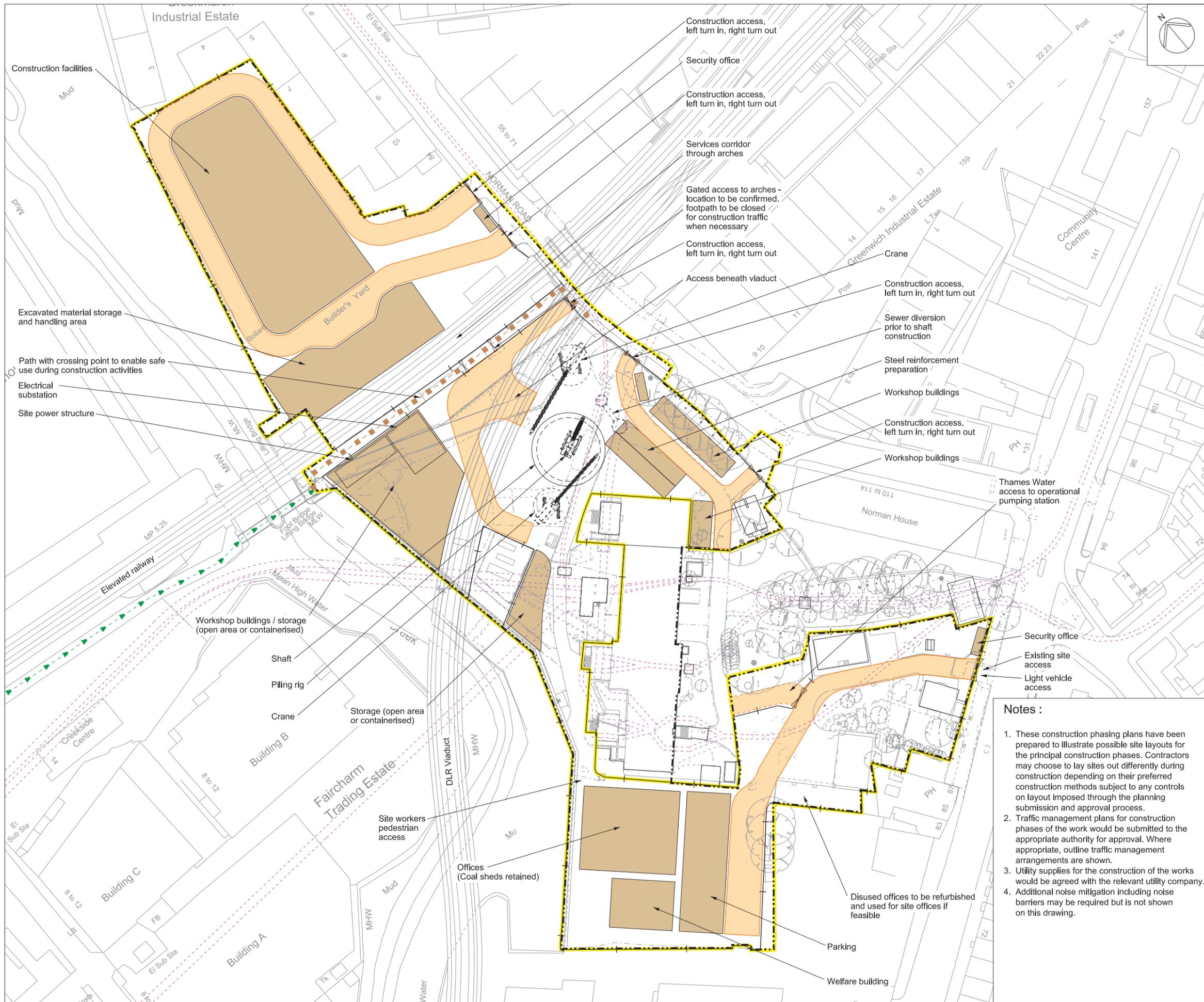
INDICATIVE

Location
Greenwich Pumping Station
 Royal Borough of Greenwich

Document Information
Application for Development Consent
 Listed structure interface - windows

Book of plans - section 24
 DCO-PP-23X-GREPS-240026
 January 2013





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Keyplan:

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

10m 0 40m

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

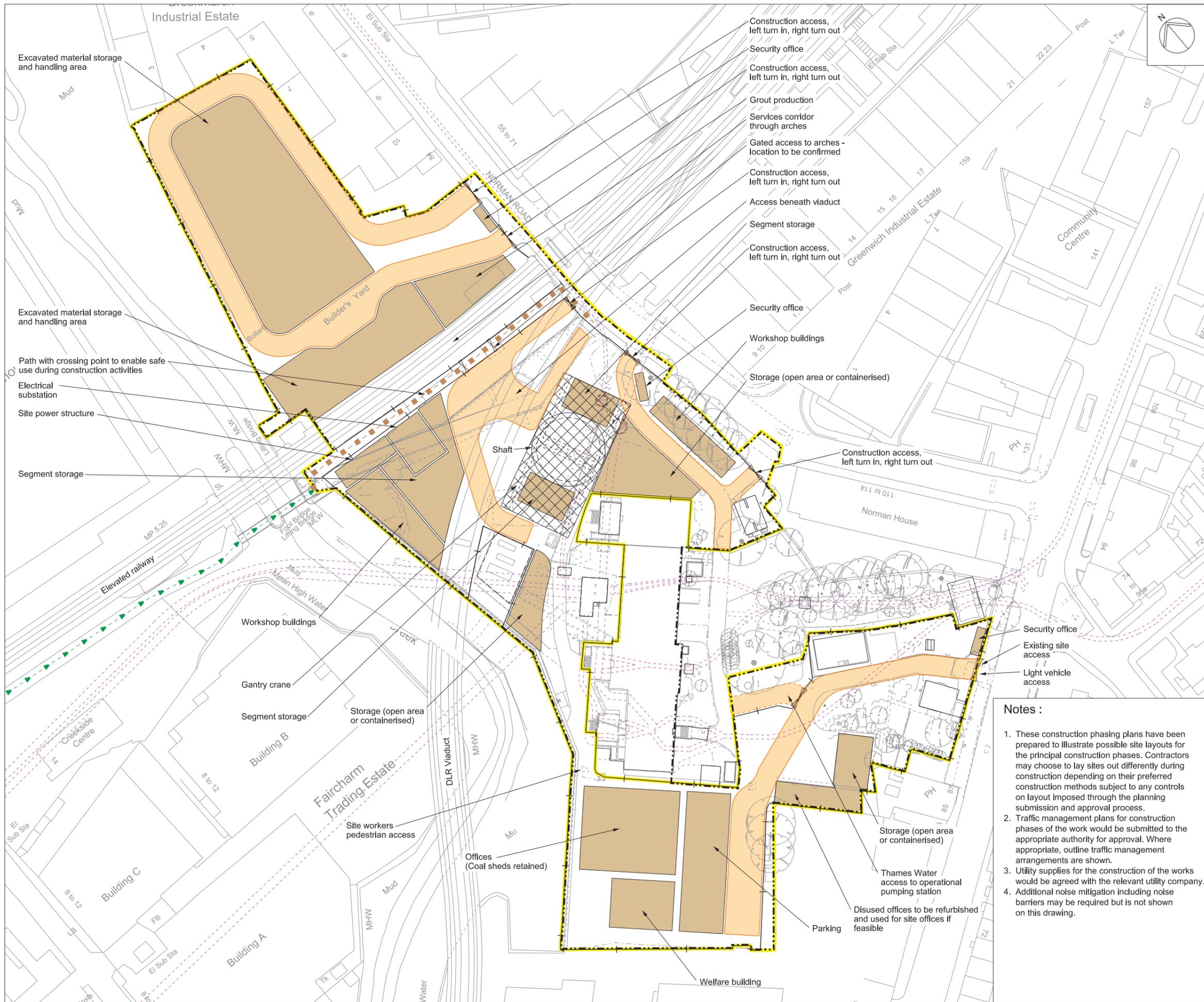
ILLUSTRATIVE

- 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.

Location
Greenwich Pumping Station
London Borough of Lewisham

Document Information
Application for Development Consent
Construction phases - phase 1
Site setup & shaft construction
Book of plans - section 24
DCO-PP-23X-GREPS-240027
January 2013





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- Key:**
- Limits of land to be acquired or used (LLAU)
 - Hoarding
 - Maximum extent of working area
 - Existing public right of way
 - Route of temporary diversion of right of way
 - Site access
 - Access / haul route
 - Existing sewers
 - Noise enclosure over shaft and gantry crane



Notes :

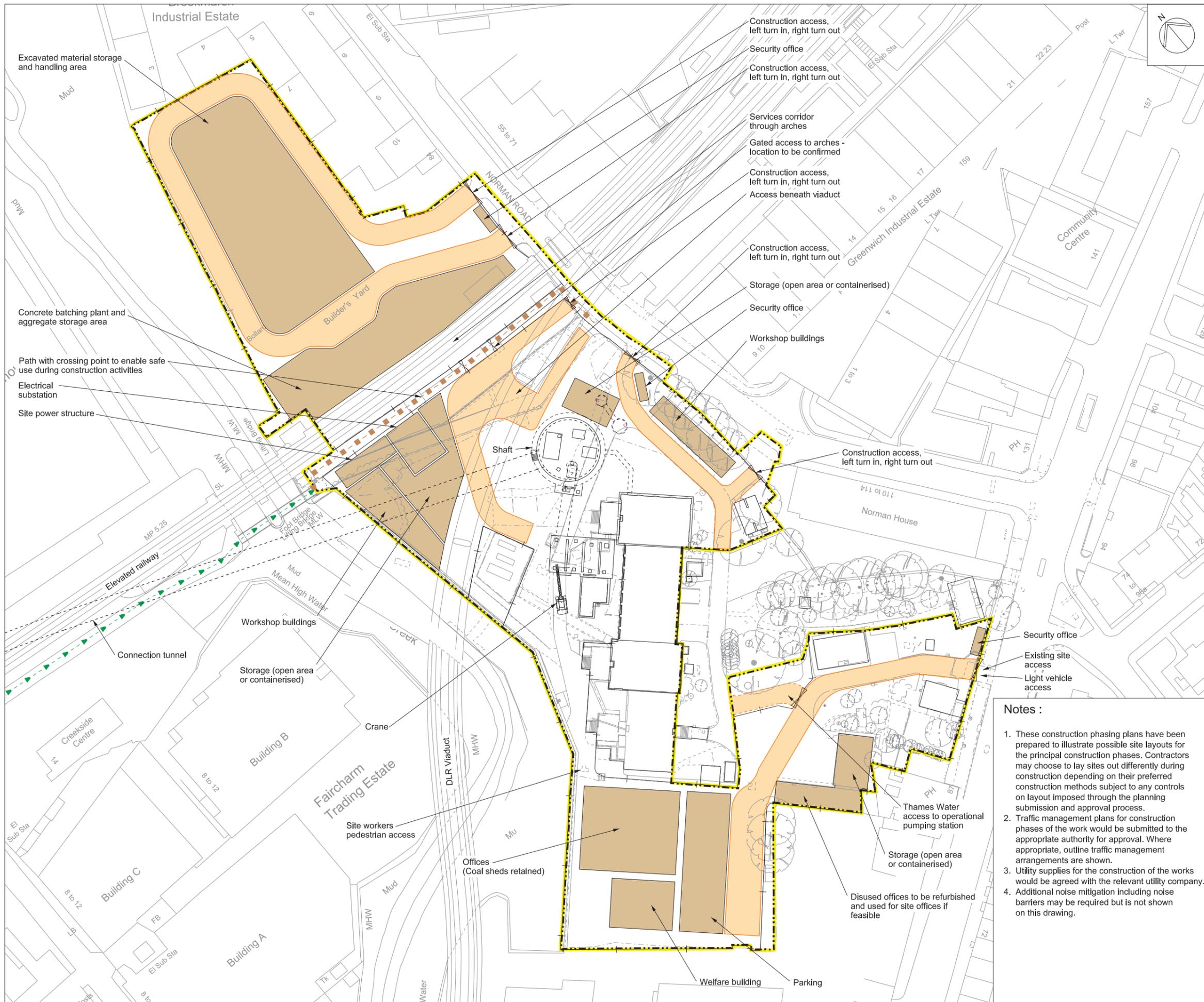
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ILLUSTRATIVE

Location
Greenwich Pumping Station
London Borough of Lewisham

Document Information
Application for Development Consent
Construction phases - phase 2
Tunnelling
Book of plans - section 24
DCO-PP-23X-GREPS-240028
January 2013





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Keyplan:

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

10m 0 40m

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

ILLUSTRATIVE

Location
Greenwich Pumping Station
London Borough of Lewisham

Document Information
Application for Development Consent
Construction phases - phase 3
Construction of other structures
Book of plans - section 24
DCO-PP-23X-GREPS-240029
January 2013



- 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.
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 4. Additional noise mitigation including noise barriers may be required but is not shown on this drawing.

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