# 1830 Warehouse Trial Pits

## Design and Access Statement (Including method statement)



**February 2019**

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**Introduction**

**Purpose of this Document**

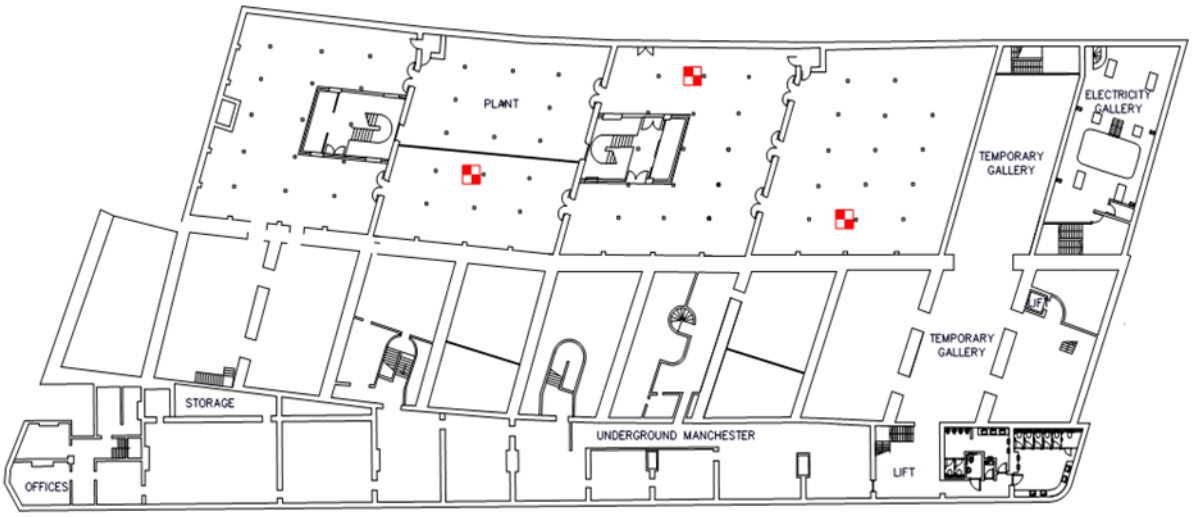
This statement has been prepared in the context of relevant national and local heritage planning policy.

**Overview of Proposal**

Following a measured and structural survey of the 1830 Warehouse several areas of significant movement within the structure has been observed. It is not possible to ascertain if this is historic or active and it is proposed to conduct 3 trial pits to assess the foundations of the structure. At this stage consent is sought for the trial pits only and any reference to other works or future potential underpinning in the structural report is for reference only and would be consulted upon and consented through a separate application.

**Location**

The site area is the basement of the 1830 Warehouse of the Science and Industry Museum.




level -2

Figure 1 Proposed 3No. locations for preliminary trial pits. Trial pit are selected such that different column foundation details are exposed (1No. no visible foundation, 1No. concrete pad & 1No. stone plinth).

**Proposal and Background**

The Science Museum Group is currently undertaking an extensive survey of the estate as a result of apparent long-term legacy issues. The structural survey of the 1830 warehouse (attached as part of the application) flagged significant structural movement in the timber frame of the building.



The lean is most evident at the top floor mezzanines. These small upper floor areas bear into the North and South walls, but are not braced and so are susceptible to movements in the building envelope.

The timber frame bears its entire weight down through the iron columns in the basement and at present it is not clear whether the foundations and columns have sunk or the movement noticed at high level is a result of timber shrinkage or excessive loading of the floors.

It's important to understand the foundations because the distortion of the roof structure and north wall could conceivably be linked to settlement or subsidence of the column foundations, so understanding the ground conditions will allow us to assess whether that is indeed a feasible scenario. The roof distortion may be the result of excessive historic loading via goods lifting winches combined with axial shortening over time of the timber columns due to shrinkage, so remedial works to the foundations are only a remote possibility (this is the reference to underpinning in the report) and would need to be justified by monitoring identifying progressive movement of concern.

**The proposal**

It is proposed to carry out a targeted site Investigation in the basement of the 1830 Warehouse, the aim of the investigation is to understand the existing foundation arrangement, the soil profile, soil classification and soil parameters, as well as ground water conditions. This will allow the structural performance of the existing foundations to be assessed as part of the current review of the internal structural frame and perimeter masonry envelope.

On-site observations showed that the floor plates at each floor level and within each bay were at hugely variable levels. This is suggestive of settlement of the structure at basement level, most likely at the building's foundations.

The purpose of investigations is to allow the following-

- Potential underpin design if needed
- Understand existing foundation conditions
- Identify obstructions
- Identify the presence of asbestos in the ground from historic services
- Identify the presence and impact of groundwater
- Identify the effect of any soil gas emissions
- Understand the Ground Properties/Materials
- Identify the Soil pH value and contamination

Proposed minimum testing to be undertaken

Trial Pits -

- 3No. preliminary trial pits are dug at the base of columns to the level of the underside of the existing column foundations.
- The size of the trial pits are to be such that safe 'hands-on' access is permitted to the foundations at full depth whilst keeping the size to a minimum and (no large than a maximum of 1.2m2) to not unnecessarily disturb heritage fabric. The contractor is to provide all necessary propping and shoring to guarantee pit wall stability.
- These preliminary pits will allow inspection and testing.
- An archaeological watching brief will be undertaken
- Full contamination testing is to be undertaken
- We will not exceed the depth of foundations.
- Existing historic brickwork is to be numbered with chalk and lifted by hand and stored safely within the basement of the 1830 Warehouse. All care is to be made to avoid damaging this brickwork during lifting, transport and storage.
- Trial pits are to be excavated using hand tools
- Await Conisbee (structural engineers) inspection prior to fill re-instatement.
- Reinstate excavation with as dug arisings. Compact in 150mm layers.
- Make sure the site is left safe and with all excavations fully infilled and brickwork reinstated.

It is not felt mortar sampling or matching will be required as the bricks appear 'dry set' and packed with earth rather than mortared in place and this will be replicated with the same soil that is retrieved from site and reused.

**Method Statement**

Our approach to the 1830's Warehouse Trial Holes are as follows –

- Detailed photographs to be taken pre-commencement
- All excavation overseen by an archaeological watching brief
- Number sets prior to removal utilising French chalk
- Liaise with Client to ensure area is appropriately restricted, enclosed and any fire isolations are in place
- Carefully remove infill using arbotec saw ensuring no damage to existing stone or brickwork work, (as there is no mortar we believe this is the best method to ensure the brick doesn't shatter through chiselling by hand).
- Remove bricks individually and place on a sheet outside of the works zone
- Hand dig the first layer of fill to approximately 300mm and store arisings on a sheet outside of the working zone
- Repeat taking regular photographs and storing excavated material for re-use until we reach 1200mm or foundation level
- Following inspection reinstate with original fill in compacted layers of 150mm
- Re-lay bricks in original order