

HERITAGE AGREEMENT METHOD STATEMENT FOR THE INSTALLATION OF A SUBTERRANEAN RETAINING WALL IN EUSTON SQUARE GARDENS

1CP01-MDS_ARP-EV-MST-SS08_SL23-990001 - P03

Revision Key:

P = Preliminary Documents/Drawings – P01, P02, P03
C = Contractual Documents/Drawings – C01, C02, C03
X = As Built Mark-Up Drawings – X01, X02, X03
Z = As Built Record Drawings – Z01, Z02, Z03

Revision	Author	Checked By	Approved By	Date Approved **/**/****	Reason for Revision
P03	---	---	---	---	Revised following MDjv comments
C01	ABN	MWO	MWO	2022-05-25	First Revision
P02	ABN	MWO	---	---	First Revision

SECURITY CLASSIFICATION – Official UNCONTROLLED WHEN PRINTED

Mace Dragados | HS2 July 2020

Template Ref: 1CP01-MDS-IM-TEM-SS06-000005

Rev: P02

P01	ABN	---	---	---	First Revision
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1 Introduction

1.1 General

- 1.1.1 This Heritage Agreement Method Statement seeks approval under the High Speed Rail (London – West Midlands) Act 2017 for the installation a subterranean precast retaining wall in Euston Square Gardens and monitoring of the listed Underpass wall in the London Borough of Camden London following matters with (1) The Mayor and Burgesses of the London Borough of Camden and (2) The Historic Buildings and Monuments Commission for England in accordance with the Deed signed and dated on 5 May 2017 entitled: *'Deed relating to works affecting the listed buildings comprising (i) Alexandra Road Estate, including walls, ramps and steps, (ii) two lodges in Euston Square Gardens, (iii) railings around Euston Square Gardens, (iv) Gloucester Gate bridge, (v) Parkway tunnel and cutting, (vi) pair of stone piers with lamp standards to east end of Mornington Street railway bridge, Mornington Terrace, and (vii) pair of stone piers with lamp standards to west end of Mornington Street railway bridge, Park Village East, all in the London Borough of Camden.'*

1.2 Purpose of this document

- 1.2.1 This Heritage Agreement Method Statement assesses the significance of the Underpass in Euston Square Gardens and provides detail on the proposals for approval by the London Borough of Camden under the terms of a Heritage Agreement. The proposals are based on an understanding of the significance of the asset and are proposed to ensure the suitable protection and monitoring of the designated heritage asset during the construction of HS2.
- 1.2.2 Pre-application advice has been sought from both Historic England and the London Borough of Camden during regular engagement sessions.
- 1.2.3 This statement should be read in conjunction with the followings drawing which is submitted alongside this supporting statement for approval under a Heritage Agreement:
- 1CP01-MDS_BLU-HW-DDE-SS08_SL31-000007
- 1.2.4 This document supersedes a previous draft Heritage Agreement Method Statement: 1CP01-MDS_ARP-EV-REP-SS08_SL23-000025.

1.3 Project Context

- 1.3.1 High Speed Two (HS2) is a network of new high-speed lines across Britain, being planned and built in two phases: Phase One, which will connect London with Birmingham and the West Midlands; and Phase Two, which will extend the route to

Manchester and beyond. Powers to construct and operate the railway have been secured through the High Speed Rail (London – West Midlands) Act 2017 (the Act), which received Royal Assent on 23 February 2017.

- 1.3.2 The Secretary of State has appointed HS2 Ltd as the nominated undertaker responsible for delivering Phase One of HS2. HS2 Ltd is an executive non-departmental public body, sponsored by the Department for Transport.
- 1.3.3 Schedule 18 'Listed Buildings' of the Act concerns how legislation in respect of listed buildings under the Planning (Listed Buildings and Conservation Areas) Act 1990 ("the 1990 Act") applies to the Phase One works. Paragraph 2 of Schedule 18 disapplies some of this legislation, and in particular the requirement for listed building consent, for buildings authorised to be demolished, altered or extended specified in Table 1.
- 1.3.4 Following Royal Assent, HS2 Ltd entered into a Heritage Deed with London Borough of Camden and with the Historic Buildings and Monuments Commission (Historic England) concerning the listed buildings identified in Table 1 of Schedule 18 to the Act within Camden.
- 1.3.5 The Deed requires approval of the 'decontrolled works' to buildings listed in Table 1 of Schedule 18 of the Act by London Borough of Camden in consultation with Historic England.
- 1.3.6 Mace Dragados joint venture has been contracted by HS2 to carry out the main Euston Station construction works. The Station Design Services Contract (SDSC) Team has been instructed to produce this document which works to protect the heritage assets affected by the HS2 works.

1.4 Summary of Proposed Works

- 1.4.1 Approval under the Heritage Agreement is sought for the following works within Euston Square which are adjacent to the designed Underpass:
 - Insertion of a precast "L" shaped retaining wall adjacent to the eastern wall of the Underpass. Construction of the wall will require excavation approximately 3m below existing ground level to the east of the eastern end of the Underpass. The proposed retaining wall is required to relieve the existing Underpass wall of additional loading from a new carriageway which is to be constructed as part of the Interim Taxi Rank (ITR) works; and
 - Application of monitoring targets to the eastern parapet wall of the Underpass.

2 Asset Information

2.1 Asset Description

2.1.1 The retaining wall is to be installed adjacent to the existing Underpass structure which lies to the north of the two listed Lodges in Euston Square Gardens. The Underpass forms part of the curtilage of the grade II listed Lodges.

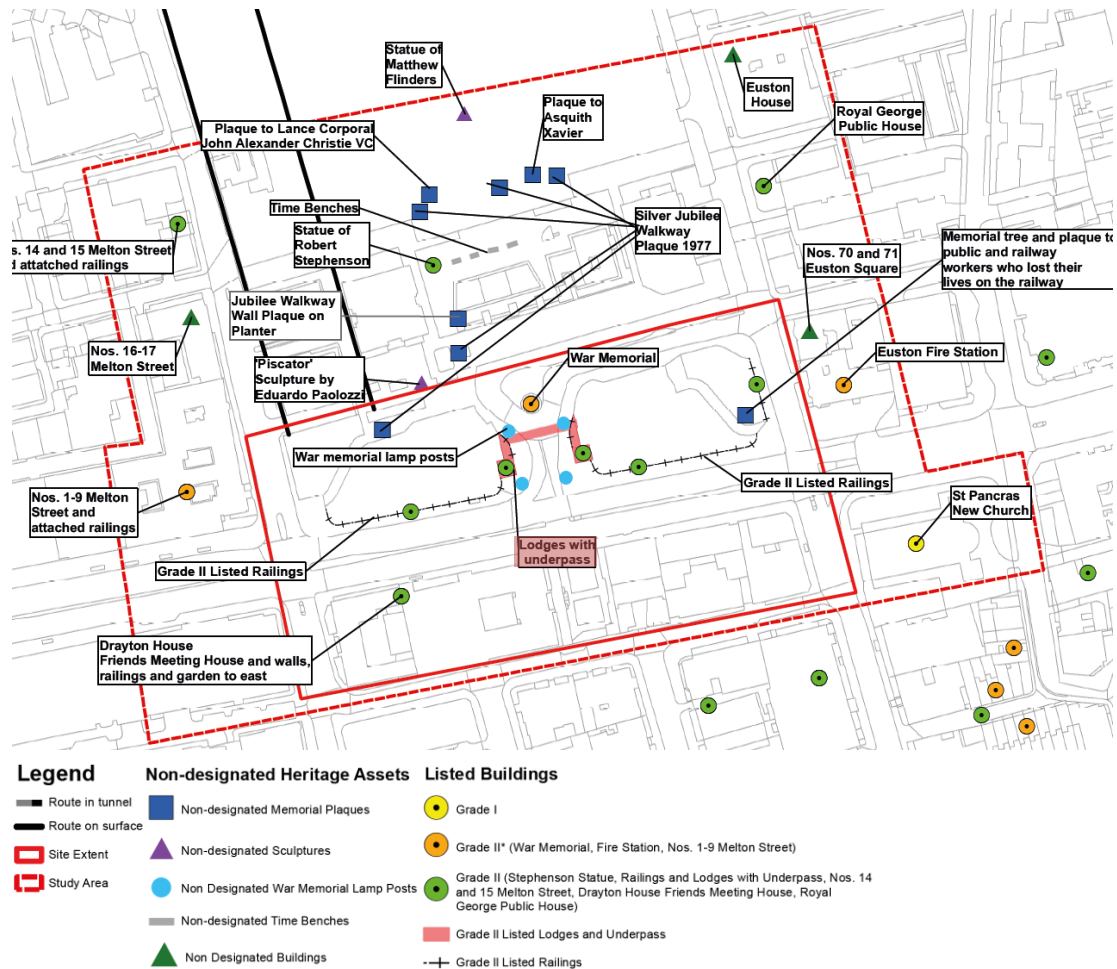


Figure 1: Plan of Euston Square Gardens showing the two listed lodges and the extent of the Underpass (marked in pink).

2.1.2 Currently both entrances to the Underpass are infilled with modern blockwork and only the top of the arch to the eastern end and parapet wall above is visible. A hatch, located north of the west lodge, provides access to the Underpass; the hatch to the north of the east lodge is not in use.

2.1.3 The Underpass structure has a brick, jack arch roof, and the c. 1870 date of the tunnel suggests that the beams are wrought iron I sections. The blocked arch entrances are cut into a dwarf wall of London stock brick with Portland stone copings.

Air-conditioning units have been attached to the western entrance to the Underpass. At present, the Euston Tap uses the Underpass for storage.¹



Figure 2: Photo taken c. 2017 looking south towards the eastern lodge. The top of the eastern end of the Underpass is visible below the parapet wall in front of the lodge.

- 2.1.4 A condition survey of the lodges and Underpass was undertaken in March 2021. Internal inspection of the Underpass found that 'the structure consists of 21 brickwork jack arches spanning between the original metal beams (spaced at appr. 1.5m) at springing level.² The Underpass is approximately 30.5m long and approximately 3.65m wide.
- 2.1.5 The retaining walls are of brick and are assumed to be at minimum 1000mm thick, although no intrusive surveys have been undertaken to confirm this. The east end of the Underpass is formed by an infill wall built tight to the underside of the beam(s) above and a non-original receded infilled opening to the south.³ The floor of the Underpass is formed by large grey flagstones, approximately 1800mm x 1800mm.

¹ Detailed Desk Based Assessment of Euston Square Gardens [document reference: 1D037-EDP-EV-ASM-SS06_SL10-000001 REV P02]

² Condition Survey Report for East and West Lodge [document reference: TBC]

³ Ibid. (p. 6)



Figure 3: Internal view of the infilled eastern entrance to the Underpass.

2.2 Historic Background

Euston Square Gardens

- 2.2.1 The Underpass forms part of the c. 1869 Euston Station scheme by JB Stansby, the London and North Western Railway company engineer, and was introduced to provide a pedestrian route between each half of Euston Square Gardens beneath Euston Grove which Stansby extended south as part of his scheme. Prior to this scheme, Euston Square Gardens had comprised of two halves to the north and south of Euston Road (Figure 4).
- 2.2.2 Stansby also rearranged the cast iron railings around the Gardens and introduced the statue of Robert Stephenson between the two Lodges (Figure 5).

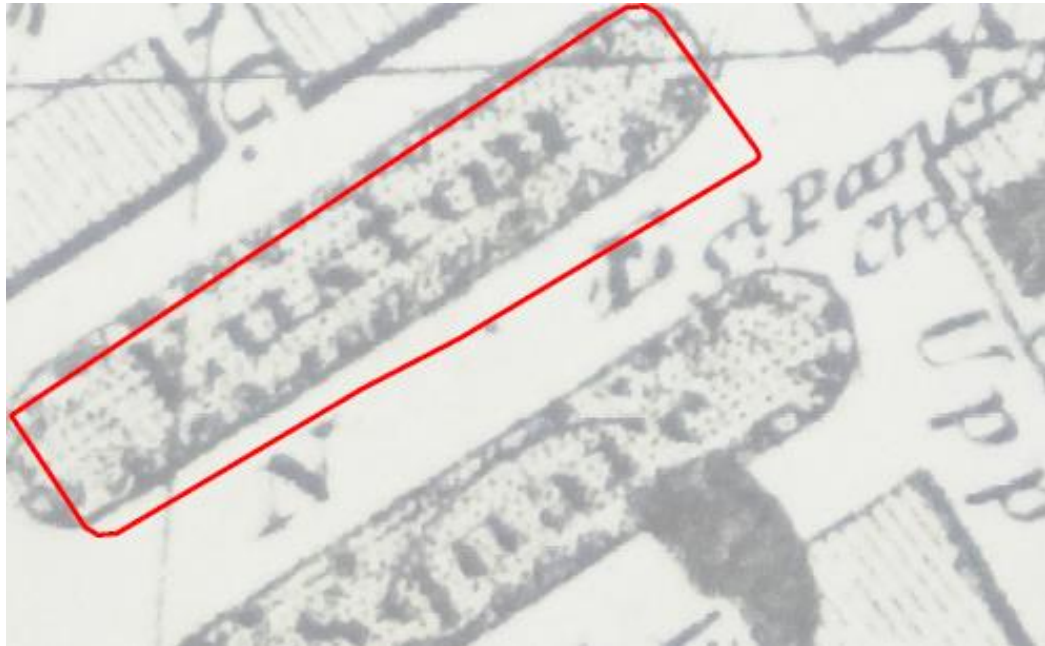


Figure 4: Wyld's map of 1848



Figure 5: OS Town Plan, 1895. This plan shows JB Stansby's scheme- the extent of the Underpass is outlined connecting the east and west sides of the Gardens.

Lodges and Underpass

- 2.2.3 The two Lodges were designed by JB Stansby for the London and North Western Railway and erected in 1870. The Lodges were located on Euston Square either side of the central approach though the square towards the Euston Hotel and to Euston Station. They were linked by the Underpass beneath the approach road. The construction of the Underpass allowed for the extension of Euston Grove south while retaining the coherent identity of the gardens and access between the two halves without having to cross Euston Grove.
- 2.2.4 Verbal accounts refer to the Underpass as having been used as a rifle range during WWII, although no written accounts have been found to date to confirm this.⁴
- 2.2.5 The Underpass, along with the Lodges and War Memorial, is one of the only built features to survive in situ from the old station complex.
- 2.2.6 Access through the Underpass was lost during the 1970s/ 1980s, when both arched entrances were infilled and a landscaping scheme by the Michael Brown Partnership introduced sloping brick banks and widening of the bus roundabout, reflecting the current layout.

2.3 Significance

Methodology

- 2.3.1 In conservation, 'significance' encompasses a broad range of considerations about what may constitute the special value or 'interest' of a building or place; these are referred to as the 'heritage asset'. Commonly, a mix of factors may contribute to this special value, such as a building's architectural quality and association with important people or cultural events. Sometimes, these factors may not be immediately apparent, such as the use of pioneering construction technology, fine craftsmanship or the special social or economic role a building or place has within a community.
- 2.3.2 In determining the significance of the building interiors, which are the elements directly and indirectly impacted by the works proposed in this method statement, the following grading and criteria for significance has been used:

Exceptionally significant: Nationally and/or internationally significant; significance may be aesthetic, cultural, evidential or communal; exceptional, unique, and intact features of highest quality; nationally and/or internationally important associations with people or events; the setting of the heritage asset is an intrinsic part of the overall significance and is largely intact and or well preserved; unquestionable group value.

⁴ Detailed Desk Based Assessment of Euston Square Gardens [document no.: 1D037-EDP-EV-ASM-SS06_SL10-000001], p. 43

Highly significant: important historic or architectural features; high quality of workmanship; potential for nationally important archaeology; largely intact and/or rare examples of a building type or technique; the setting of the heritage asset makes an important contribution to the significance, values, and legibility of the heritage asset – change and alteration to the setting may be present, but evidential, historic, aesthetic and/or communal values remain; important group value.

Significant: of historical and architectural interest, although this may be at a local or regional, rather than national, level; significance may be based on evidential, historical, aesthetic or communal heritage values; aesthetic significance may derive from architectural character or elements; potential for significant enhancement of built features and values may exist; setting typically contributes to the heritage asset's legibility, form and/or scale, but may include extant alterations which have altered or diminished the special interest; some positive group value.

Low significance: little or no architectural or heritage significance or area of lost significance; the setting of the heritage asset has been extensively altered to the point where it has low value and significance to the heritage asset.

Not significant: of no heritage interest.

Detrimental: features or areas that detract from a building's special significance.

2.3.3 Within this document, significance is determined as follows in accordance with heritage values identified by Historic England in Statements of Heritage Significance (2019)⁵:

- **Archaeological interest** There will be archaeological interest in a heritage asset if it holds, or potentially holds, evidence of past human activity worthy of expert investigation at some point.
- **Architectural and artistic interest** These are interests in the design and general aesthetics of a place Architectural and artistic interest. They can arise from conscious design or fortuitously from the way the heritage asset has evolved.
- **Historic Interest** An interest in past lives and events (including pre-historic). Heritage assets can illustrate or be associated with them. Heritage assets with historic interest not only provide a material record of our nation's history but can also provide meaning for communities derived from their collective experience of a place and can symbolise wider values such as faith and cultural identity.

⁵ *Statements of Heritage Significance: Analysing Significance in Heritage Assets, Historic England Advice Note 12*, Historic England, October 2019

Assessment

- 2.3.4 The two stone lodges and Underpass, together with the railings, are the only features of Stansby's c. 1870 scheme which survive. As they form part of a specific phase of the gardens, they have historic interest and group value, and help the gardens to cohere as a single space. The historic interest of the Underpass is significant.
- 2.3.5 The design of the Underpass is reflective of the Victorian rail infrastructure of the time, comprising London stock brick with Portland stone dressings. The brick and wrought iron jack arched roof is reflective of a common fireproof construction method of its time. Its architectural value is significant.
- 2.3.6 In terms of archaeological interest, the likely significance of any 'Post medieval roadside activity' or 'Evidence of the initial construction of ESG' in the vicinity of the Underpass would be low. The area known to have accommodated structures (such as the Hopscotch Day nursery) is further to the east of Euston Square Gardens. Both sides of the Underpass have been backfilled with earthworks associated with the relandscaping of Euston Square Gardens during the 1970s/ 1980s. This will have compromised the survival of archaeological remains, therefore the archaeological interest of the Underpass and adjacent area is low.

3 Proposed works for Approval

3.1 Summary

- 3.1.1 A temporary interim taxi rank (ITR) is currently under construction within the eastern half of Euston Square Gardens. This new taxi rank will replace the existing taxi rank currently located in the western half of the Gardens.
- 3.1.2 The design of the ITR includes two new exit entrances for vehicles using the taxi rank and a new carriageway which will run adjacent to the existing eastern wall of the Underpass. The ITR is a temporary design which is likely to be in operation for approximately 10 years until the final HS2 Euston Station scheme is implemented, at which time both sides of Euston Square Gardens will be returned to an area of open public realm.
- 3.1.3 The L-shaped retaining wall has been designed to minimise additional loading onto the existing eastern wall of the Underpass. The proposals will include excavating 3m below existing ground level and inserting a pre-cast L shaped retaining wall in sections. The precast wall will be backfilled with foam concrete (Figure 6 & Figure 7). The design of the retaining wall avoids an existing gas main which runs to the east of the Underpass. The retaining wall will be fixed to and supported by a horizontal concrete base underneath the wall, approximately 25 cm x 300 cm.

3.1.4 The wall will be removed on completion of the ITR and adjacent landscaping restored.

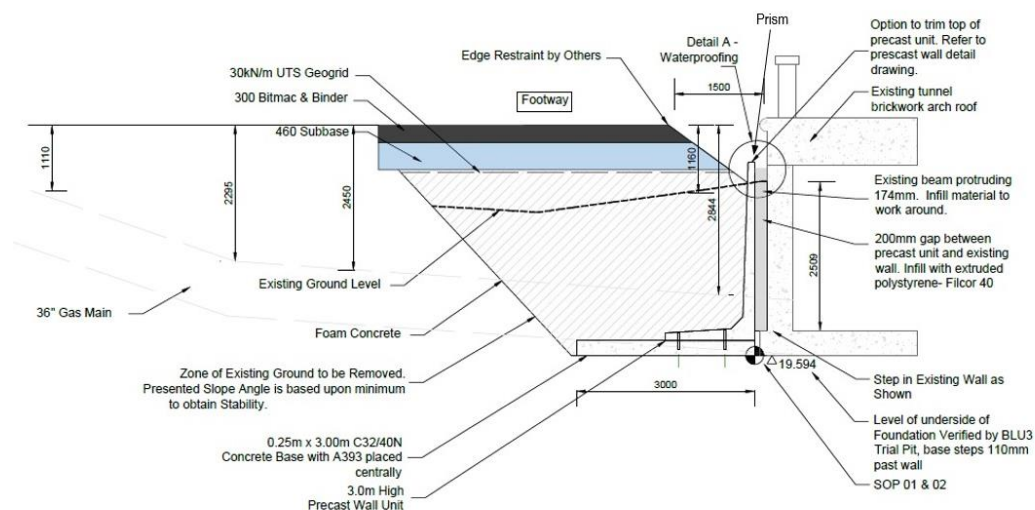


Figure 6: Section drawing showing the proposed works adjacent to the eastern end of Underpass structure.

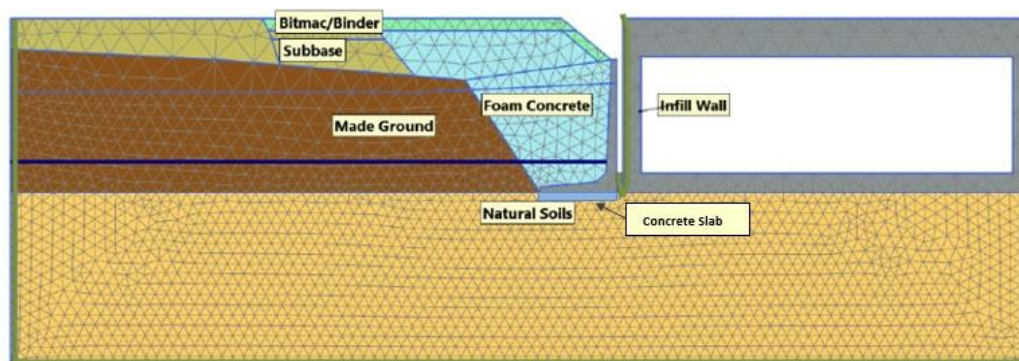


Figure 7: Section showing proposed materials.

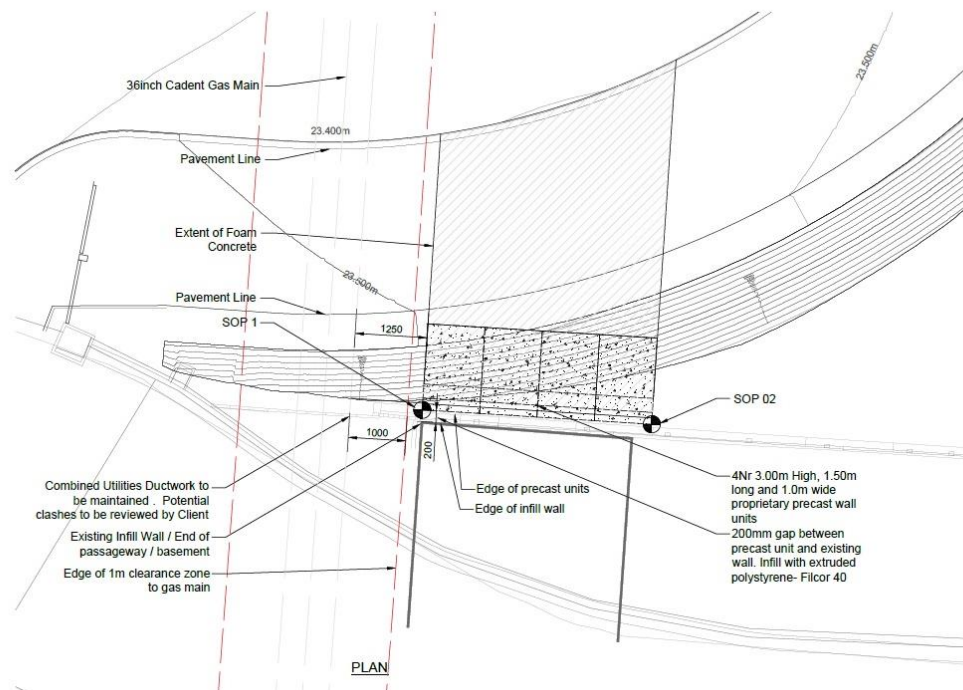


Figure 8: Plan showing the proposed works adjacent to the eastern end of Underpass structure.

3.1.5 Several options to avoid loading onto the existing Underpass wall have been considered. The most viable of these are listed below:

- Option 1: A raft foundation. The forces achieved the required level however the associated excavation was too large and would have abutted the gas main and would have exposed too much of the main.
- Option 2: A precast wall 1m away from the existing Underpass wall. This also came too close to the gas main and was discounted.
- Option 3: The only viable option left that allowed for the required minimum clearance from the gas main of 1m was the L-shaped retaining wall.

3.2 Construction Method

3.2.1 The retaining wall will be inserted in pre-cast sections. Firstly, the required area of soil will be excavated. The excavation will be 4.5m wide x 6.1m long and 4.5m deep and will be undertaken using sheets and frames, using a combination of hand digging and the use of an excavator. Where soil is required to be excavated up against the fabric of the Underpass, hand digging will be used. Frequent CAT scanning in 150mm layers will be undertaken as the excavation proceeds.

- 3.2.2 A hydraulic frame will be inserted into the excavated area in stages (Figure 9). Once this frame is fully formed to the maximum depth of the excavations, the pre-cast wall sections will be lowered in.

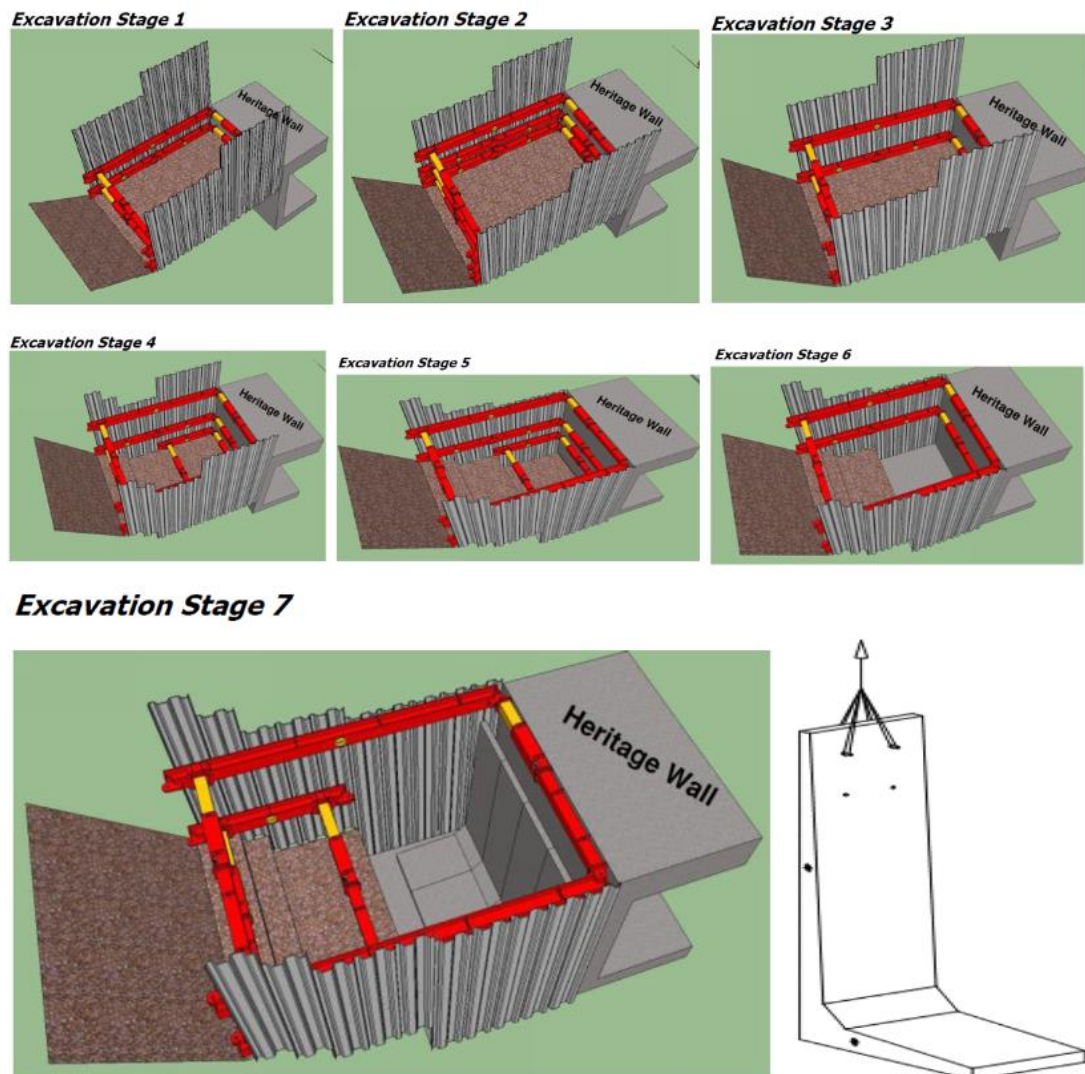


Figure 9: Construction phasing showing temporary works required to excavate and insert pre-cast wall.

- 3.2.3 The hydraulic frame will not come into contact with the existing fabric of the Underpass wall and will not exert any load onto the existing wall. Once the soil has been excavated, the existing wall will be protected by inserting 200mm thick expanded polystyrene compressible filler sheets (Filcor 45). These will be held in place by a base stick pin fixed to the temporary works frame.
- 3.2.4 The pre-cast concrete base will then be lowered into position in accordance with the approved lift plan, followed by the precast L-shaped wall. Once the retaining wall is in situ and secured to the horizontal base, the frame will be removed. Foam concrete will be pumped into the excavation in layers, not exceeding 500mm, via a concrete

pump (see Figure 7). Earth will then be backfilled. On completion of the works, the extent of Underpass wall currently visible will remain visible.

- 3.2.5 During excavation and installation of the retaining wall, the sheets and frames used to shore the ground will not come closer than 200mm from the existing Underpass wall.

3.3 Monitoring

- 3.3.1 Three-dimensional survey and monitoring will be carried out on a regular basis to confirm the level and position of the eastern Underpass entrance wall in relation to the baseline. The survey frequency will change throughout the project duration depending on the nature of construction work carried out at the time and assessment of monitoring data; survey frequency typically ranges from daily, weekly, monthly to three monthly intervals.
- 3.3.2 Three-dimensional coordinates are collected from all the survey targets before commencement of construction works adjacent to the building. This data provides a baseline confirming the level, position and horizontal and vertical alignment of the building facades before commencement of the works.
- 3.3.3 Subsequent survey data collected during the project duration is then compared to the baseline to confirm how much building movement and ground movement may have occurred. This data is used to monitor buildings and ground movements throughout the works to ensure the buildings are moving as predicted.
- 3.3.4 Buildings naturally move as a result of weather conditions and the use of the building and surrounding environment. Monitoring work is one method of protecting the listed building and of ensuring compliance with legal obligations set out in High Speed Rail (London – West Midlands) Act 2017 and the Heritage Deed agreement.

Locations

- 3.3.5 It is proposed to apply 4no. monitoring prisms to the eastern parapet wall of the Underpass. The prisms will be fixed into mortar joints within the brickwork below the stone copings, above the entrance arch (Figure 10). Corresponding targets will also be mounted to the pre-cast L-shaped retaining wall.



Figure 10: Proposed locations of L-Bar monitoring prisms.

Instruments and fixings

L-Bar prisms



	3D Prism
Width (mm)	90
Height (mm)	80
Thickness (mm)	15
Weight (g)	210

3.3.6 L-bar prisms are installed by drilling a 8-12mm diameter hole into the mortar substrate so that a stainless steel 'shell anchor' can be installed. A stainless-steel survey spigot is then screwed into the anchor and hand tightened. The prism is then pushed into the spigot and rotated and aligned to the total station positions. This is achieved by rotating the 'L-shaped' bracket and prism head. The prism alignment can be subsequently adjusted and realigned to new station positions if the base station positions change, with no need to change the prism position on the structure. Depending on how monitoring progresses and the results obtained, it may be necessary to install a limited number of new prism positions.

3.3.7 Given the minimal impact to the building fabric and the protection that monitoring will afford, this document therefore seeks agreement that minor alteration to prism

positions can be authorised by the HS2 project heritage specialist without further formal approval by London Borough of Camden.

Removal

- 3.3.8 The prism and 'L-shaped' bracket will be gently pulled away from the stainless steel spigot and the spigot will be unscrewed from the shell anchor. An old spigot or fixing will then be screwed a couple of turns into the shell anchor leaving a gap between the spigot and joint surface. The spigot will then be lightly tapped on the sides to loosen the shell, whilst pulling on the spigot to pull the anchor from the hole.
- 3.3.9 If the fixing proves difficult to remove, it may be necessary to gently lever the fixing, using a thin piece of protective timber placed on the masonry surface to prevent damage to brick arrisses.
- 3.3.10 Once the fixing is removed the open hole will be filled with a specialist mortar to match the colour and composition of the existing mortar. The repair will be finished flush with the surrounding mortar joint and textured to match the existing.

3.4 Removal of retaining wall

- 3.4.1 On completion of the ITR the works will be reversed, and the retaining wall and supporting horizontal base will be removed. The foam concrete, which is 7kN/m³ (roughly a third of the strength of typical construction concrete), will be carefully removed using non-vibrational methods and the retaining wall removed. The excavated area will be carefully backfilled with earth. The survey prisms will also be carefully removed as set out in paras 3.3.8, 3.3.9 and 3.3.10.
- 3.4.2 Details of the final scheme adjacent to the Underpass structure will be provided for approval under a separate Schedule 17 application and are not detailed within this application.

4 Recording

- 4.1.1 The construction sequence of the temporary works to install the L-shaped retaining wall will allow for a photographic survey of the exposed Underpass eastern wall to be undertaken prior to the lowering-in of the pre-cast wall. Photographs will be collated and saved as a record of the wall while it is temporarily exposed, before the pre-cast wall is placed in situ. There will also be an opportunity for further recording during removal of the retaining wall structure on completion of the ITR operation phase.

5 Conclusion

- 5.1.1 The proposals set out within this statement are based on an understanding of the significance of the Underpass structure and its contribution to the significance of

Euston Square Gardens and the other designated assets within it. The works are proposed to protect the historic Underpass from additional loading as a result of the planned new ITR roadways and will not adversely impact the special interest of the structure. Additional mitigation measures included within this statement ensure that the special interest of this structure is preserved throughout the construction of HS2.

Appendix A – Listing Description: Two Lodges in Euston Square Gardens

Official list entry

Heritage Category: Listed Building

Grade: II

List Entry Number: 1342042

Date first listed: 14-May-1974

Statutory Address 1: TWO LODGES IN EUSTON SQUARE GARDENS, EUSTON SQUARE

Location

Statutory Address: TWO LODGES IN EUSTON SQUARE GARDENS, EUSTON SQUARE

The building or site itself may lie within the boundary of more than one authority.

County: Greater London Authority

District: Camden (London Borough)

Parish: Non Civil Parish

National Grid Reference: TQ 29640 82548

Details

CAMDEN

TQ2982NE EUSTON SQUARE 798-1/89/424 (South side) 14/05/74 Two lodges in Euston Square Gardens

GV II

2 detached lodges to former Euston Station. c1870. By JB Stansby, London & North Western Railway company engineer. Portland stone with leaded roofs. Rectangular plan with symmetrical facades on each face. Single storey. Plain ashlar podiums; blind central arches with mask keystones and linked by impost bands (those facing Euston Grove with doorways and double, panelled wooden doors with overlights). Arches flanked below impost bands with panels. Rusticated quoins to impost level at all angles with names of stations served by the company. Enriched panels over. Entablature with modillion cornice. North and south facades with pediments containing sculptured allegorical figures in relief representing England, Scotland, Ireland and Wales by Joseph Pitts. INTERIORS: not inspected. HISTORICAL NOTE: these lodges, with the statue of Robert Stephenson (qv) which stood between them, are the only survivors of

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the formal 1870 layout to Euston Station which, with the Doric Arch, was destroyed in 1962. (Survey of London: Vol. XXI, Tottenham Court Road and Neighbourhood, St Pancras III: London: -1949: 114).

Listing NGR: TQ2964082548

Legacy

The contents of this record have been generated from a legacy data system.

Legacy System number: 477262

Legacy System: LBS

Sources

Books and journals

'Survey of London' in Survey of London - Tottenham Court Road and Neighbourhood St Pancras Part 3: Volume 21, (1949), 114

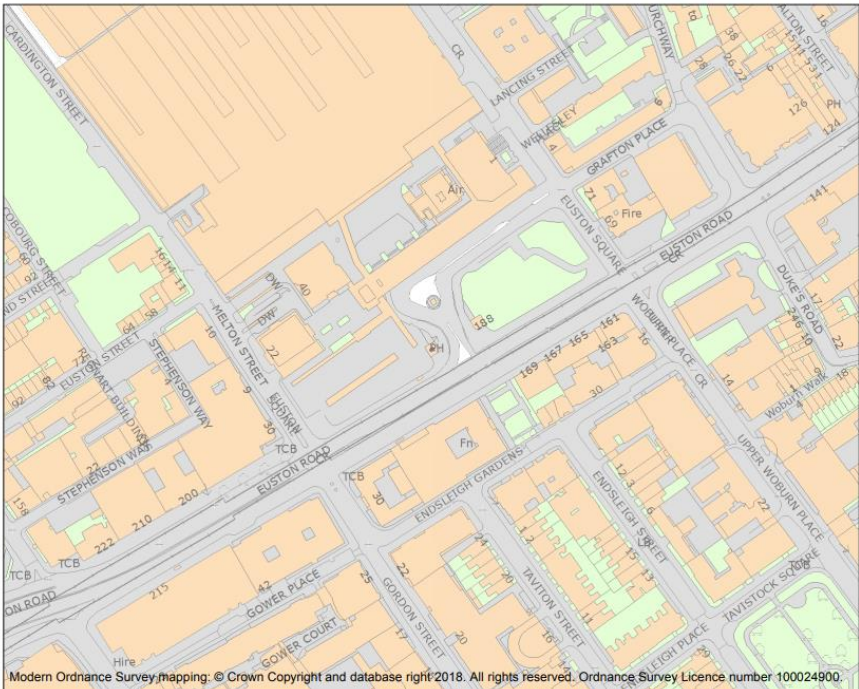
Legal

This building is listed under the Planning (Listed Buildings and Conservation Areas) Act 1990 as amended for its special architectural or historic interest.

Map

Ordnance survey map of TWO LODGES IN EUSTON SQUARE GARDENS

This map is for quick reference purposes only and may not be to scale. This copy shows the entry on 30-Mar-2022 at 09:29:28.



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This is an A4 sized map and should be printed full size at A4 with no page scaling set.

Name: TWO LODGES IN EUSTON SQUARE GARDENS

Heritage Category:	Listing
List Entry No :	1342042
Grade:	II
County:	Greater London Authority
District:	Camden
Parish:	Non Civil Parish


For all entries pre-dating 4 April 2011 maps and national grid references do not form part of the official record of a listed building. In such cases the map here and the national grid reference are generated from the list entry in the official record and added later to aid identification of the principal listed building or buildings.

For all list entries made on or after 4 April 2011 the map here and the national grid reference do form part of the official record. In such cases the map and the national grid reference are to aid identification of the principal listed building or buildings only and must be read in conjunction with other information in the record.

Any object or structure fixed to the principal building or buildings and any object or structure within the curtilage of the building, which, although not fixed to the building, forms part of the land and has done so since before 1st July, 1948 is by law to be treated as part of the listed building.

This map was delivered electronically and when printed may not be to scale and may be subject to distortions.

List Entry NGR:	TQ 29640 82548
Map Scale:	1:2500
Print Date:	30 March 2022

 Historic England
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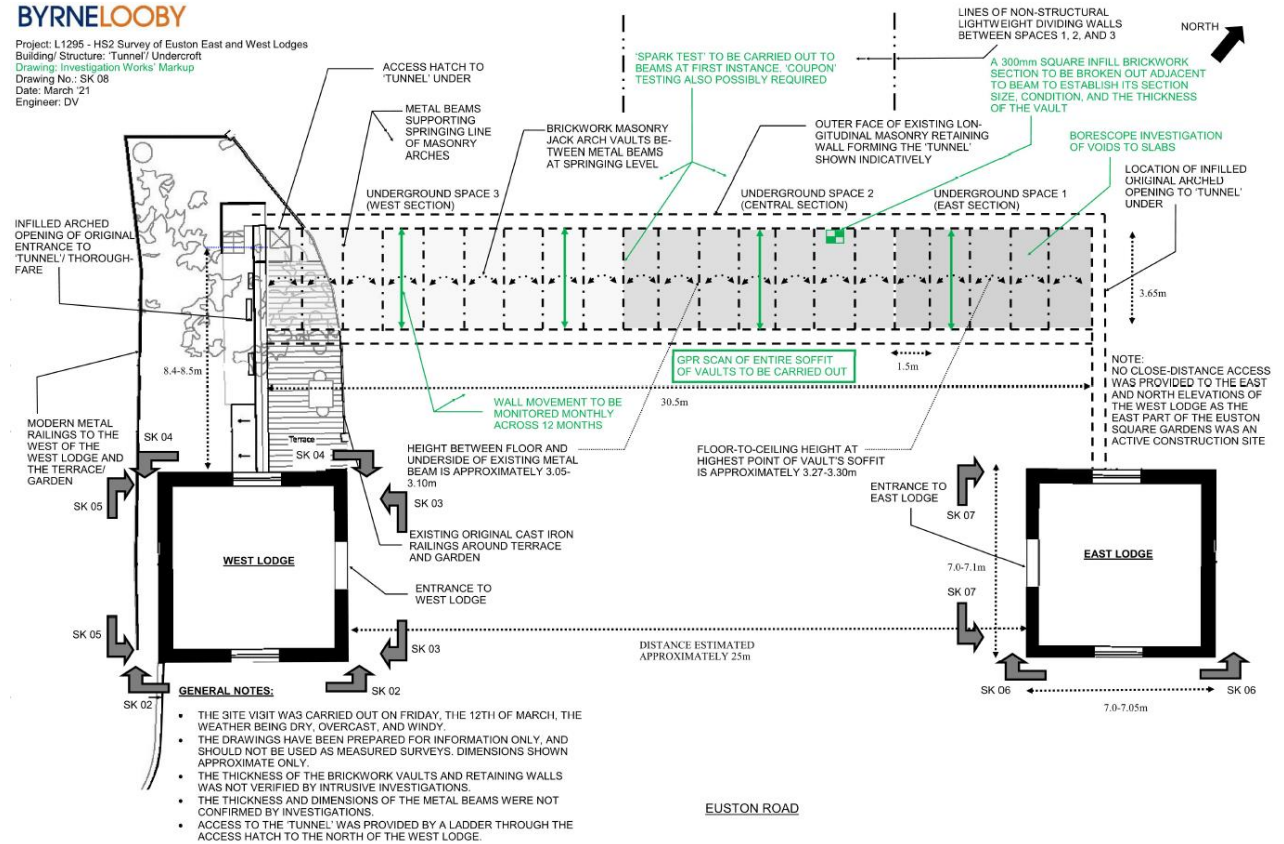
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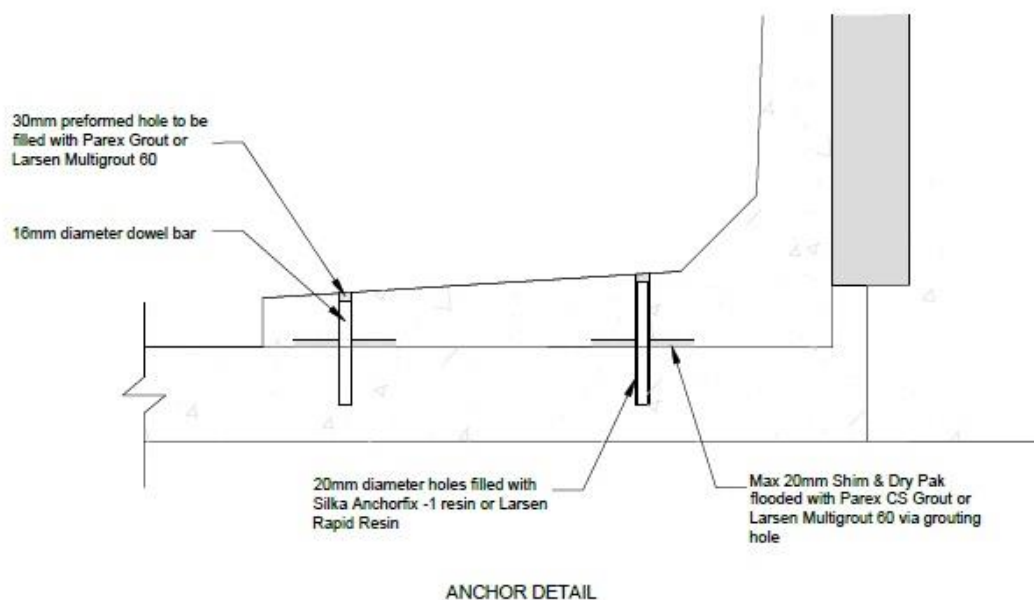
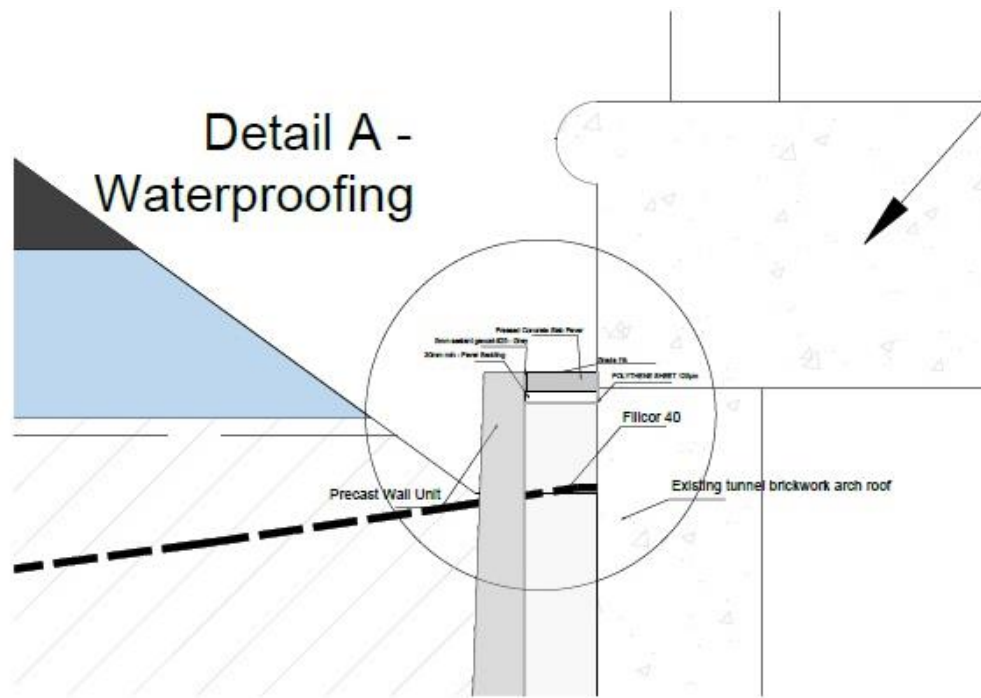
Appendix B – Structural Survey excerpt

BYRNE LOOBY

Project: L1295 - HS2 Survey of Euston East and West Lodges
Building/ Structure: Tunnel/ Undercroft
Drawing: Investigation Works/ Markup
Drawing No.: SK 08
Date: March '21
Engineer: DV



Appendix C – Design Drawings



Appendix D – Monitoring Regime

