



Heritage Statement

1830 Warehouse
south elevation
openings and
essential repairs,
Museum of Science
and Industry
Manchester

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HCUK Group is a multi-disciplinary environmental practice offering expert advice in archaeology, heritage, landscape, arboriculture, and planning. We began life as Heritage Collective LLP in 2010, before becoming Heritage Collective UK Limited in 2014. Finally, in 2020, we became HCUK Group Limited.



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1. Introduction

- 1.1** This Heritage Statement has been prepared by HCUK Group on behalf of Science Museum Group in relation to the heritage values at the 1830 Warehouse, the Museum of Science and Industry, Manchester. Manchester City Council (MCC) are responsible for decision taking at this site.
- 1.2** The 1830 Warehouse is a Grade I listed building (UID: 1282991), it sits within the Castlefield Conservation Area and is close to a number of other listed buildings and structures including the former Liverpool Road railway station and station masters house (grade I, UID: 1291477) and the elevated track and viaduct between those two that links the bridge over the River Irwell to the Station and Warehouse (Grade II, UID: 1254726).



Figure 1: The Site showing the 1830 Warehouse in Context (Blue triangles denote listed buildings or structures)

The Context

- 1.3** Two of the large glazed openings within the southern facade of the 1830 Warehouse within bays 1 and 2 were found to have defects requiring temporary support of the glazing.

1.4 This document provides an historical analysis of the openings on the southern façade of the 1830 Warehouse. It is focussed on the openings present today, how they have evolved over time and what evidence they retain for the historic appearance and function of the building, and thus what contribution they make to heritage significance.

1.5 A pre-application consultation was undertaken in December 2022 and following a response from MCC the designs were refined and amended. Core comments and changes requested were:

- To keep the design as clear, simple and transparent as possible – in line with what is understood as the original design intent.
- That the heavier horizontal transoms proposed at pre-app were too visually heavy, exploration of a more slender solution was requested.
- MCC suggested that the starting point would be a frameless system however it must be demonstrated that the system brought forward is the best which can be used.
- Required a robust justification for the preferred system.

1.6 In addition to the pre-application consultation with MCC, Historic England were approached with the same pre-app scheme for their view. Their response was as follows:

... "it would seem that the proposed works would be limited to an area of modern glazed infill, and would replace the late c20th work in a manner that would be marginally more visually noticeable, but which would avoid the maintenance issues caused by the current form of the glazed infill.

As such, I don't see the works having a major impact on the significance of the 1830s Warehouse ..." (Richard Broadhead, Inspector of Historic Buildings and Areas, Historic England, 5.01.2023)

1.7 This report presents a consideration of the initial pre-application designs followed by an updated assessment of the revised scheme. This shows how the design work has responded to officers concerns and charts the evolution of the solutions presented to assist decision makers.

1.8 Numbering for the various openings across the southern façade used within this report has been established by Studio Downie and is used here also for consistency. Reports by Studio Downie Architects and Conisbee Structural Engineers should be referenced where appropriate alongside this heritage statement.

1.9 The 1830 Warehouse is divided into five structural bays divided internally with substantial brick walls and numbered 1-5 from west to east. Externally each incorporates two gables and a series of openings, both doors and windows.



Figure 2: the 1830 Warehouse southern façade (composite by Studio Downie Associates)

1.10 This application also covers a number of brickwork, masonry and timber repairs to the 1830 Warehouse. The effect of these works on heritage significance is also considered within this report.

Purpose of this Statement

1.11 This statement seeks to provide proportionate information on the history of openings within the southern façade as well as brief statements of how each opening, and its current treatment (glazing, or timber door etc) contributes to the significance and heritage values of the 1830 Warehouse. Following the pre-application process outlined above this report presents a final impact assessment to accompany the planning and listed building consent applications for the works outlined.

1.12 This statement draws heavily on documents and archival matter held by the Museum. An additional site inspection was made in January 2023 and has fed into the completion of this report.

1.13 This report does not reproduce the full history of the 1830 Warehouse but provides targeted information on the specific openings and how their current form may or may not directly illustrate or contribute to heritage values as a means of providing

specific information to inform a design and engineering solution to problems identified in a heritage led manner.

2. Historic Background

- 2.1** The following section presents a very brief historic background of the SIM site along with more specific detail on the development of the 1830 Warehouse. It is based on records and documents provided by the Museum and on the Castlefield Conservation Area Appraisal.

Historic Background

- 2.2** From 1758-1761 the Duke of Bridgewater employed James Bindley to construct the first canal in Britain in order to transport coal from the Duke's mines at Worsley to Manchester. The success of this prompted the construction of the Rochdale Canal, opened in 1804. This made Castlefield the hub of the canal network which subsequently developed.
- 2.3** A large number of warehouses were also built alongside the canal system to supply the rapidly growing population of Manchester which was the fastest growing city in the world in the 19th century. It became clear that canals could not move goods quickly enough, and this led to the construction of railways, the world's first railway station was opened on Liverpool Road in 1830, the buildings of which currently fall within the SIMM. The 1830 Warehouse was part of this transformative construction phase and was the first warehouse to be served by railways in a similar way that the canal warehouses had been in the years before.
- 2.4** In 1844 Liverpool Road station closed to passengers but remained in operation as a goods station only. This became the centre of a network of railway lines, several of which crossed Castlefield on viaducts. Further viaducts were constructed, extending as far as Central Station, which opened in 1879. The remains of the old town of Aldport, were demolished at the end of the 19th century to make way for the construction of the Great Northern Warehouse, also known as the transport interchange building.
- 2.5** During the 20th century, industrial and commercial use of both the canal and rail networks declined until they were used only largely for leisure purposes. In 1975 the station was closed by British Rail. The railway complex at Liverpool Road was

sold to a conservation group for £1 and was reopened as the Greater Manchester Museum of Science and Industry in 1983 with the Station Building and Power Hall open to the public.

The 1830 Warehouse

- 2.6** The 1830 warehouse was built by David Bellhouse Jr. There is no documentary evidence of the architect, although it is suggested that Thomas Haigh of Liverpool may have been the architect. An alternative suggestion is that put forward in the list description, that George and Robert Stevenson were responsible for its design. Its footprint covers 320x70 feet and the building is slightly concave to the north, and convex to the railway line. It was built to provide warehousing facilities for the rail network. Each bay was designed to operate independently for vertical movement of goods through the building and between rail and road networks.
- 2.7** The building has a brick envelope with timber frame internally, reinforced at basement level with steel and iron columns. The timber framed construction was a measure of expediency to address the complexities of a curved footprint meaning that although the timber frame was carefully pre-fabricated (as evidenced by the complex sequence of carpenters' marks visible on the timbers) minute adjustments could be effected by carving and shaving timbers to fit the unique situation on site, something that would not have been possible for a cast iron structure of a fully fire-proof construction type.

1830 Warehouse Phasing

- 2.8** After being built in 1830, the warehouse was altered in 1831 with the insertion of a mezzanine floor in the three bays nearest Water Street. An engine house was also built between the warehouse and Water Street in 1831, a water tank was also added to the top floor of the east end (Bay 5). The introduction of steam power likely saw some of the earlier gravity hoists linked to the new steam drives, but the angled alignment of some of the gravity hoists would not allow connection to the new drive shafts and it is likely that the two systems ran in parallel¹.

¹ Greater Manchester Archaeological Unit 'Archaeological Survey of the 1830 Warehouse' 1991, Section 6.2

2.9 At some point after 1848, but presumably before the completion of the Grape Street Bonded Warehouse in 1869, the basement was adapted for storing wine and spirits. Security was increased by infilling the loading bay wells (except for one) and light wells and nailing metal strips across the underside of the floorboards that formed the ceiling.

2.10 The 1850 Ordnance Survey map (Figure 3) identifies the functions of the warehouse at that time listing: a butter room in Bay 1; groceries room in Bay 2; a spirit room in the western third of Bay 3; and, corn stores in Bays 3, 4 and 5. This map also helpfully clearly locates the position of the early rails, that ran into the building directly from the viaduct where coaches and trolleys were turned on turn tables – shown as circles on the tracks. Each bay included a single entrance for the tracks, with only Bay five featuring two such entrances. In bay three the rail line passed right through the warehouse and on to the cotton store No. 1 constructed to the north. Extant signage on the southern elevation of the 1830 Warehouse indicates the position of capstans (vertical axis pulleys, powered by hand or motor) within the building. The presence of wear on the lower jambs of the wagon arches (recorded in 1991 by Greater Manchester Archaeology Unit [GMAU], 1992, section 5.4) suggest that, though the position is unknown internal capstans were used to haul the waggons from the turn tables into the building for unloading.

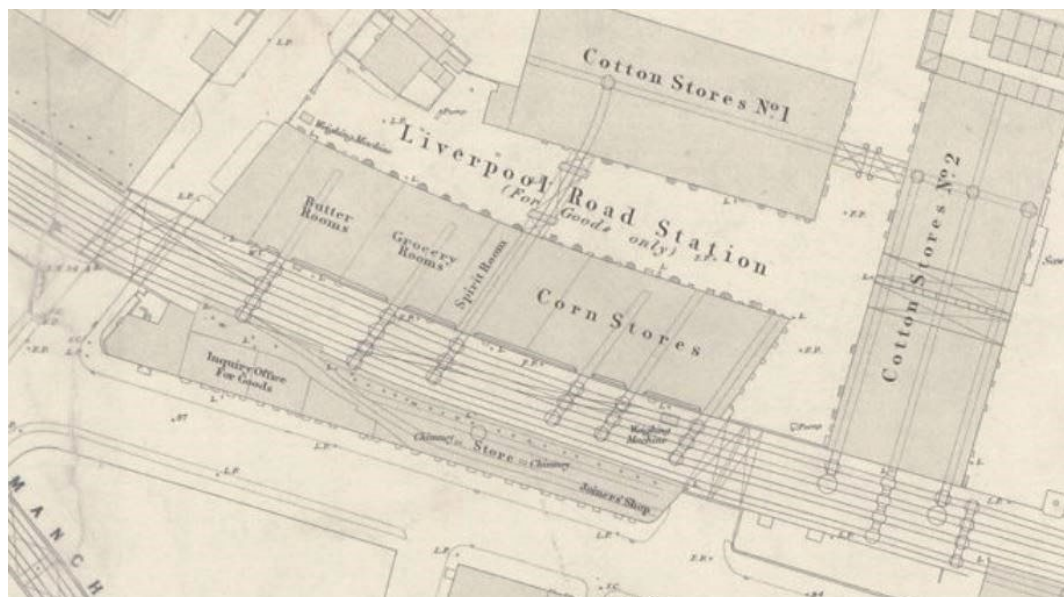


Figure 3: 1850 OS extract (Five feet to one mile sheet 32 ref JRL1300082). The engine house is the last narrow bay on the west. Note the turntables and tracks shown running into the building in positions that equate clearly to the wagon arches today.

2.11 In c.1870, the top floor and rail level were modified to accommodate and in response to the installation of hydraulically powered machinery. These modifications entailed the cross-bracing of affected roof beams and addition of new posts to support the installation of four hydraulic hoists in Bays 2 and 3. Three were located against the northern elevation powering hoists to yard level. One was located in Bay 2. Photographs of the southern elevation prior to restoration works show a long arm projecting from the western part of bay 2, likely associated with this jigger. An hydraulic crane was also installed at rail level in Bay leading to the widening of the wagon door to permit the rotation of the crane jib. The image below (figure 4 and Figure 6) shows clearly the extension upwards of the Bay 2 Wagon Arch and possibly a sliding doorway over the lower part of the opening but nothing covering the upper part of this new opening.

2.12 At some point, perhaps relatively early in its history, a series of offices were installed within the building. Two at yard level, two at rail level and one on the upper roof level. The date of insertion is unknown and they do not all survive today, though external traces survive in the presence of glazed sash windows set into adapted cargo doors, or behind the triple openings above the wagon arches.



Figure 4: The southern elevation in 1975, note elongated hoist arm above the cargo door in Bay 2 (Manchester libraries)



Figure 5: n.d image of the southern elevation from Bay 5 looking west prior to works. (Manchester Libraries, supplied by museum)



Figure 6: n.d photograph of the western part of the southern elevation (Manchester libraries, supplied by museum)

2.13 As the more efficient hydraulic crane and jigger made the internal rails redundant, all cargo could be unloaded via the more powerful jigger hoist and crane, moved

into the building and then transported via internal hoists or through the bays horizontally for which openings were widened and the rail beds were infilled with a raised floor supported on modified rail trestles. A canopy was added along the south elevation at this time to protect wagons on the nearest track waiting to be loaded or unloaded by crane. The northernmost internal doorways were widened for easier movement of goods. Evidence for these changes remains legible in the building's external elevations and in internal elements of the structure. Figure 5 shows the eastern end of the building prior to restoration works. The bay 5 wagon doors retain their timber floors, projecting slightly from the stone jambs. A single gravity hoist remains over the western Bay 5 Cargo door and the longer hydraulic hoist position is visible in the distance. There are traces of the former canopy in different coloured brickwork, though the canopy must have been interrupted for the hoists.



Figure 7: South façade today looking from Bay 1 eastwards. (Image: SDA)

- 2.14** In 1985-86, the easternmost bay of the Warehouse was altered for the museum by the replacement of the internal timber frame with a steel frame supporting reinforced concrete floors – the entirety of Bay 5 was to become the Electricity

Gallery, opening in 1986. A ramp was built parallel to the east elevation where the entrance lies. Bay 5 opened as the Electricity Gallery in 1986.

2.15 In 1992-96, the remaining four bays were carefully restored by the repairing of the timber frame, followed by the installation of two lift and staircase cores with skylights installed above. The restoration ethic at this time was to retain as much original historic fabric as possible and to make any new interventions clearly identifiable through the use of modern materials.



Figure 8-9: (left) frameless system installed within Bay 2; (right) example of typical framed windows inserted within the smaller windows in Bays 1-3.

2.16 Bay 4 was chosen as an area that would be repaired and preserved 'as was' with minimal intervention or adaptation and a more traditional approach to materials and aesthetic, it had the least post 1830 alterations. The roof was left uninsulated with traditional torching applied beneath the slates; timber replacements were achieved where necessary using salvaged period timber from the removals from the reconstructed Bay 5; the only change was the glazing of openings in the doors to prevent rain ingress. Elsewhere the roof was fully repaired with date stamped timbers, and insulated between the rafters, windows were glazed, and in Bay 3 the mezzanine was removed to create a more welcoming and spacious 'entrance' into the building.

- 2.17** During the restoration in the 1990s the 1830 Warehouse was upgraded to Grade I, the highest rank of listing.

3. Significance

Assessment of Significance – Southern façade openings

- 3.1** That the 1830 Warehouse has the highest level of heritage significance is inherently acknowledged in the listed status of the building at the highest grade. Only 2.5% of listed buildings are grade I, indicating exceptional interest. Special interest is intrinsic to significance. Appendix 2 contains a summary statement of significance for the 1830 Warehouse as a whole. This section considers in more detail the individual openings on the southern façade on a bay by bay basis utilising the numbers assigned by SDA.
- 3.2** Significance is defined within Annex 2 of the NPPF as: *“The value of a heritage asset to this and future generations because of its heritage interest. That interest may be archaeological, architectural, artistic or historic. Significance derives not only from a heritage asset’s physical presence, but also from its setting.”*
- 3.3** For the purposes of clarity the following assignments of levels of significance have been made, these have not been formally agreed with external consultancies but are presented on the basis of professional judgement in order to clarify understanding and shape the discussion around these openings and their treatment both now and in the future.
- **High Significance:** original fabric and or clearly illustrating and evidencing the original, that is early 19th century structure and appearance of the 1830 warehouse as well as its functional purpose as an element of historic interest. Aspects with this significance may survive particularly completely and in tact bearing in mind that the building has undergone successive phases of repair over the years that is inevitable with any building of some age.
 - **Moderate significance:** Fabric or features that are more altered or from a later phase of the museum reflecting and illustrating change to technology or access which is important to understanding the evolution of the building.
 - **Low/neutral significance:** this fabric may be heavily altered which has eroded and disrupted the ability to understand period or function. It may relate to the adaptations to the building for use within the Museum. These

changes were undertaken in more recent decades and the materials used are not innately of heritage value.

- **Detrimental:** Fabric or materials that overtly disrupt understanding of the buildings historic form, fabric or function.

Classes of opening

3.4 The Southern façade of the 1830 warehouse contained the following types of opening. These survive to a greater or lesser degree of intactness and functionality today. In some places the alterations to these openings reflect distinct aspects of the building's history and now contribute to the evidential values that illustrate those changes. In others, changes are difficult to date and the 'original'

Cargo doors (loophole doors):

- These are individual pairs of double timber doors set one above the other into long vertical recesses spanning the multiple levels of the building with infill timbers between the doors at floor level. Doors at individual floor levels could be opened to bring goods in and out of the building via the hoists originally set above each door run, which raised or lowered the goods from or to rail or yard level. Their vertical presence is a strong visual feature across the building and many survive with little alteration though no hoists remain present on the south façade today, all were apparently removed relatively early in the building's history (GMAU 1991) and in 1975 only one hoist remained on the south facade. The south façade cargo doors are in pairs, one opening at rail level, one at upper floor level (this is in contrast to the north façade cargo doors that extend down to yard level). The doors on the south façade do not ever appear to have extended all the way down to track level, consistent brickwork runs beneath the sills. The relationship of the surviving hoists to these doors is integral and important to understanding how the Warehouse functioned but is now confined to the northern elevation where the only hoist mechanisms are retained. In the absence of hoists the doors in their recesses are strong architectural elements in a visual sense as well as being clear indications and illustration of the historic function of the building and passage of goods through it.

Wagon arches:

- Arched openings in the southern façade only, framed in chunky rusticated stonework with taller expressed keystones. These arches and doorways originally extended down to the rail level and marked the point at which rails ran directly into the building. Doors were mounted externally and many large pintles survive on the upper parts of the remaining arches indicating their position. Trolleys were spun on turn tables on the main rails and then passed directly into the building to be loaded/unloaded, wear recorded by the 1991 archaeological survey suggests that internal capstan hoists provided the draw power to pull waggons into the building from the turn tables. Changes in technology and the introduction of hydraulic hoists in at least bays 2 and 3 in c.1870 meant that direct passage on rails into the building was ceased and the waggon rail runs were infilled. Timber floors were raised within the rail beds projecting slightly outside the building. At this point, doors were internalised and all traces of the former capstans were removed. The stone surrounds remained as a clue to the lower level of the original entry points through these arches. A higher floor level, and shorter internal doors reflects a technological shift to more powerful equipment within the building. The building now contains a mix, covered in more detail below.

Triple windows:

- Above each wagon arch a set of three windows, central one slightly wider than outer two. Three have a continuous stone sill and splayed stone lintels with arched soffit. All originally barred but probably without any glazing behind merely internal shutters. These windows are of architectural interest providing a smaller division of the vertical bays in a way which reflects the bay rhythm and has some architectural attention to detail. Though undoubtedly they provided some function of letting air and light into the building they have aesthetic merit as part of the facade treatment overall.

Lunettes:

- arched windows above the main cornice ornamenting the gables on north and south facades. Originally barred and potentially open as well, or shuttered internally. These features, like the triple windows, though probably assisting with ventilation and perhaps light at a high level in the building, are

aesthetically pleasing features within the façade that augment the cornice and gable of the building.

Openings in the South Facade

3.5 This section considers the various opening types on a bay by bay basis, identifying changes and providing consideration of the relative significance of individual elements. It should be read alongside the visual photographic analysis by Studio Downie Architecture and the structural report from Conisbee.

Bay 1

3.6 **D1S1.01:** cargo door, still functioning doors without glazing behind – as originally. Continues to give direct evidence of the historic function of these openings. Though doors are not considered to be ‘original’ in their fabric, their form and position are and they are of **High architectural and historic significance**.

3.7 For the avoidance of doubt, the above assessment applies to almost all of the cargo doors within the southern elevation. Unless specifically discussed in relation to other amendments, all cargo doors in subsequent bays can be considered at this level of interest.

3.8 **D1S1.02:** Wagon Door, glazed fully right down to track level (glazing is failing). Pintels on the external face retained in stonework at high level to indicate historic doors opening outwards to the tracks, no pintels in the lower stonework but lower hinges likely to have been surface mounted to the rail bed (see Bay 4). Today there are internal opening pair of cargo doors at floor level. The raised floor level visible internally behind glazing illustrates the post 1870 change when rails no longer passed into the building. Important visual clue to past entry of wagons into building and the stonework arch and evidence of doorways and other features are **high architectural and historic significance**.

3.9 The glazing installation has truncated and reduced the inner floor structure that formerly slightly projected out of the building, the legibility of the floor level within remains significant. The glazing itself is not of heritage value – **neutral significance**.

3.10 **D1S1.03:** cargo door, as for **D1S1.01**

3.11 D1S1.04: Former Cargo door. Door present at upper level but at rail level has been infilled with brick and large window to light an inserted office. Window is a large 21/21 sash. The date of inserted offices throughout the warehouse is unknown but they are important reflections of changed requirements within the building's use. This bay, though it has seen its original purpose diluted through the loss of one set of cargo doors, also reflects necessary changes within the building to provide offices within the warehouse itself. This alteration, a 19th century change, has historic interest and expresses that historic element in the architectural change. The exact date of insertion of offices within the building is unknown. The office structure is retained behind this window enabling clear understanding both internally and externally. In common with the inserted offices internally, the external change is of **high historic significance**.

3.12 Triple windows survive above Wagon Arch and retain bars in front of modern plate glass inserts dating from the early 1990s restoration. Retention of bars, as a valuable insight into security requirements at this building as well as the original format of bays and openings. Likely original arrangement was openings without glass and internal shutters behind the bars. The windows are **high architectural and historic significance**. The simple plate glass inserts enable a degree of legibility to the historic open nature and contrasts usefully to locations where windows were inserted giving evidence to the location of offices as an internal function, the glazing is **neutral significance**.

3.13 Lunettes. Survive though without bars. The openings are of **high architectural significance**.

Bay 2

3.14 D1S2.01 and D1S2.02: cargo doors, as for **D1S1.01**

3.15 D1S2.03: Originally wagon arch, open down to track level, now rusticated stone surround is truncated at upper part and infilled at track level with brickwork with a projecting aspect of floor joists. Museum history records that Bay 2 was altered in c.1870 when hydraulic hoists were inserted into the warehouse and that the door to Bay 2 was altered to accommodate a new hydraulic crane, the greater weight of this feature also explains the solid infill in the lower part of the wagon arch. The upper part of the taller opening is offset from that below beneath a single timber

lintel, the expanded opening does not align with the historic wagon arch opening. Though undertaken with considerably less architectural quality than the original treatment of the openings this physical change is important historically in understanding the upgrading of technology within the building to facilitate its use as a warehouse. Photographs from the mid 20th century seem to show a sliding door over the lower part of the opening but its exact date is unknown and the present fixture is not a functioning door but a mounted static panel. The staggered taller opening, is considered to have **high historic significance**, it directly illustrates past changes that reflect technological advancement but the work is executed in a poor quality aesthetic that has actively disrupted the regular rhythm of the southern façade and the stone surround of the original wagon arch leaving only a **moderate architectural significance** pertaining to the direct illustration of the historic change not the innate quality of the detail. The fixed mounted door panel is considered to have **low/neutral significance**, it is not a functioning feature, its date and exact provenance is unknown and it is no longer clear how this opening would have been secured, though a sliding door may well have been the solution provided in the past this is conjecture not based on evidence.

- 3.16** The current glass in this opening is one of the examples identified as failing. It is modern and spans the staggered opening. The glazing system within the opening is **neutral significance**.
- 3.17** **D1S2.04:** cargo door at upper level still functioning doors with a small inserted window within one door leaf. Hoist has been removed and at lower level the cargo door opening is blocked and covered by the rail mounted sliding door over D1S2.03. The cargo doors, as for D1S1.01 are **high architectural and historic significance**.
- 3.18** Triple windows heavily truncated by later amendment to wagon arch, modern fixed plate glazing now in three small areas, no bars. Though the remnant triple windows are **high significance** even through truncated, the glazing is **neutral significance**.
- 3.19** Lunettes present above cornice, boarded within recess, no bars. **High architectural significance**.

Bay 3

3.20 **D1S3.01:** cargo doors, as for **D1S1.01**

3.21 **D1S3.02:** Wagon Door, glazed fully right down to track level. Pintels on the external face retained in stonework at high level to suggest historic doors that opened outwards. Today there are internal opening pair of cargo doors at floor level. Raised floor level visible internally behind glazing indicates post 1870 change when rails no longer passed into the building. Important visual clue to past entry of wagons into building in surviving opening right down to track bed. The original stone arch is **high architectural and historic significance**. The legibility of the secondary inserted floor through the later glazing is of **high historic significance**. The glazing within the opening is **neutral significance**.

3.22 **D1S3.03:** cargo doors, as for **D1S1.01**

3.23 **D1S3.04:** Former Cargo door. Double door present at upper level but at rail level has been infilled with brick, retaining the lowest sill, and large 21/21 sash window to light an inserted office. The date of inserted offices throughout the warehouse is unknown but likely an early adaptation of the 19th century, one is retained in Bay 1 where a matched window is present. This bay, though it has seen its original purpose diluted through the loss of one set of cargo doors, also reflects necessary changes within the building to provide offices within the warehouse itself. This alteration, presumably a 19th century change, has illustrative historic interest and expresses that historic element in the architectural change. This external feature is of **high historic significance**, particularly as the office the window served is no longer present.

3.24 **Triple windows above wagon arch,** feature external bars and timber sashes behind. These are replacement sashes indicating the location of a former office, no longer present internally – the windows themselves date to the early 1990s restoration but to match historic examples. The restoration of these windows reflects the position of an office and thus has some historic and architectural interest. The material is not historic; the original openings and retained bars are **high architectural significance**, the restored windows are **moderate historic significance**, they illustrate historic change but the material itself is not historic.

- 3.25** Lunettes present, boarded over in recess, no surviving bars. **High architectural significance.**

Bay 4

- 3.26** **D1S4.01:** cargo doors, as for **D1S1.01** Lower door has two glazed panels in upper part, same as others in this bay.
- 3.27** **D1S4.02:** Wagon Door externally mounted and extending down to track level as a historic recreation at the point of museum ownership and conversion including the internally dropped floor level where the former tracks ran in. Though not surviving historic originals this bay has **high architectural and historic significance** reflecting decisions on the museum's part on how to illustrate the past uses and function of this building in its earliest incarnation.
- 3.28** **D1S4.03 and D1S4.04:** Cargo doors as for **D1S1.01**.
- 3.29** **Triple windows above wagon arch,** feature external bars but not glazed and only boarded behind – a deliberate choice not to glaze but only to retain historic shutters as would have been the case originally according to the 2007 history. **High architectural and historic significance.**

- 3.30** Lunettes present, boarded over in recess, no surviving bars **High architectural significance.**

Bay 5

- 3.31** **D1S5.01:** Wagon archway with stone surround extending to track level. Within this a later double door set into opening and opening internally at the internal floor level. Beneath, there is brick infill and modern floor plate level indicating comprehensive re-working of Bay 5 in the 1985-86 period. Unlike the Bay 2 amendments to the wagon arch, this change does not reflect a key technological change within the historic functionality of the warehouse. The legibility of the 'original' track depth opening here, illustrated in the stone surround, remains of **high architectural and historic significance**. The later infill particularly the solid lower part beneath the doors is intrusive and in marked contrast to the previous

bays where the wagon arches and glazed infilling continues to give visibility to the raised timber floor structures behind, this infill is **detrimental** to significance.

3.32 D1S5.02: cargo doors, as for **D1S1.01**

3.33 D1S5.03: cargo doors, as for **D1S1.01**.

3.34 D1S5.04: Wagon arch with glazed door behind giving access to localised lower concrete floor slab, and externally mounted shaped wooden doors that, with the glazing, extend down to track level as a historic recreation or early arrangement. Behind the glazed infill the later inserted floor levels within Bay 5 are visible. Though not surviving historic originals this archway has, like Bay 4, some interest in retained full height doors mounted externally – the historic arrangement. This element, the stone surround and full height opening is of **high architectural and historic significance**. The visible internal features are discernible behind the glass but unlike the adjacent door, where the internal changes have been expressed in an external brick infill here the historic arrangement survives with better legibility. The glass sliding door is of **neutral significance**.

3.35 Triple windows above wagon arches, feature external bars with reinstated fixed windows behind –modern windows of **neutral value**, openings and original surrounds **high architectural significance**.

3.36 Lunettes present, no surviving bars, **high architectural significance**.

Brickwork, masonry timbers and metalwork

3.37 The application also covers repairs to various areas of the building's facades, and the replacement of several timber sills to the southern façade.

3.38 The brickwork and stone details within the 1830 Warehouse are of **high architectural and historic significance** representing original fabric and giving the building its primary architectural aesthetic and appearance. That being said the brick and masonry elements are robust elements in keeping with the building's large scale and practical nature, there is not a high degree of ornament or complexity to these features.

- 3.39** Timber within the building's external facades was heavily renewed and replaced during the periods of restoration in the 1980s and 1990s. Based on inspection by the engineering and architectural team the majority of timber sills beneath the cargo bay doors on the southern façade are replaced softwood. Areas of these sills have already rotted and seen pieced in repairs. The sills sit flush to the brick wall face and have flat tops, they do not cast water off either themselves as timber surfaces or away from the historic brickwork.
- 3.40** The timber sills have innate **low heritage significance** because their material is poor quality softwood, they are later replacements not historic originals. External timber work is, to an extent, sacrificial within historic buildings, it requires regular upkeep and over time occasional renewal or replacement. The position of the sills, at the base of the cargo doors and general aesthetic in relation to the openings is of **High architectural significance** as part of the overarching cargo door structures.



Figure 10: timber lintel on south façade showing past pieced in repair to upper surface, and damage and discolouration to historic brickwork beneath.

4. Proposals

- 4.1** This chapter of the report should be read alongside the proposal drawings and the Design and Access Statement Document by Studio Downie Architects. This document covers all works within this application for essential repairs to the building at this stage. Firstly it covers it looks at the proposals for the replacement of glazing within the wagon arches of bays 1, 2, and 3 and considers the impact on heritage significance as set out in the previous section. It then covers the essential repairs to Cargo door sills; brickwork repairs (internal and external); stonework repairs; timber repairs; and, metalwork repairs.

Wagon Arches

- 4.2** The proposals presented evolved through careful options appraisal as part of the design development and through pre-application consultation with MCC.
- 4.3** The glazing within Bays 1 and 2 has failed and requires action to halt ingress of water, damage and degradation of surrounding fabric, and minimise risk from collapse of the large structural glass infills. Bay 3 features a similar glazing detail and it is the opinion of the architectural and structural engineering team that it is likely, in due course, to fail in a similar way.
- 4.4** Bays 4 and 5 are different. Bay 4 Wagon Arch features no glazing. There is no intent to glaze it now or in the foreseeable future but the approach designed and presented for discussion could be applied in the future to ensure consistency. Bay 5 was internally reconstructed with a new floor and supporting structure. Its glazing details are different and again, there is no foreseeable plan to replace them.
- 4.5** The glazing installed within the wagon arches of bays 1-3 is all late 20th century in date and is **neutral** to the building's significance. This neutral significance glazing sits within openings which are all of **high architectural and historic significance**. In principle, a proposal to replace a neutral feature with an alternate detail that preserves the high value of the material around it and does not lessen that interest or ability to appreciate it should be capable of preserving and sustaining heritage values and be acceptable. A positive heritage outcome could

also arise if the proposed replacement detailing minimises future risk to the building's fabric or its users

- 4.6** A series of high level options were initially considered for the building in the development of the scheme presented for discussion as part of this pre-application submission, these are discussed in the following paragraphs.

1 - Remove glazing and reinstate doors.

- 4.7** Ostensibly this option would restore legibility of the building's original function where doors function as doors and openings within the building's envelope are truly legible. When the floor was raised at rail level, doors became internal and this later internal arrangement would be most sensitive to the building's narrative. However, the building's history since the later 1970s has been as part of an important industrial museum where the 1830 warehouse itself holds exhibits and collections and accommodates visitors and events as part of its ongoing use. This phase of the building's history is now established for almost half a century and is a viable use that has proven consistent with the preservation of the building's heritage interest.

- 4.8** A reversal of the current glazing system would result in likely issues relating to use of the building where the spaces within are in use as active display galleries with collections that must be considered, as well as conditions for visitors. This option is not considered to be sustainable or practical in relation to the museum's use of the 1830 Warehouse and is not being pursued.

2 - Like for like replacement

- 4.9** Though this option would simply replace one set of neutral glazing without visible change it is clear that the system installed in the late 20th century was flawed in its design. It is letting water into the building and causing effects to timbers and stonework around the doors. Straightforward replacement and replication of a defective system is not in the best interests of the long term preservation of the building or its heritage values.

3 - Replace glazing with a new system

- 4.10** The Museum requires the continuation of a glazed insert within some openings in the southern façade. To avoid the extant issues being repeated as in the previous

option a third option is the design of a new system for glazing within the Bay 1-3 wagon arches that address the flaws in the previous system and continues to sustain the high significance of the openings themselves and their material qualities. The system and design should be capable of transference to other openings as and when need arises to ensure consistency and avoid a piecemeal tapestry effect of alterations.

4.11 Previous glazing in the wagon arches was installed to be as visually light weight as possible, with a minimum aesthetic impact to enable the openings to be clearly understood as openings and the glazing as honest modern interventions without any possible 'confusion' with historic examples of windows in the building – such as the office windows inserted in some places which are recognisably of their time and function. This past approach led to the enclosure of the glazed openings having a neutral effect on significance. Irrespective of this 'light weight' approach the glazing is not invisible, it is clear both internally and externally that the wagon arches in Bays 1-3 are glazed and no longer functionally open. Glass, although transparent, is not invisible but to enable the functionality of the building within the museum context the design sustains the architectural interest of the building and legible historic evolution over time. It is also noted that in smaller openings other than the Wagon Arches framed windows were inserted, even though historically none of the openings in the building were glazed (other than specific office windows).

4.12 A new design seeking honesty of the proposed intervention and legibility of its period is considered to remain a sensitive approach glazing within the wagon arches. Replication of an historic window form or type is considered inappropriate as the wagon arches were never windows, right up until the 1970s they remained as openings into the building closed only with doors, this is an important element of significance. Installing a 19th century style of window would entirely confuse the legibility of these features both as individual elements of architectural and historic interest and confuse and dilute the historic evidential and illustrative interest of the few actual period windows that were installed in the building, as windows. The wagon arches, for the most part, retain mounted hung doors, internally or externally. The design of any glazing would also ideally remain distinct from these features to continue to promote their prominence as historic aspects of the building.

First Pre-application Proposals

4.13 The pre application proposals were:

- Based upon a system of single glazing within an aluminium powder coated frame (Figure 11).
- Sought to remain clearly legible as a modern intervention in line with the aspirations of the early adaptations.
- Used a framed system as having technical advantages in support of the glass and in terms of ongoing maintenance.
- Maintaining large simple volumes of glass.
- Maintain legibility of the raised floor levels within the building behind the glass that reflects the change in the latter part of the 19th century in association with Bay 2.
- Introduced slim aluminium uprights and a heavier central transom. The design was overtly intended as a visual contrast to historic forms and opening subdivisions but to provide a family of details that might be extended to other openings, should the need arise, to ensure consistency across the façade.
- The divisions were designed in a contrasting style so that historic examples of openings (doors/windows) remain distinct alongside these modern interventions emphasising their primacy.

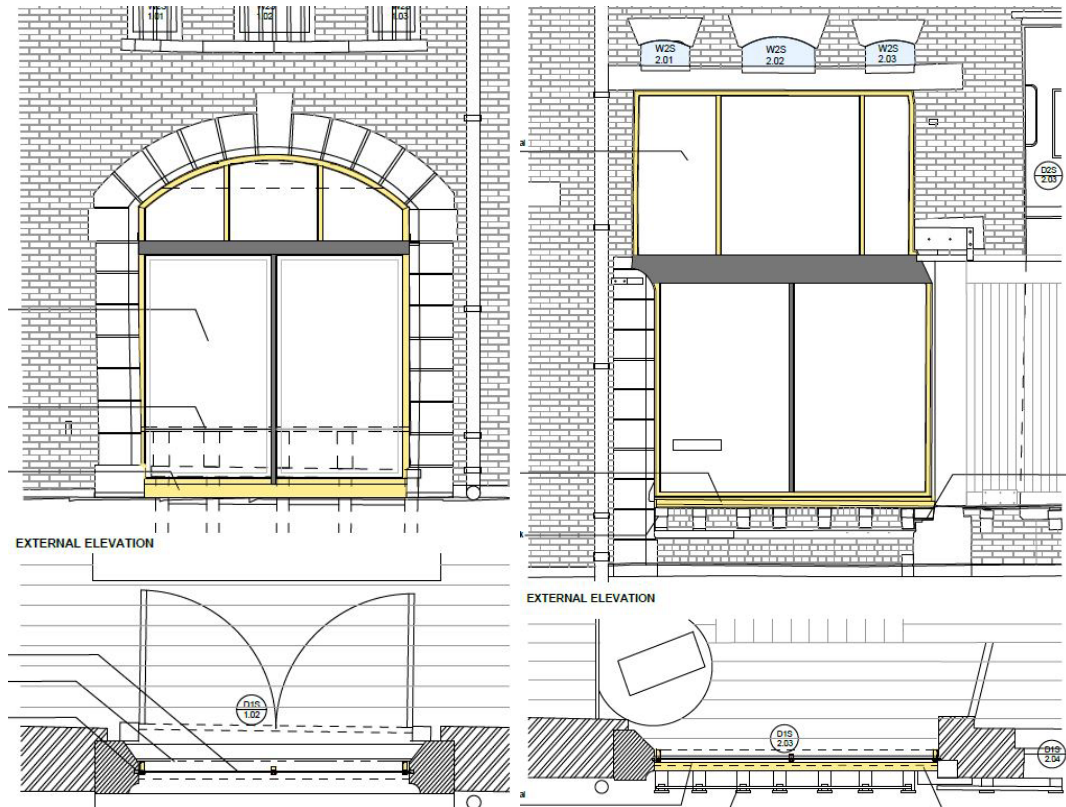


Figure 11: Extracts from Studio Downie Design proposals for Bays 1 and 3 (left) and Bay 2 (right). See Design Approach Report for full captions and figure detail. (Figures not to scale)

Design amendments

- 4.14** Following the pre-application consultation and as outlined in the introduction to this report, Historic England were content that although the scheme would become more visually apparent within the facades the proposals affected modern fabric concluding that this would not have a '*major impact on the significance of the 1830 Warehouse*'.
- 4.15** MCC conservation officer Paul Mason felt that the pre-app proposals offered too great a visual change within the openings, which currently feature no internal divisions in terms of framing, the divisions in the panes of toughened glass and structural support fins internally are visible.
- 4.16** Following the pre-application consultation SDA looked at three further options which are set down in a revised Design Approach Document. These retain a framed system, further investigation showed that replicating an unframed system and using the existing slot cut into the stonework is impractical and places the high

significance historic fabric of the Wagon Arches at risk. It would also limit a possible future change to double glazed system, which may be desirable. Three options were considered varied in the provision, or not, of an external 'cap' to the frame and the design of the glazing subdivisions. All options feature internal frame structure and a vertical metal upstand detailed to cast water away from the building as it flows down the new glass inserts:

- **1A** - divided the openings into two equal panes. External frames were without a cap so there remains a light touch to the surrounding stonework. The central division between the panes features an external cap which visually emphasises the vertical height of the openings and respecting the historic opening line of doorways.

Maintains a simple contrasting response within the opening, removes the 'weight' of the central transom, but has a different approach with a mix of cap or no cap, adding a level of complexity to the exterior finish.

- **1B** – this option has no external caps to the junctions between glass on the exterior.

Leaves joints externally only visible through the lines between glass and intervening joint material. Has a very light weight character externally though the joins between glass panes and frame behind would be visible. The joint positions do add a degree of complexity where the junction is visible though only probably apparent on close inspection.

- **2B** – this option featured the same frameless perimeter but had a capped vertical joint leading up to a slender horizontal capped joint. In Bay 2 this horizontal member sits at the point that the opening deflects. In other bays the horizontal sits just below the arch in line with the iron pintel points

Includes mix of capped and uncapped and greater complexity with a capped horizontal transom and only part of the vertical capped. Remains a light weight contrasting system but greater levels of complexity to the position of caps externally may continue to divert attention, although the change would be subtle.

4.17 Subsequent discussions with the client has led to the final scheme preferred being an adapted version of option 1A incorporating an external cap to all frames, this simplifies the finish and improves the external weathering capabilities of the joints

between glass. The position of the glass will be set back from the historic door jamb position and aligned to conceal the scar created in the stonework during the installation of the existing glazing. The fixing of the frame is into this existing scar, limiting further interventions.

4.18 The revised scheme:

- Maintains a framed system as that identified as the best in terms of future maintenance, minimising risk to historic fabric of high significance, and enables potential future changes to a double glazed system with minimal risk.
- Has removed the heavy horizontal transom requested by MCC.
- Has minimised vertical divisions but kept a single upright.
- Utilises the single vertical division to emphasise the verticality of these openings and to visually balance the lower sill element. The upright respects the meeting position of internal doorways.
- Caps all frames externally to simplify the finish so that in each opening there are only two visible elements.
- Locates the new system so that the frame conceals the 'scar' of the 1990s glazing system and does not add additional physical interventions into the high significance masonry surrounds.

4.19 The glazing system proposed has addressed comments raised by MCC during the pre-application proposals. The initial impact assessment considered that the previous design sustained heritage values – a view broadly agreed with by Historic England who acknowledged the impacts being to modern fabric and still clearly understandable as a modern intervention and thus not impacting upon the significance of the building.

4.20 In proposing a lighter weight framed system the advantages of such a system are maintained but the degree of visual change is minimised. The proposals to replace the glazing systems within the wagon arches will sustain heritage significance and, in responding to officers' comments at MCC, minimise the degree of visual change within the southern façade.

4.21 **No harm is considered to arise from the proposals.**

Other internal and external repairs

- 4.22** These works are focussed on the ongoing repair and maintenance of the museum and focus on failures and material improvements identified in recent surveys as necessary. Ongoing maintenance and repair of historic buildings is necessary on a regular and recurring basis as natural weathering and use leads to decline in physical materials.
- 4.23** Permission granted in 2019 included a similar swathe of works to timbers, brickwork, masonry and metal work under reference: 124068/LO/2019. Method statements and material samples (under Condition 4B) were all conditioned as part of that consent process. It is intended that this phase of repairs will continue the pattern established at that time, this phase of works is a continuation of that work. The

Cargo Door Sills

- 4.24** The sills are failing and their design is flawed. They do not cast water off their top surface adequately and as their front face is flush with surrounding brickwork. The sills are softwood and are assumed to date from the 1990s restoration, along with almost all of the cargo doors themselves renewed at the same time. Brickwork beneath the sills is discoloured, mould and moss growth encouraged, and water and frost damage occurring due to water flowing directly down the building façade because of the lack of a drip detail (see Figure 10).
- 4.25** Limited archival evidence to the form of the sills in the original building was uncovered. It is possible that the existing format replicates the historic pattern but it is considered a poor detail in terms of the long term preservation and maintenance of the surrounding brickwork. The 1990s Building Design Partnership drawings held within the Museum archive do include drawings for cargo bay sills on the northern façade with a drip detail included indicating that for at least some doors during that phase of early restoration an improved design solution was part of the work.
- 4.26** The proposed replacement is a slightly different detail to that in place today. Fabric affected is modern and the overall aesthetic of the southern façade cargo doors will be maintained. The width of the sills, or their depth in relation to the doors will not

change. The proposal will prevent damage and ongoing degrading of the brickwork beneath the cargo doors limiting and preventing the need for future repair work to actual historic brickwork of High heritage significance. The proposals will sustain heritage values and limit the potential for further damage.

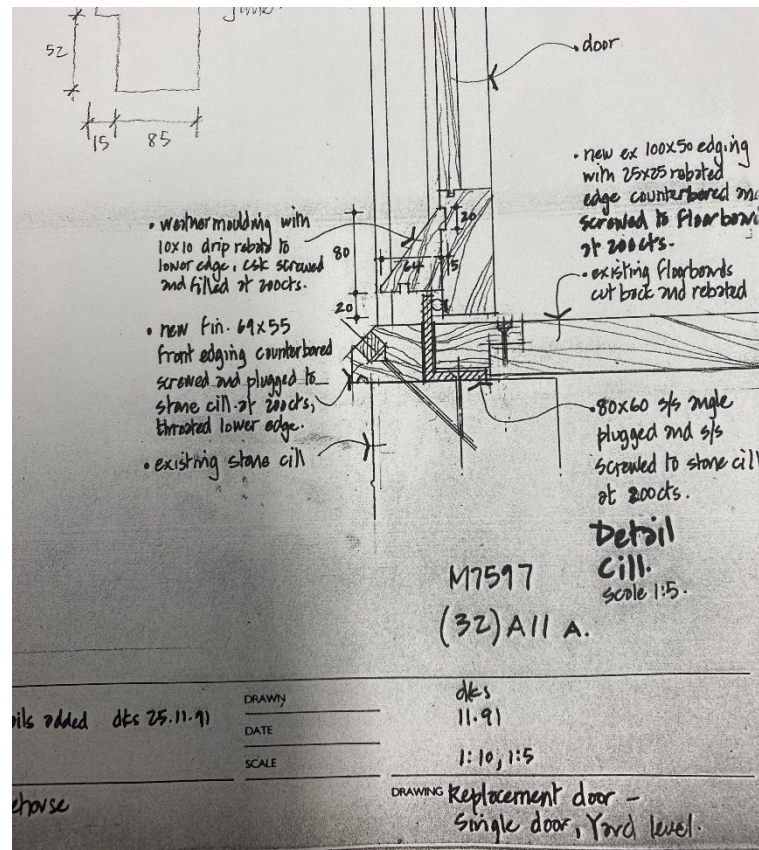


Figure 12: 1991 detail for replacement door sill showing a throated lower edge with drip detail. (source SIM Archive, Building Design Partnership 1991)

Brickwork repairs (internal and external);

4.27 These repairs will utilise previously approved brick and mortar materials to repair both internal and external areas of decline (split or spalled bricks, missing or eroded mortar, removal of cementitious mortars). This will reverse and repair existing damage and prevent its extending into wider areas. Materials specifications for mortar and brick colour agreed as part of the initial consent 124068/LO/2019 and condition 4b will be used again to ensure consistency.

4.28 The work will sustain heritage values preserving the architectural values of the listed building and secure the future of the listed building.

Stonework repairs

- 4.29** Stone repairs will be to fix cracks, spalled or other failed areas in a like for like fashion, matching the stone and surrounding mortar where repaired in line with the existing consent as described above. The intent is to repair and restore, not to effect any change. The works will halt damage and sustain heritage significance.
- 4.30** On the north façade steps leading up into the building are failed and cracking due to settlement and subsidence. The steps will be carefully dismantled and a new foundation provided. The historic steps will then be restored. This work will lead to temporary dismantlement but overall to a minimising of risk and restoration of historic fabric. The re-use of the historic steps will ensure that the unique pattern of wear and age will be retained, preserving architectural evidential and historic interest.

Timber repairs

- 4.31** Timber decay has been identified due to moisture ingress and damp. Damaged timber or loss of support due to shrinkage and settlement of individual members has also been identified.
- 4.32** Condition 6 of previous consent (124068/LO/2019) dealt with the approach to structural timber repairs. The practices and approaches will be continued through this phase of works. The approach will be to:
- maximise retention of the historic fabric where possible;
 - retention where the majority of the section of wood is in good condition with localised repairs;
 - remove and replace those elements of wood where major rotting and crumbling of the material has occurred.
- 4.33** Where timbers have shrunk so that there is no longer sufficient bearing steel brackets are proposed. This is an honest intervention that respects the aging process of the building and limits the loss of historic timber. Honest interventions allows the history of the building to be understood and its values maintained.

Metalwork repairs.

- 4.34** This work involves the redecoration of the rainwater down pipes; the removal of redundant small fixings (nails, eyelets, clamps) that are not associated with historic features or functions; and, the cleaning and restoration of corroded ironwork elements.
- 4.35** The regular repainting of external metalwork is an important part of building maintenance and will not affect heritage values. The same applies to the cleaning of corrosion and repainting of internal metal beams. Various items of historic metalwork have experienced corrosion over time and require cleaning and treating to halt the corrosion and limit effects to surrounding brick and masonry from expanded corroded pieces (old pintel hinges to the wagon arches for example). The cleaning and treating of these pieces sustains their high value as heritage pieces of metal and preserves their historic interest. The inevitable process of aging and decay is acknowledged and slowed but the historic pieces are retained, not replaced, to limit the impact on actual historic features.
- 4.36** The work to remove pieces is focussed on removal of redundant features that have no heritage value or interest, isolated nails, hooks, etc are associated with late 20th century cabling since removed and not picked up during the initial phase of repair work carried out under consent 124068/LO/2019 in 2019-2020.
- 4.37** Any holes from such removals will be made good in appropriate mortar as previously agreed within the brickwork and masonry sections and ensure that the High significance and architectural and historic values of the external brick and masonry areas are sustained.

Summary

- 4.38** The repairs summarised above are all aimed at the long term maintenance of the 1830 Warehouse. The approach seeks to limit removal or replacement of historic features to what is absolutely necessary, and where additional elements are provided to make them clearly legible as modern interventions (such as the brackets to timber beams that have shrunk below functioning support). The materials and approaches agreed as part of the earlier phase of repairs (2020) can be continued in use ensuring that this stage of works sits comfortably and

sensitively alongside the earlier works without a patchwork of different materials or character.

- 4.39** Where change is proposed (the cargo bay sills, new foundations to steps) it seeks to address identified flaws in the existing materials to limit future risk of exacerbated corrosion or damage. The changes proposed do not fundamentally alter the character of the building and sustain its exceptional architectural and historic heritage values.

5. Summary and Conclusion

- 5.1** Ongoing repairs are essential for all historic buildings. Traditional fabric of all kinds is subject to decay and change through the natural processes of time, weathering and use. These can be exacerbated by poor design decisions at any stage in a building's history. The proposals set out here and within the application are to secure a programme of essential repairs to the 1830 Warehouse, including some changes that address past design details that have proven insufficient in terms of securing the longevity of the building.
- 5.2** Bays 1 and 2 of the 1830 Warehouse feature glazed wagon arch openings which have failed in their structural integrity. These failed glazing systems present a risk to the building's material condition. Bay 3 has a similar detail and is considered at risk of failing in the same way in due course.
- 5.3** The wagon arches across the southern façade, along with the other types of original opening, are of high architectural and historic significance. Their proportions and positions within the façade illustrate the original layout of the building and enable an understanding of the original function whereby wagons were drawn fully into the building for unloading. Subsequent important changes to this system are also legible in the current raised inner floor levels, different internal door arrangements and in Bay 2 where a taller opening and inserted supporting floor within the earlier arch reflects technological advancement and the effects that saw alterations to the building.
- 5.4** Changes in the Museum's lifespan have seen the infilling of the wagon arches with glass in some instances, and more substantive changes to Bay 5. These changes are, within Bays 1-3, neutral to significance. The retention of glass within the wagon arches in Bays 1-3 remains desirable in terms of the ongoing viable use of the building and this submission presents a package for such a replacement. The designs have evolved following pre-application consultation leading to the reduction in scale, quantity and prominence of internal subdivisions within the framed glazing system.
- 5.5** The designed replacement glazing system presented looks to prioritise the clear legibility of the features of high heritage significance and present an honestly

modern approach to infilling the three wagon arches in a way that removes risk of failure. Harm is considered to be the erosion of heritage values. It does not arise automatically from change. The final design introduces a carefully designed system that has been founded on an understanding of the building's exceptional heritage interest and sought to preserve and prioritise its unique features and ensure clear legibility of the history, function and evolution of the building. It factors in and has addressed the request to minimise the visual prominence of the framed system and provide the simplest system of divisions possible.

5.6

The proposals do not erode architectural values in the southern façade. The simple framework sits within the existing openings and enables important features such as their full depth and width to be understood, and the ongoing visibility of internal features such as elevated floor levels to remain. Horizontal frame elements have been either removed or much reduced in width within Bay 2 where the height of the opening requires an horizontal piece, they allow continued understanding of the form of the arched openings, and altered geometries of the Bay 2 opening. In introducing a contrasting system of glazing there remains clear contrast between the historic building's design and the modern glazing intervention. This is a deliberate choice that does not lessen or erode the architecture of the original building, but allows it to be clearly understood. It therefore preserves architectural significance. The introduction of a framed system in the wagon arches is in keeping with framed window systems inserted within smaller openings within the building on the upper levels.

5.7

The new glazing system will, like the existing, be a part of the evolution and history of the building and a reflection of its later 20th century use as a museum that continues today. In preserving full depth openings down to track level, without any major upstand of solid stone or brick, the highly important ability to understand these features as early entrances into the building is preserved to a similar degree as the current glazing allows. The proposal designs are deliberately based on a simple framework and division that is balanced within the openings. They are not based on historic window or door precedents, though the central division reflects the meeting point of doors that enclosed these openings. This preserves the primacy of the surviving historic doors and windows. It allows and preserves legibility of the historic change that occurred when Bay 2 was altered, the design is

extendable over all openings, without prioritising a design that is fitted into and only based on one opening within the façade.

5.8

Other repairs are more minor in nature and similarly preserve and sustain the heritage significance of the 1830 Warehouse. Previous consents for similar repairs and interventions have informed the approach taken here and following this pattern will continue to sustain the values of the building. Minor changes to improve design details to the cargo door sills will result in a change to small areas and the replacement of modern fabric replacement features, but will not impact on the overall character of the building. It will have the benefit of limiting further damage to historic brick and stonework beneath the cargo bay doors. Opportunities to limit future potential for physical harm to listed buildings is to be sought to secure their ongoing viability and future use.

5.9

This assessment concludes that the effects of the proposals for the 1830 Warehouse sustain and preserve its special heritage interest and significance. The proposed designs do preserve the architectural, evidential and historic values of the building without eroding those values and thus causing no harm within the terms of the NPPF (2021). The designs set out by Studio Downie will become visible and do represent a change from the existing, but they are considered to have a similarly **neutral effect** on significance.

Appendix 1

Scale of Harm (HCUK, 2019)

The table below has been developed by HCUK Group (2019) based on current national policy and guidance. It is intended as simple and effect way to better define harm and the implications of that finding on heritage significance. It reflects the need to be clear about the categories of harm, and the extent of harm within those categories, to designated heritage assets (NPPF, paragraphs 201 and 202, and guidance on NPPG).²

Scale of Harm	
Total Loss	Total removal of the significance of the designated heritage asset.
Substantial Harm	Serious harm that would drain away or vitiate the significance of the designated heritage asset
Less than Substantial Harm	High level harm that could be serious, but not so serious as to vitiate or drain away the significance of the designated heritage asset.
	Medium level harm, not necessarily serious to the significance of the designated heritage asset, but enough to be described as significant, noticeable, or material.
	Low level harm that does not seriously affect the significance of the designated heritage asset.

HCUK, 2019

² See NPPG 2019: "Within each category of harm (which category applies should be explicitly identified), the extent of the harm may vary and should be clearly articulated." Paragraph 018 Reference ID: 18a-018-20190723.

Appendix 2

Statement of Significance

This section provides an overarching statement of significance for the building as a whole. The following section considers the southern façade of the building and openings therein on a more individual bay by bay basis

Architectural value

The aesthetic and design quality of the 1830 Warehouse is simple and robust and its architectural form, in conjunction with the adjacent tracks is immediately indicative of its specific function and use directly illustrating and giving evidence to it. The five double bays with simple but good quality detailing (pilasters, copings, regular bay rhythm) have a massive but regular and balanced quality spread over the gentle curve of the long facades. The building occupies a prominent position surrounded by transportation routes and its length provides a high positive contribution to the wider area, as well as its own intrinsic architectural value, that has shared context with other nearby buildings that followed on from its construction.

The requirements of the building's function are reflected and illustrated in the disposition of various openings as well as in the evidence of later adaptation, for example evidence in the western façade for the installation of the beam engine and flywheel that reflect and changing requirements which arose in some instances very early in the building's history. The form and layout of the building reflects the technology behind the warehouse and replicates, to a degree, earlier canal warehouses, giving it a functional and illustrative value that has direct links to the earlier transport technology and showing adaption without significant innovation in the earliest years of the railway.

The materials of the building are ostensibly good quality but are not considered to be innovative or unique to the that period. They are instead typical of the early 19th century but, because of this, they give clear evidence to the period of the building and structural techniques of the age. Individual materials differ depending on their function – particularly in terms of wood choice from long straight Baltic timber in the roofs and posts to harder more durable African Oak for sills. The CMP highlights that a more traditional structural approach in terms of timber frame with brick wall materials was taken because of time constraints and because of the particular constraints of the building's form without regular right angles that would have rendered an iron framework construction too difficult within the time constraints imposed by

the company. The innovative approach of the Manchester Building firms to adapt and construct the building to fit the difficult constraint of the curved viaduct adds to architectural interest. The primary roof trusses show clear evidence of this careful construction and engineering in the comprehensive set of carpenters' marks that give evidence of the careful pre-fabrication process to fit the irregular building where trusses did not necessarily form regular right angles to the walls. Other smaller timbers, individual floor joists or common rafters were cut on site to fit the specific requirements off any particular location after the major structure was in place.

The surviving original features such as the pivoting crane, hydraulic jiggers and trap doors also contribute to its technological historical interest to greater or lesser degrees. Historic hatches and openings between floors enable an understanding of the routes by which people and equipment moved between levels. The evidence for their insertion, where they are later adaptations, illustrates the expedient steps taken by the users of the building and there is an honesty of expression within the building where the structure and functioning aspects of remnant equipment and machinery are clearly visible.

The current access onto the roof within bay 5 appears to be contemporary with the works during the 1980s. The smaller hatch within bay 4 is considered to be an historic access point. Both features are secondary elements of the roof structure and unrelated to the major structures of the trusses, that is their structure is not part of the truss structure but cut into and framed within the plain common rafters. Neither access point, or indeed any of the openings in the roof, is highlighted within the CMP of being key to the significance of the building but they are acknowledged as reflecting historic access points and the necessity through time of having access to the roof for ongoing maintenance.

Historic Value

The 1830 Warehouse has high historic illustrative and evidential value as the world's first railway warehouse. It represents the first instance in history where a railway company had need to build such a structure and embodies a distinct stage in the evolution of the history of transit. Its architectural form illustrates its historic function.

Not only is it the first railway warehouse but also forms part of a hugely important group – the most complete early railway station in the country, with viaduct, passenger station and river bridge, only the bridge that originally spanned the road has been replaced. Group historic value is further augmented through the location and relationship to the later Liverpool Road Station warehouses, and the warehouses of the Castlefield waterways. There is high contextual

interest between the various buildings of this general period illustrating the transition from one mode of transport to another.

There is an associative element of value embodied in the links to the builders, a known Manchester firm, and other historic personages associated with the development of the railways and other buildings at this site including George and Robert Stevenson and to a lesser degree those firms and companies that used the warehouse itself. These associative links are not expressly legible in the building itself but are reflected and understood within the historic background and disseminated through the MoSI's use of the buildings themselves where the site and its buildings, and the people associated with them, are an important 'exhibit' in themselves.

Archaeological value

The warehouse is constructed of standard materials that are not considered rare or unique. Multiple phases of use and adaptation have left evidence within the building and this adds archaeological value, particularly where the specific nature of such changes might not be reflected in documentary records. Later phases of change and development since the Museum's creation were generally undertaken with a clear understanding of the importance of legibility of phasing to understanding the history of this place.

Below ground level the potential for the site to yield further information about the more ancient origins of the area, right back to Roman periods, is acknowledged.

Artistic and Communal value:

There is communal value in the current use of the building as part of the museum complex. It allows the industrial history of Manchester, as well as the wider history of early rail transport to be better understood and illustrated to visitors and museum staff. The success of the museum as an attraction to visitors, and as a valued aspect of the local community's cultural links to the past is a strand of value now embodied in the 1830 warehouse and other buildings of the museum.

At its opening and peek of functional use the railway station as a whole inspired engineers, writers, artists, cartoonists as the new age of railways offered excitement and amazement at the ingenuity and new opportunities of easy fast travel of both people and goods. The coming of the railways introduce change across Britain. It is the historic event and development of railways as a whole that formed this inspiration but as the 1830 Warehouse forms part of the earliest complete station group in the county there is a strong element of continuity and

association with this period of artistic and engineering output that adds value to all the listed buildings in the group.

Contribution of setting

The setting of the 1830 warehouse, that area which contributes to its significance or which allows that significance to be understood and experienced extends around the building to varying degrees. The setting is not affected in any way by this proposal and so this section is brief, serving only to acknowledge the importance of the setting to the building's significance in particular with regard to understanding its historic context as a building association with significant historic transportation routes and development and its group value with other structures both contemporary and later that make up a highly important collection of industrial buildings. There are no 'designed' views identified where the 1830 warehouse is intended as a focal point, though it is a prominent structure within the wider area. All views towards, past and around this building are incidental. This also applies to views out of other buildings towards the 1830 warehouse. Different aspects of the building's form and features are visible within these views, including parts of the roof structure to a greater or lesser degree. Views which could be considered as more meaningful – that is, making a greater contribution to the understanding of the building – are considered to be those from or including buildings of a contemporary period. These views, though all contain elements of later changes, have a degree of continuity with the past that aids understanding and interpretation of these buildings as a link to the past.

Appendix 3 Planning policy framework

The decision maker is required by sections 16(2) and 66(1) of the Planning (Listed Building and Conservation Areas) Act 1990 to have special regard to the desirability of preserving a listed building and its setting when exercising planning functions. The decision maker must give considerable importance and weight to the desirability of preserving the significance of the listed building, and there is a strong presumption against the grant of permission for development that would harm its heritage significance.³

There is a broadly similar duty arising from section 72(1) of the Act in respect of planning decisions relating to development within conservation areas.

For the purposes of this statement, preservation equates to an absence of harm.⁴ Harm is defined in paragraph 84 of Historic England's Conservation Principles as change which erodes the significance of a heritage asset.⁵

The significance of a heritage asset is defined in the National Planning Policy Framework (NPPF) as being made up of four main constituents: architectural interest, historical interest, archaeological interest and artistic interest. The assessments of heritage significance and impact are normally made with primary reference to the four main elements of significance identified in the NPPF.

The setting of a heritage asset can contribute to its significance. Setting is defined in the NPPF as follows:

The surroundings in which a heritage asset is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve. Elements of a setting may make a positive or negative contribution to the significance of an asset, may affect the ability to appreciate that significance or may be neutral.

The NPPF requires the impact on the significance of a designated heritage asset⁶ to be considered in terms of either "substantial harm" or "less than substantial harm" as described within paragraphs 201 and 202 of that document. National Planning Practice Guidance (NPPG)

³ Barnwell Manor Wind Energy Limited v East Northamptonshire District Council and others [2014] EWCA Civ 137. This principle has recently been confirmed, albeit in a lower court, in R (Wyeth-Price) v Guildford Borough Council.

⁴ South Lakeland v SSE [1992] 2 AC 141.

⁵ Conservation Principles, 2008, paragraph 84.

⁶ The seven categories of designated heritage assets are World Heritage Sites, Scheduled Monuments, Listed Buildings, Protected Wreck Sites, Registered Park and Gardens, Registered Battlefield and Conservation Areas, designated under the relevant legislation.

makes it clear that substantial harm is a high test, and case law describes substantial harm in terms of an effect that would vitiate or drain away much of the significance of a heritage asset.⁷ The Scale of Harm is tabulated at Appendix 1.

Paragraphs 201 and 202 of the NPPF refer to two different balancing exercises in which harm to significance, if any, is to be balanced with public benefit.⁸ Paragraph 18a-020-20190723 of National Planning Practice Guidance (NPPG) online makes it clear that some heritage-specific benefits can be public benefits. Paragraph 18a-018-20190723 of the same NPPG makes it clear that it is important to be explicit about the category of harm (that is, whether paragraph 201 or 202 of the NPPF applies, if at all), and the extent of harm, when dealing with decisions affecting designated heritage assets, as follows:

Within each category of harm (which category applies should be explicitly identified), the extent of the harm may vary and should be clearly articulated.

Paragraphs 199 and 200 of the NPPF state that great weight should be given to the conservation of a designated heritage asset when considering applications that affect its significance, irrespective of how substantial or otherwise that harm might be.

⁷ Bedford Borough Council v SSCLG and Nuon UK Limited [2013] EWHC 4344 (Admin).

⁸ The balancing exercise was the subject of discussion in City and Country Bramshill v CCLG and others [2021] EWCA, Civ 320.

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