Air and Space Hall, Liverpool Road

Schedule of Works

PLANNING V7

Decant Project

Ref: 8869SoW

February 2021

Buttress

Schedule of Works

Science and Industry Museum
Air and Space Hall, Liverpool Road
Decant Project

Ref:8869SoW

SCIENCE MUSEUM GROUP

Rev	Date	Status	Initials	Description
V7	April 2021	PLANNING	EG	Seventh Issue
V6	February 2021	TENDER	AS	Sixth issue
V5	July 2020	TENDER	AS	Fifth issue
V4	July 2020	PLANNING	AS	Fourth issue
V3	April 2020	PLANNING	AS	Third issue
V2	April 2020	FOR INFORMATION	AS	Second issue
V1	January 2020	FOR INFORMATION	AS	First issue

TENDER

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Introduction

This document contains a description of the 'work items' that are to be undertaken as part of the project and it is to be read in conjunction with the Preliminaries and Specification.

A ***Work Item*** is either; a single operation, a series of operations or a complete element of the project and the cost for each 'work item' is to be entered in the Schedule of Works. Work item numbers range between 000-600 as identified below and annotated on drawings.

The ***Schedule of Works*** quantifies many of the 'work items' contained in this document and will be accompanied by a separate Pricing Document provided by Appleyard & Trew LLP, that will be used for the purposes of Tender and the Contract.

The ***Drawings*** that accompany the tender documentation have, where appropriate, been annotated with the 'work item' references used in this document.

TENDER

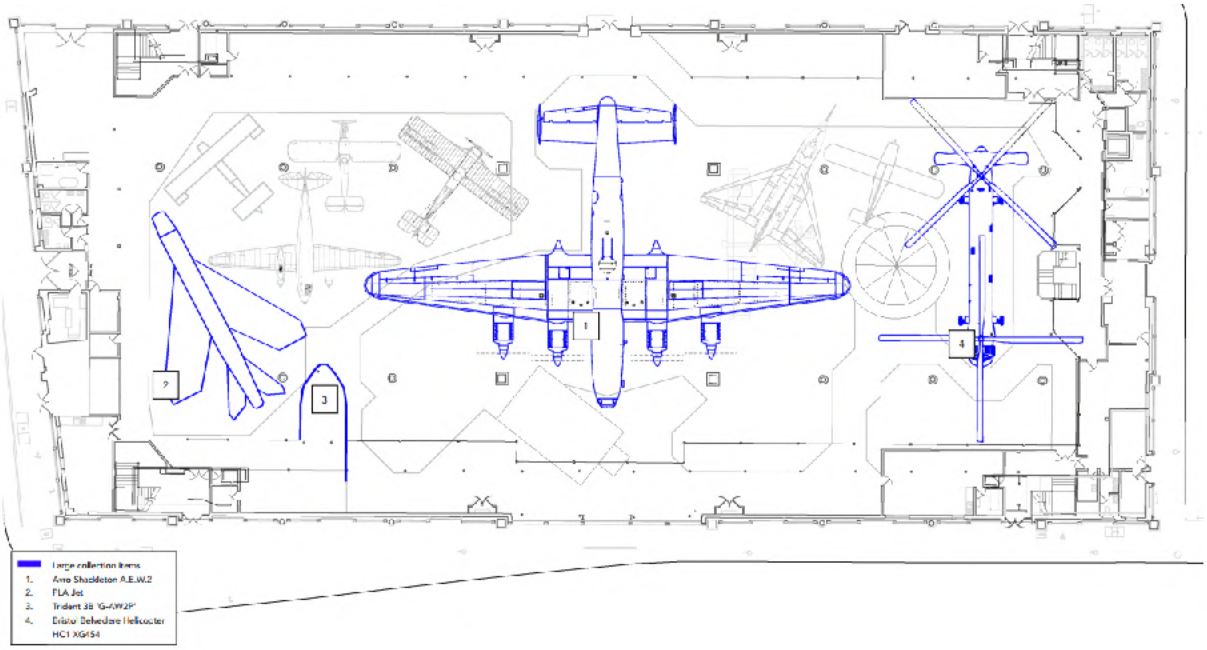
Project Background

The purpose of this project is to enable the potential decant of Collection Items within the Air and Space Hall at the Science and Industry Museum, Manchester

This is a complex potential decant and would involve the temporary removal of a section of the South elevation adjacent to Liverpool Road, a section of the mezzanine floor within the building and other internal elements as required in order to decant the current collection.

The most notable larger exhibits which require egress through the south elevation includes:

(1) Avro Shackleton A.E.W.2
(2) PLA Jet
(3) Trident 3B 'G-AW2P'
(4) Bristol Belvedere Helicopter
(5) Simulator



The smaller collection items will be removed via the east and west entrances, respectively.

All building fabric which is temporarily removed to provide appropriate access and egress of the collections items is to be reinstated upon completion of all decanted exhibits to match its original arrangement.

Definitions used in this document:

Remove means disconnect, dismantle as necessary and remove the stated element, work or component and all associated accessories, fastenings, supports, linings and bedding materials, and dispose of unwanted materials.
It does not include removing associated pipework, wiring, ductwork or other services unless specifically stated.

All removals are to be undertaken CAREFULLY in order to prevent damage to adjoining surfaces that are to be retained.
Unless noted otherwise all removed materials are to be disposed of in an appropriate manner.

Store (for future reinstatement) means during temporary removal / disassembly, prevent damage to the stated components or materials, and clean off bedding and jointing materials and/or remove redundant fixings etc. Tag items and components so that they can be returned to the exact location / position as pre disassembly.
Stack neatly, adequately protect and store until required for reuse.
Reinstate to match original arrangement and decorate to match existing finishes.

Keep for reuse means during removal prevent damage to the stated components or materials and clean off bedding and jointing materials or other misc finishes.
Stack neatly, adequately protect and store until required by the Employer or for use in the Works as instructed.

Replace means remove the existing components, features or finishes then provide and fit new components, features or finishes which, unless specified otherwise, must closely match those which have been removed. Make good as necessary.

Repair means carry out local remedial work to components, features or finishes: re-secure or re-fix as necessary and leave in a sound and neat condition. It does not include replacement of components or parts of components or redecoration.

Make good means carry out local remedial work to components, features or finishes which have been disturbed by other work or previous wear and tear. It does not include replacement of components or parts of components or redecoration.

Ease means make minor adjustments to moving parts of the stated component to achieve good fit in both open and closed positions and ensure free movement in relation to fixed surrounds. Make good as necessary.

To match existing means use products, materials and methods to match closely all visual characteristics and features of the existing work, with joints between existing and new work as inconspicuous as possible, all to approval of appearance.

To match adjacent means that the component is *to match existing* components in that immediate vicinity, particular room or area.

Salvaged refers to materials that have been *removed* and *kept for re-use* on this job: no second-hand or reclaimed material are to be used on this project.

Appraise means the contractor is to appraise and carry out own independent assessment of the works detailed here within and update the scope of works as is necessary through consultation with the Architect.

Abbreviation (CA) means both the Contract Administrator / Conservation Accredited Professional, inspections and approvals are to be dealt with directly by said individual.

TENDER

Work in Listed Buildings:

It is the responsibility of the Contractor to ensure that no disturbance of any fabric within the listed buildings takes place unless this is specifically detailed on the Architect's drawings and/or specification. The Architect's information is subject to listed building consent and any deviation from this is an offence under the Planning (Listed Buildings and Conservation Areas) Act 1990.

Should the Contractor be in doubt about the extent of works or protection required, they should consult with the Architect prior to those works being carried out. Agreement may also be required from the local authority Conservation Officer in some cases, and therefore the Contractor should make any queries to the Architect in a timely manner.

The Contractor is to provide adequate protection to any historic features which are to be retained in order to avoid damage as the works are in progress. The methods for protection should be agreed with the Architect prior to works being carried out.

Should it be the case that it is not possible to protect historic features without causing further damage to the building, it is the Contractor's responsibility to exercise maximum care to avoid disturbing any historic fabric during the course of the works. This may entail an approach of temporary protection with the agreement of the Architect.

It should be noted that damage to historic fabric cannot be made good in an acceptable manner and that the Contractor is to take all necessary measures to ensure damage does not occur.

The Contractor is to satisfy themselves that they are in possession of adequate information prior to commencing any work.

Any discrepancies found within this document by the Contractor should be brought to the attention of the Architect at the time of tendering.

The Contractor is to be responsible for all on site measurement including setting out for new work, details and dimensions for any replacement or repair work.

All dimensions included on the drawings are to be checked for accuracy on site prior to commencing work and any discrepancies should be reported to the Architect immediately.

No work shall commence until any such discrepancies have been resolved.

TENDER

Work item contents

000	Specifications generally
100	General requirements
200	Miscellaneous external fittings and fixtures: remove and reinstate
300	Alterations and preparation works
400	Reinstatement works
500	Internal work, making good, etc.
Appendices	Previous site photographs

TENDER

PROJECT TITLE	Air and Space Hall - Decant	PROJECT NO	8869SoW
SUBJECT	Decant Project – Schedule of Works	BY	as
DATE	July 2020	REV	V5 TENDER

Please note that this schedule of works is to be read in conjunction with the drawings 8869 (01) / (02) / (03) / (05) / (10) and 8869DS Architectural Decant Specification. Any discrepancies between the documents or omissions from the schedule are to be brought to the attention of the Architect at the time of tendering. Note that all specified products are to be installed to the manufacturer's recommendations.

Work Item.	*Description.*	*£.*
000	**Specification(s) generally**	
001	The schedule of work is to be read in conjunction with separate Architectural Decant Specification ref-**8869DS**, the content of which is summarised by the following headings and document references: RS1 Working in Listed Buildings RS2 Protection of Historic Fabric, Elements and Components RS3 Access Scaffolding RS4 Restoration of Ironwork RS5 High Quality Joinery – Windows / Doors / Components RS6 Paint and Clear Finishing	
100	**General requirements**	
101	**Familiarisation** The contractor is to fully familiarise themselves with the building and its construction prior to submitting their tender.	
102	**Design responsibility** The contractor will be responsible for developing the design intent drawings as necessary to provide the following: ▪ a fully secure, wind and watertight external vehicular scaffolded portal to the south elevation in connection with an amended scaffold design. ▪ Internal tenting (enclosures) of working areas to limit the spread of dust and debris across the collections items.	
103	**External dimensional survey: generally** Prior to order, manufacture, and installation of any aspect of the scheme. The contractor is to undertake a measured survey prior to commencement on site, sufficiently detailed to confirm all setting out and key dimensional information.	
104	**Drawings** The schedule of works and separate specification documents should be read in conjunction with the following drawings: 8869 (01) 001 Location Plan 8869 (01) 002 Existing Site Plan	

TENDER

8869 (01) 003 Existing GF and Mezz Plans
8869 (01) 005 Existing Byrom St & Lower Byrom St Entrances
8869 (01) 006 Existing Liverpool Road Entrance
8869 (01) 008 Existing Exhibition Constraints Plan
8869 (02) 001 Existing Elevations
8869 (03) 001 Existing Sections
8869 (05) 001 Proposed Elevation – Liverpool Road Entrance
8869 (05) 002 Proposed Elevation – Detailed
8869 (05) 003 Typical Screen Details
8869 (10) 001 Logistics Plan
8869 (10) 002 Vehicular Portal Intent
8869 (10) 003 Vehicular Portal Head Detail

105 Internal 'dilapidation' inspection of work areas

In order to record the condition of each internal work area:

- Immediately prior to the work commencing in an area, undertake an inspection with the CA in order to record the existing condition of the areas. The inspection is to be limited to the space in and around the work area and the routes to and from the work area.
- Provide a report of any significant defects together with a photographic record for each area.
- Confirm the scope of work within each area with the CA and agree how any anomalies will be dealt with e.g. occupiers' fixtures and fittings, partition abutments, etc.

106 External 'dilapidation' inspection of work areas footpaths etc.

Prior to the commencement of any work on site including the erection of scaffolding the contractor is to allow to undertake an inspection with the CA in order to record the existing condition of the existing building (areas not subject to change in particular) including roofs, footpaths, road and other external paved areas.

- The contractor is to provide report of any significant defects together with a photographic record of the external areas.

TENDER

107 Access scaffolding and temporary vehicular access

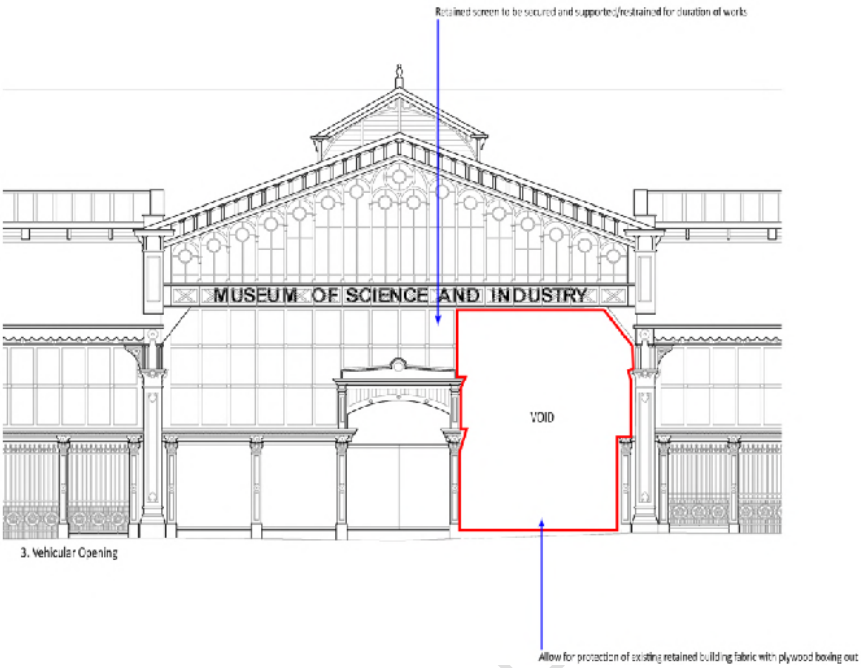
DESIGN INTENT

It is the contractor's responsibility to provide the most appropriate form of access to undertake the works and to adapt and alter the existing scaffold arrangement to suit the ongoing phases / sequences.

However, the following rules and restrictions apply to any access scaffold:

1. The Air and Space Hall is currently encapsulated with a full perimeter scaffold up to eaves height due to ongoing concern with regards to loose roof coverings and elements including ACMs, glass / polycarbonate rooflights and associated timber structure, the exterior scaffold is supplemented by an internal crash deck / netting. The current scaffold will remain insitu throughout the construction project. The scaffold is currently boarded and netted at eaves level only externally. *See photograph K within the appendices.*
2. The current scaffold arrangement will need to be adapted to the Liverpool Road (south façade), focused towards the central bay. To facilitate and provide necessary access / egress to the interior of the Hall for heavy goods vehicles and lifting equipment.
3. The current (installed) scaffold arrangement has been designed to allow for the Liverpool Road façade (central bay) to be removed and modified to allow for decant through the right-hand side of the central bay.

4. A protected vehicular portal is to be formed through the current scaffold arrangement, involving the removal of a portion of the perimeter scaffold to the right hand side of the main central bay to the Liverpool Road façade as identified on marked-up drawings. The portal / opening is to be fully enclosed and wind and watertight with access via a large industrial type automated roller shutter.



5. As the building is Grade II listed, the amendments to the scaffold should be regarded as independent of the existing structure and designed accordingly. Where tying / bracing back to the structure cannot be avoided, positions and type of such ties shall be submitted and agreed with the Architect prior to erection of any scaffold. No additional costs will be granted after the acceptance of any tender where this requirement has been overlooked.

To be read in conjunction with the Decant Specification Section RS3 item 1.2.

108 External paved area and plinth

The contractor should thoroughly protect all paved areas and cobbled areas, kerbed approaches and building plinth from damage due to increased vehicle loadings, when gaining access to and from the south elevation.

The contractor should look to provide railway sleepers and/or other equal approved to navigate and provide a ramped approach (vehicle loadings) to step / plinth. Timbers should be tapered to account for undulating external surfaces.

- The contractor's compound (paving / cobbles) and paving directly outside of the south elevation central vehicular access point should be protected with heavy duty rubber ground protection mats.

109 Scaffold advertising

Should the contractor feel that there is potential to use the scaffold for advertising purposed during the works then they shall be free to explore the options and make a proposal to the CA that returns a part of the net income from the advertisement to the Employer.

110 External hoardings: generally

External hoardings are to be a minimum 3600 high solid (12mm WBP) plywood face hoardings trimmed top and bottom with timber boards and the whole painted in a colour to be advised.

111 Protection of existing facades / building fabric: generally

The contractor is to ensure that existing elevations that are not subject to this work are fully and properly protected, against damage.

All areas of the building fabric, elements and components are to be protected accordingly throughout the decant project.

To be read in conjunction with the Decant Specification Section RS1-RS2.

112 Protection of roofs

Where access over the existing roof for access, working, scaffolding, storage of materials, etc. is required the roof is to be suitably protected as necessary to prevent any damage; the contractor is to agree the method of protection with the CA prior to commencement of any works.

113 Site accommodation

The contractor may make use of the following areas:

1. Public toilets towards the west main entrance can be used by the contractors.
2. The retail store, which has been decanted can be used as a site office with internet access and desk. This is located towards the east entrance where is it proposed to form an access route for decanting of smaller exhibits into the adjoining site compound.
3. The volunteer mess room can be used as a contractor welfare space with kitchen / break space.

The above spaces are indicated on separate marked-up site set up / logistics plan.

Note that all fire escape and access routes for the building are to remain operational and be kept clean and tidy and free from obstructions at all times. The contractor shall provide adequate facilities for cleaning boots, etc. within their accommodation to prevent dirt, water, etc. being walked across the Hall.

All areas accommodated by the contractor must be returned to match the original condition, following completion of the main works.

114 Storage

There may be an opportunity for external site storage within the east contractor compound, in addition the contractor is free to use the open interior spaces of the Hall to store materials (temporary disassembled fabric etc) and equipment. Exact areas should be discussed and agreed with the client and CA prior to formal use, including provision of all necessary building fabric protection.

The contractor will engage and be in constant communications with the specialist removal contractor and the Museum's Collections Teams as there will likely be a sequencing strategy for the decant works, which may impact on free areas of floor space both internally and externally.

Any areas accommodated should be kept clean and tidy, free from obstructions at all times.

TENDER

All area(s) used must be returned to match the original condition and arrangement upon completion of the main works.

115 Pavement licence

The contractor is to be responsible for agreeing and obtaining a pavement licence for the proposed scaffolding and any hoarded areas. Initial discussions have been held with the local authority; a period of 2 weeks is currently required for obtaining a permit for scaffolding / hoarding etc.

116 Suspending on-street parking bays

The contractor is to be responsible for agreeing and obtaining parking bay suspensions in conjunction with works and access provisions to the Liverpool Road south elevation. Initial discussions have been held with the local authority, a period of 2 weeks is currently required for scaffolding / hoarding etc.

117 Access to internal work locations generally

- The building will not be in operation as a museum during the works but will likely accommodate key members of SIM staff, the contractor is to plan the works to minimise disruption to any occupiers.
- The contractor's programmes should identify exactly which areas will be used at any particular time; their programme should be updated regularly to identify any changes. This will allow forward planning generally.
- The contractor will be required to provide the CA with a weekly programme of activities on the Monday morning of the previous week. This will allow a confirmation notice and exact dates to be given to users who will be affected by the following week's work
- The contractor's personnel will be restricted to the areas currently being worked up together with access to and from those areas; trespass outside of these areas will not be tolerated.
- The contractor is to protect the access routes to the work areas as well as the work areas
- The contractor is to ensure that internal access routes are kept clear of obstructions at all times.

118 Collections internal movement: sequencing overview

Free space internally is limited due to current positions of exhibits.

- Exhibit items are to be re-positioned internally under the strict direction of the specialist removal firm to free up space for access, lifting and haulage equipment.

119 Façade access: overview

There are currently four principal elevations:

- North Elevation: The north elevation has been discounted from usage due to access restrictions and the close proximity of neighbouring properties.
- East Elevation (Byrom Street): It is proposed that this entrance is used predominantly by the contractor with direct access to the contractor's compound, though can be used by the removals specialist to remove and load smaller exhibit items.
- South Elevation (Liverpool Road): It is proposed that this entrance is opened up as a main access point for the removal of large exhibits and collections items. This entrance will also provide access to the internal space for general access, lifting equipment and haulage vehicles.
- West Elevation (Lower Byrom Street): This façade and current main public entrance is to be used for the safe removal of smaller collections items, including vehicles. Due to its level threshold.

120 Protection of historic fabric: overview

- The structure, fabric, decoration and contents of the buildings are to be suitably protected by the use of dustsheets, solid protection, sealing doors, etc during construction works as Decant Specification Section RS2.

TENDER

- The appropriate method of protection is to be agreed with the Architect.
- Equipment and materials must not be propped against decorated surfaces, fittings or furniture.
- When dust or vibration is anticipated the Architect / Property Manager is to be given advance warning.
- Footwear is to be appropriate to the part of the Hall in which work is being undertaken to avoid damage to floor finishes and coverings.
- Generally, protect the existing building fabric as per heading 'Work in Listed Buildings' above.
- All working areas at façade locations are to be tented internally to limit and reduce the spread of dust and debris across collections items.

121 Internal crash deck / netting

- The contractor should be aware that there is currently a crash deck / debris catchment netting insitu within the interior, installed with cabling supported from the main structure.
- The netting is currently in place as a failsafe and precautionary measure to enable ongoing roof maintenance.
- The contractor shall allow for the netting to be temporarily removed, sequenced, and where required by the specialist removals contractor to provide sufficient height for internal lifting equipment (MEWP / telehandler etc). The contractor shall reinstate the netting upon completion of high-level works. See drawing 8869 (01) 008 – Working Area Plan, which illustrates internal constraints.

122 Protection of working areas: alterations to facades generally

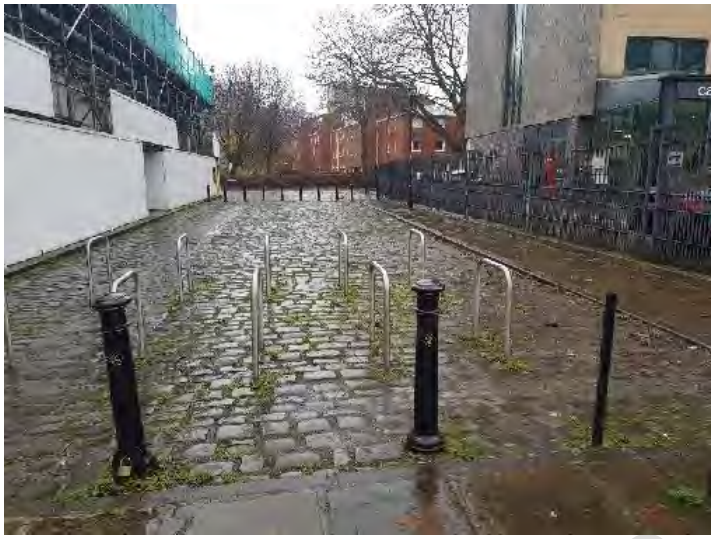
DESIGN INTENT

- In advance of carrying out any temporary alterations and works to external facades and subsequent interior spaces, the contractor shall section off each working area from the interior collections with a physical barrier, to limit the transfer of dust and debris between spaces.
- This is to be provided by creating a self-contained tent, using heavy duty tarpaulin sheets cabled and lapped at the sides and lid, hung from cables and eyelets from the internal Hall steel frame, to create a fully enclosed working space. This tent should include appropriate access provided by zipped or velcroed access points. Allow for weighting of sheets at the base with sandbags / battens, loose laid. No direct fix into the fabric will be permitted.
- Allow for appropriate dust extraction within the tented enclosure.
- The exact method of tenting, segregation of working areas and collections items is to be agreed with proposals to be put forward by the contractor.
- Read in conjunction with the Decant Specification Section RS2 – item 1.13.

TENDER

Work Item.	*Description.*	*£.*
200	Miscellaneous external fittings and fixtures: remove and reinstate	

201 Remove and reinstate: bollards



- The existing bollards are to be carefully removed and temporarily stored to enable the work to proceed; they are then to be reinstated in the exact position upon completion of the decant works.
- Allow for careful lifting and removal of external finishes (stone setts) to allow for removal of embedded elements.
- Re-bed and make good external finishes temporarily to provide a sound base for the contractor's compound.
- Reinstate bollards upon decant of the contractor's compound and make good all disturbed external finishes, to match original arrangement.

202 Remove and reinstate: bicycle stands

- The existing cycle stands are to be carefully removed and temporarily stored to enable the work to proceed; they are then to be reinstated in the exact position upon completion of the decant works.
- Allow for careful lifting and removal of external finishes (stone setts) to allow for removal of embedded elements.
- Re-bed and make good external finishes temporarily to provide a sound base for the contractor's compound.
- Reinstate cycle stands upon decant of the contractor's compound and make good all disturbed external finishes, to match original arrangement.

TENDER

Work Item.	*Description.*	*£.*

300 Alterations and preparation works

301 Temporary removal of the eastern bay to the centre of the South elevation

The existing building fabric is to be removed and temporarily relocated and stored within a safe area within the Hall to be agreed, to enable the work to proceed; they are then to be reinstated in the exact position upon completion of the decant project.

- Upon completion of the decant project, reinstate east bay to match the original arrangement as per work item series 400.
- Note: central segmental door surround is restrained with a cable at the head, which runs horizontally around the lattice beams.

300 series work item references are to be read in conjunction with marked-up drawing(s); 8869 (01) 005-006, (05) 001-002.

302 Removal of upper timber frame and glazed units (South elevation)

- Allow for careful removal / dismantling of upper timber mullions and transoms as identified on marked-up elevations, including glazing, infill panels and decorative cast iron floral elements.
- Tag each element and component, appropriately store, and allow for future reinstatement in original location. Read in conjunction with the Decant Specification Section RS2 for tagging protocols.
- The contractor should appropriately restrain and brace all remaining building elements left exposed, following opening up works.
- The contractor is to provide a report of any significant defects together with a photographic record for each area.
- Upon completion of the decant works project, reinstate all elements and components as per work item 401.

TENDER

303 Removal of internal steel bracing (south elevation)

- Allow for careful removal / dismantling of existing steel fabricated tee sections to the internal face of the timber upper first floor screen. Tag each element and component, appropriately store, and allow for future reinstatement in original location.
- Upon completion of the decant works project, reinstate all elements and components as per work item 402.

304 Removal of timber cornice / weathering (south elevation)

- Allow for careful removal / dismantling of detailed timber cornice, including lead weathering's and flashings and all other associated elements. Set aside and appropriately store and allow for future reinstatement.
- Upon completion of the decant works project, reinstate all elements and components as per work item 403.

305 Removal of ground floor curtain walling (south elevation)

- Allow for careful removal / dismantling of ground floor large glazed panels and door including all associated elements and components. Tag each element and component, appropriately store, and allow for future reinstatement.
- Upon completion of the decant works project, reinstate all elements and components as per work item 404.

306 Removal of cast iron columns (south elevation)

TENDER

- Allow for careful removal / dismantling of central cast iron column only. Tag and protect accordingly, appropriately store and allow for future reinstatement.
- Allow for careful dismantling and removal of left- and right-hand side ground level cast iron columns either side of central column, pending further assessment when cornice is removed. Including reinstatement and general works as per work item 405.
- Upon completion of the decant works project, reinstate all elements and components as per work item 405.

307 Restraining and bracing retained elements

- All building elements and components, which are left exposed at any stage of the works, and vulnerable following removal of eastern bay portal must be appropriately restrained and braced. The external envelope should be made wind and watertight throughout the duration of the project.

  Items include the following but not limited to:

  a) Cast iron columns and capitals
  b) Upper glazed frame
  c) Segmental arched doorway and frame
  d) Lattice columns and beams

- Temporary works to protect exposed elements must be able to achieve their stability without transfer of load into the existing structure.
- Temporary structures shall be designed by the contractor to withstand a wind load of +1.0kN/m² and -1.23kN/m².

308 Removal of section of mezzanine floor (south elevation)

A section of the mezzanine floor is to be carefully removed to facilitate and provide an open and clear access route for internal vehicle movement.

- Carefully remove section of mezzanine floor zone (floor & ceiling) as indicated on marked-up drawings, including all associated supporting structure (sheathing, joists, bearers, beams etc), finishes, fittings, and fixtures etc.
- Cut back marmoleam to nearest joint lines if possible.
- Allow for investigation of previous abutments and connection details, following 1980s works.
- Best efforts should be made to utilise existing joint / cut lines and connections.
- Allow for careful removal / dismantling of embedded horizontal lattice girder / beam concealed within floor void including all associated elements and components at abutment with façade (both ferrous and timber), which spans between cast iron columns. Tag each element and component, appropriately store, and allow for future reinstatement in original location. *See photographs H1 and H2 and J within the appendices.*
- Temporarily remove timber balustrading, newel posts including all associated elements and components. Set aside and store, reinstate upon completion of the works.
- Temporarily remove and disconnect all existing M&E items and services, including all associated pipework, ducts, fixtures, and fittings etc. Set aside and store, reinstate upon completion of the works; make good all damaged or disturbed areas. Test all services and return to good working order upon reinstatement.
- The contractor is to provide temporary services and connections where required.
- Provide all necessary temporary fall restraint at mezzanine level for the duration of the project.
- Provide all necessary temporary support / propping to trimmed mezzanine opening in locations indicated on the drawing(s).
- Upon completion of the decant works project, reinstate all elements and components as per work item 406.

TENDER

309 Internal work in association with façade alterations (south elevation)

- Carefully take down and dismantle existing cast iron columns (2nr.) outer, which support the mezzanine as indicated on marked-up drawings. Allow for locally breaking out of 500x500mm concrete slab / screed to base of column to provide access to fixing plates.
- Carefully cut out sections of the marmoleam floor finish to allow access to all column bases.
- Carefully take down and dismantle existing steel columns (2nr.) inner as indicated on marked-up drawings. Allow for breaking out of 500x500mm concrete slab / screed to base to provide access to fixing plates.
- Upon removal, appropriately protect and store items for reinstatement at a later date.
- Upon completion of the decant works project, reinstate all elements and components as per work item 407.

310 Protection of all exposed elements (south elevation)

All retained elements of the building fabric are to be thoroughly protected for the duration of the decant project.

- Appropriately restrain (as work item 307) and protect 2nr. existing cast iron columns, following removal of cornice externally.
- Appropriately restrain and protect remaining central first floor (upper) glazed bay and decorative segmental timber door surround.
- Protect and encase retained elements to newly formed void / opening.
- Protect existing chamfered stone step / plinth with vehicular ground rubber matting.
- Upon completion, dispose and top all protective products, make good and return to match original arrangement.
- Protection works as Decant Specification Section RS2.

TENDER

311 Removal of ground floor external entrance doors (east elevation)

- Allow for careful removal of external timber entrance doors including all associated elements and components. Tag each element and component, appropriately store, and allow for future reinstatement.
- The doors are required to be removed to allow for a free clear portal to be created, to allow for removal of smaller exhibit and/or collections items.
- The contractor is to provide and install larger temporary painted timber doors within opening to secure the building with locks. Remove and tip upon reinstatement of original doors.
- Allow for all necessary and required local modifications to currently installed perimeter scaffolding to facilitate all necessary access provisions.
- Upon completion of the decant works project, reinstate all elements and components as per work item 408.

312 Removal of ground floor internal doors and screen (east elevation)

- Allow for careful removal of internal timber entrance doors and screens including all associated elements and components. Tag each element and component, appropriately store, and allow for future reinstatement.
- Make good all disturbed finishes and return to match original arrangement.
- Upon completion of the decant works project, reinstate all elements and components as per work item 409.

313 Temporary partitions (in association with the east elevation works)

- Allow for the insertion of temporary timber stud partitions (north and south) either side of portal entrance to enclose existing interior spaces to create a protected corridor. Partitions are to be pressure fixed with 12mm thick plywood sheathing fixed over the inner face. No direct fix into the existing structure.
- Remove and dispose of temporary partitions upon completion of the main works.
- Make good all disturbed finishes and return room to match original arrangement.

TENDER

314 Removal of ground floor lobby entrance doors (west elevation)

- It may be necessary to temporarily remove the automated doors to allow for a free clear void to be created, to allow for removal of smaller exhibit and/or collections items. Allow for careful removal of internal lobbied automated entrance doors including all associated elements and components, pending confirmation. Tag each element and component, appropriately store, and allow for future reinstatement.
- Upon completion of the decant works project, reinstate all elements and components as per work item 410.

315 Removal of waste material from simulator and VR suite

- Following the decant and safe removal of the large simulator towards the south-central bay at ground level, allow for the removal of any waste material and tip.
- Following the decant and safe removal of the VR suite towards the east internally at ground floor level, allow for the removal of any waste material and tip.

TENDER

Work Item.	*Description.*	*£.*

400 Reinstatement works

401 Reinstatement of upper timber frame and glazed units (south elevation)

- Allow for the full reinstatement of existing timber mullions and transoms in original locations.
- Pending further high-level assessment, allow for 50% replacement of timber framing (mullions / transoms) in isolated areas with Douglas fir. Note: It is preferable to retain all sound timber and undertake splice / resin fill repairs where appropriate. Where there is evidence of rot / decay. Refer to Decant Specification Section RS5. Allow for 100% replacement of all timber window beading, pending assessment following removal, allow for hardwood beads to match original profiles.
- Confirm the exact scope of work within each area with the CA.
- Re-fix existing cast iron decorative floral elements. Prior to fixing, introduce an 8-10mm diameter neoprene washer / disc to the rear to allow water to permeate to the rear. Allow for wholesale redecoration of decorative floral elements.
- Reinstate existing glazing and install window beads and seal, as necessary.
- Allow for replacement of 2nr. window panes, sized to match existing in toughened float glass.
- Prepare all woodwork as identified on marked-up elevations and redecorate to match original colour scheme. Refer to Decant Specification Section RS6.
- Allow for touch-up / redecoration to main lattice girder externally, where surfaces disturbed.

400 series work item references are to be read in conjunction with marked-up drawing(s); 8869 (01) 006, (05) 001-002.

402 Reinstatement of internal steel bracing (south elevation)

- Allow for reinstatement of existing steel fabricated tee sections to the internal face of the timber upper first floor screen.
- Allow for wholesale redecoration. To match original colours. Refer to Decant Specification Section RS6.

403 Reinstatement of timber cornice / weathering (south elevation)

- Allow for reinstatement of detailed timber cornice, including lead weathering's, supporting structure and flashings including all associated elements. Note: include all mastic seals to provide a wind and watertight external envelope and seal.
- Allow for replacement of 15% of timberwork, pending further inspection. Refer to Decant Specification Section RS5.
- Prepare all woodwork as identified on marked-up elevations and redecorate to match original colour scheme. Refer to Decant Specification Section RS6.

404 Reinstatement of ground floor curtain walling (south elevation)

- Allow for reinstatement of ground floor large glazed panels and door including all associated elements and components. Return to good working order and provide a wind and watertight envelope and seal. Make good and decorate all disturbed surfaces.

405 Reinstatement of cast iron columns (south elevation)

- Allow for reinstatement of cast iron column(s) and make good surround, including all disturbed surfaces.
- Prepare cast iron surface and allow for wholesale redecoration to match original colours. Refer to Decant Specification Section RS4.

406 Reinstatement of section of mezzanine floor (south elevation)

- Allow for the reinstatement of horizontal lattice girder / structure concealed within floor void including all associated elements and components. Allow for abrasive treatment, surface preparation and repainting of steel beam using Carbomastic 15LT, including any other concealed metalwork.

TENDER

- Allow for the insertion of new timber framed / joisted mezzanine floor and ceiling structure as per structural engineer's package, including all associated supporting structure, fittings, and fixtures. Joist size and spacing to match existing (allow for 200x75mm @ 400mm cts – pending inspection), using C24 timber. New joists to incorporate 2 rows of noggins (or herringbone strutting).
- Install timber floor sheathing boards (allow 18mm thick WBP sanded plywood) with NEW marmoleum sheeted finish over. Colour to best match existing.
- Install plasterboard finish to underside of floor with boxing out to structure. Tape, joint and decorate to match existing. Refer to Decant Specification Section RS6.
- Pending assessment, allow for 60min fire rated Gyproc ceiling boards and seal with intumescent mastic, include fire batts and FR cavity barriers and penetrations. Tape and joint boards and decorate.
- Reinstate timber balustrading newel posts, including all associated elements and components. Allow for wholesale redecoration.
- Remove temporary services.
- Reinstate all existing M&E items including all associated pipework, ducts, fixtures and fittings. Test, service (chlorination etc) and return to good working order.

407 Reinstate structural columns

- Allow for reinstatement of internal cast iron (2nr.) and steel columns (2nr.) which support the mezzanine floor.
- Prior to reinstallation, undertake an assessment of the columns to identify any areas where repairs may be required. The extent of repairs is to be agreed with the CA and SE. It is envisaged that the work will comprise of the following:

  - Once access is available, inspect the areas of the steelwork, identify any areas where repairs are necessary.
  - Wire brush and expose all steelwork.
  - Treat metalwork with a suitable rust inhibiting paint.
  - Re-fix within floor pocket and make good concrete to slab / floor with RC35 concrete dowelled 250mm into surrounding slab, allow 3no. M12 dowels to each side, each 500mm long with layer of A393 mesh top and bottom. Screed flush with the adjoining surface.
  - Install a marmoleum sheeted finish over. Colour to best match existing.
  - Allow for wholesale redecoration of disturbed columns to match original colours. Refer to Decant Specification Section RS4.

408 Reinstatement of ground floor external entrance doors (east elevation)

- Allow for reinstatement of external timber entrance doors including all associated elements and components to match original arrangement. Allow for 25% timber replacement and splice repairs at the base, pending further assessment. Refer to Decant Specification Section RS5-RS6.
- Allow for wholesale redecoration of timber doors and return to good working order.

409 Reinstatement of ground floor internal doors and screen (east elevation)

- Allow for reinstatement of internal timber entrance doors and screen, including all associated elements and components to match original arrangement.
- Allow for wholesale redecoration of timber doors and screen. Return to good working order.
- Make good and seal all disturbed surfaces.
- Allow for localised redecoration works.

410 Reinstatement of ground floor lobby entrance doors (west elevation)

- Allow for careful reinstatement of internal lobbied automated entrance doors, including all associated elements and components to match original arrangement.
- Return to good working order and operation, allow for testing and servicing.
- Make good and seal all disturbed surfaces.

TENDER

- Allow for localised redecoration works.

411 Make good and decorate plinth

- Allow for making good of disturbed substrate(s), prepare for wholesale redecoration and decorate.

412 Make good and decorate timberwork

- Allow for making good of disturbed substrate(s), prepare for redecoration and decorate. Note: presence of leadwork to capping.
- Include entire component / element. No joint / day lines are allowed.

413 Redecoration of cast iron columns

- Prepare cast iron surface and allow for wholesale redecoration to match original colours. Refer to Decant Specification Section RS4.

414 Redecoration generally

- Allow a **provisional sum of £1000** for additional redecoration works.

415 Replacement internal cast iron column

- Allow a **provisional sum of £2000** for replacement of cast iron column, to match like for like.

TENDER

Work Item.	*Description.*	*£.*
500	**Internal work, making good, etc.**	

501 Moving occupier's furniture, etc.

Prior to the contractor's occupation of a work area the client will be responsible for moving/relocating the following:

- Personal possessions
- Paperwork and other office paraphernalia
- Phones, IT equipment and the like

The contractors programme is to identify when the occupier may be affected, and the programme is to clearly show:

- Dates by which the client must vacate an area
- Duration of the works

502 Remove and reinstate: low level barriers

- Existing low-level metal barriers are to be temporarily removed to entire area of ground floor exhibit zones to provide free access and movement in and around the Hall. Extent of low-level barriers to be removed is identified on marked-up plans. Each segment, component and associated fixings are to be recorded and tagged to allow for reinstatement at a later date to be determined. Allow for barriers to be stored internally, location to be agreed.
- Reinstate all barriers upon completion of the decant works.

503 Insertion of fall restraint following Trident removal

- Allow for void between balustrading to be infilled at mezzanine level. Provide a temporary timber frame and fix sheathing board to external face, secured back to the existing structure with clamps (no direct fix).
- Decorate all to match existing balustrading.

504 Trident (plane cockpit) frame: remove and tip

- Allow for careful removal and tipping of Trident temporary bracing and support. Pending confirmation by the client.
- Carefully cut out and remove section of marmoleam floor finish to post perimeter to facilitate post removal. Take back to joint lines if necessary.
- Breakout concrete to SHS posts (3nr.) and remove steel frame and all associated fixings as structural engineers' package.
- Make good concrete to slab / floor with RC35 concrete dowelled 250mm into surrounding slab, allow 3no. M12 dowels to each side, each 500mm long with layer of A393 mesh top and bottom. Screed flush with the adjoining surface.
- Install a new marmoleum sheeted finish over. Colour to best match existing.

505 East end staircase: remove and store

- Allow for careful removal of the existing timber winder staircase and all associated components and elements to the east end of the Hall, which provides direct access to the mezzanine. The removal is temporary in nature, to provide a free and direct access route to the east elevation external entrance.
- Ideally, the staircase would be relocated in its entirety or at least limited to smaller more manageable sections.
- The exact temporary location is to be determined but is anticipated that it will remain within close proximity, towards the north of the Hall.
- Provide temporary fall restraint / guarding at mezzanine level for the duration of the works and remove upon reinstatement of staircase.
- Protect the staircase accordingly, for the duration of the internal works.
- The reinstatement of the staircase is provisional and included separately below.

TENDER

506 East end staircase: reinstatement

- Allow for reinstatement of the timber staircase and make good any disturbed surfaces.

TENDER

APPENDICES

A selection of photographs from the 1980s, 2016 and 2020

A – South Elevation, Central Bay 2016 – Liverpool Road

Following restoration and fabric repair works in 2016, prior to erection of perimeter scaffold which now remains insitu.

B – South Elevation, Central Bay, East 2016 – Liverpool Road

Following restoration and fabric repair works in 2016, prior to erection of perimeter scaffold which now remains insitu. This photograph illustrates upper glazed screen and decoration column with foliated capital.

C – South Elevation, Central Bay 2016 – Liverpool Road

Following restoration and fabric repair works in 2016, prior to erection of perimeter scaffold which now remains insitu. This photograph illustrates upper glazed screen and central projecting segmented arch former doorway and dentil cornice.

D – South Elevation, Central Bay Cornice 2016 – Liverpool Road

Following restoration and fabric repair works in 2016, prior to erection of perimeter scaffold which now remains insitu. This photograph illustrates a previous defect (rotten timber) and subsequent timber splice repair undertaken at cornice level. Note: concealed ferrous angles and structure.

E – South Elevation, Central Bay Mezzanine 2020 – Liverpool Road

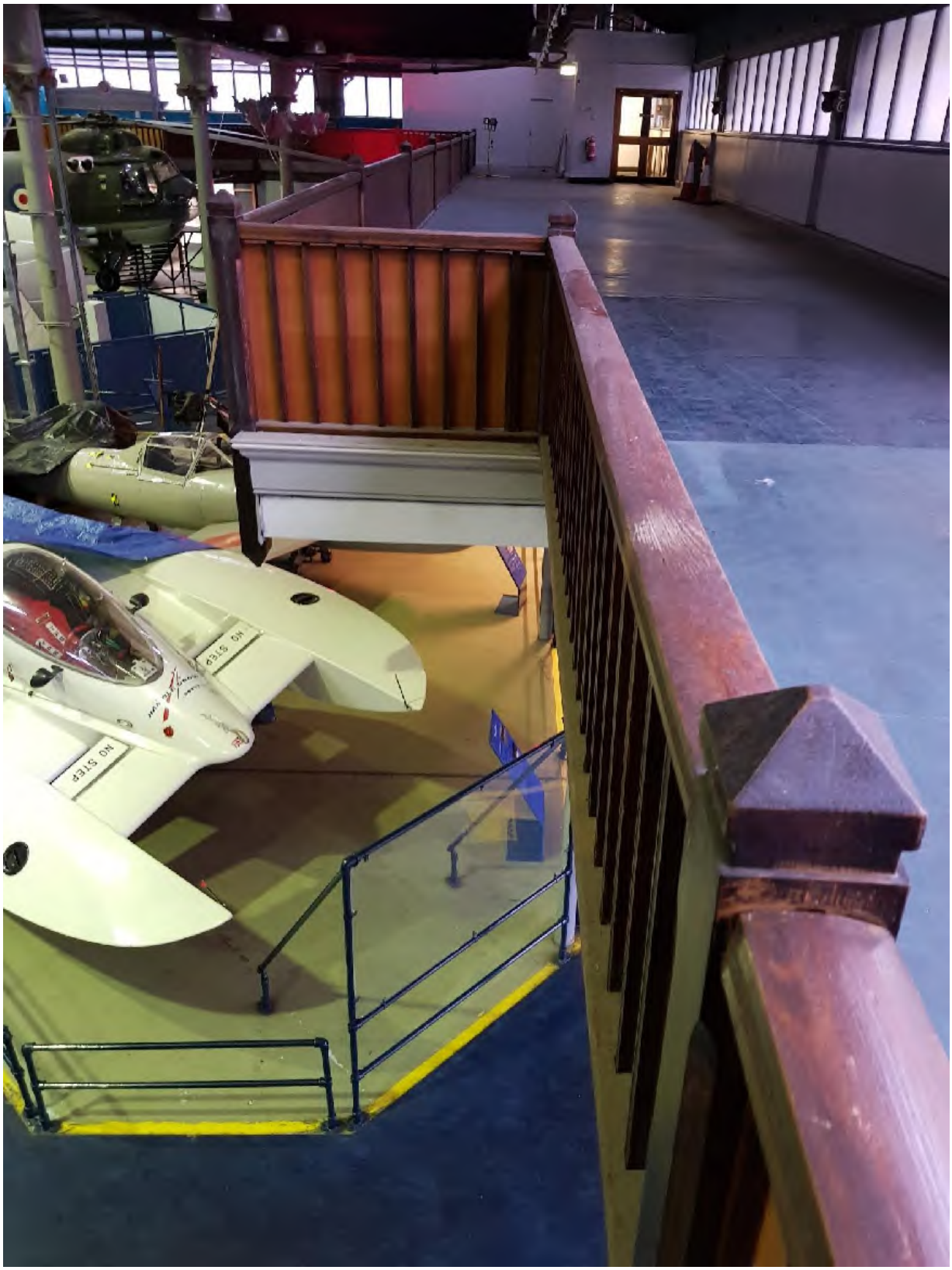
This photograph illustrates a section of the mezzanine floor having been removed to facilitate the insertion of new steel tee sections to brace and support the existing façade. Note: concealed lattice beam and associated elements and components which span between columns.

F – South Elevation, Central Bay Support 2016 – Liverpool Road

This photograph illustrates horizontal steel bracing to the central portal of the façade, above segmental arched door. Fixed back to existing lattice columns with lindapters (steel clamp).

G – South Elevation, Central Bay Mezzanine 2020 – Liverpool Road

This photograph illustrates the existing timber balustrading, newel posts fascia etc.

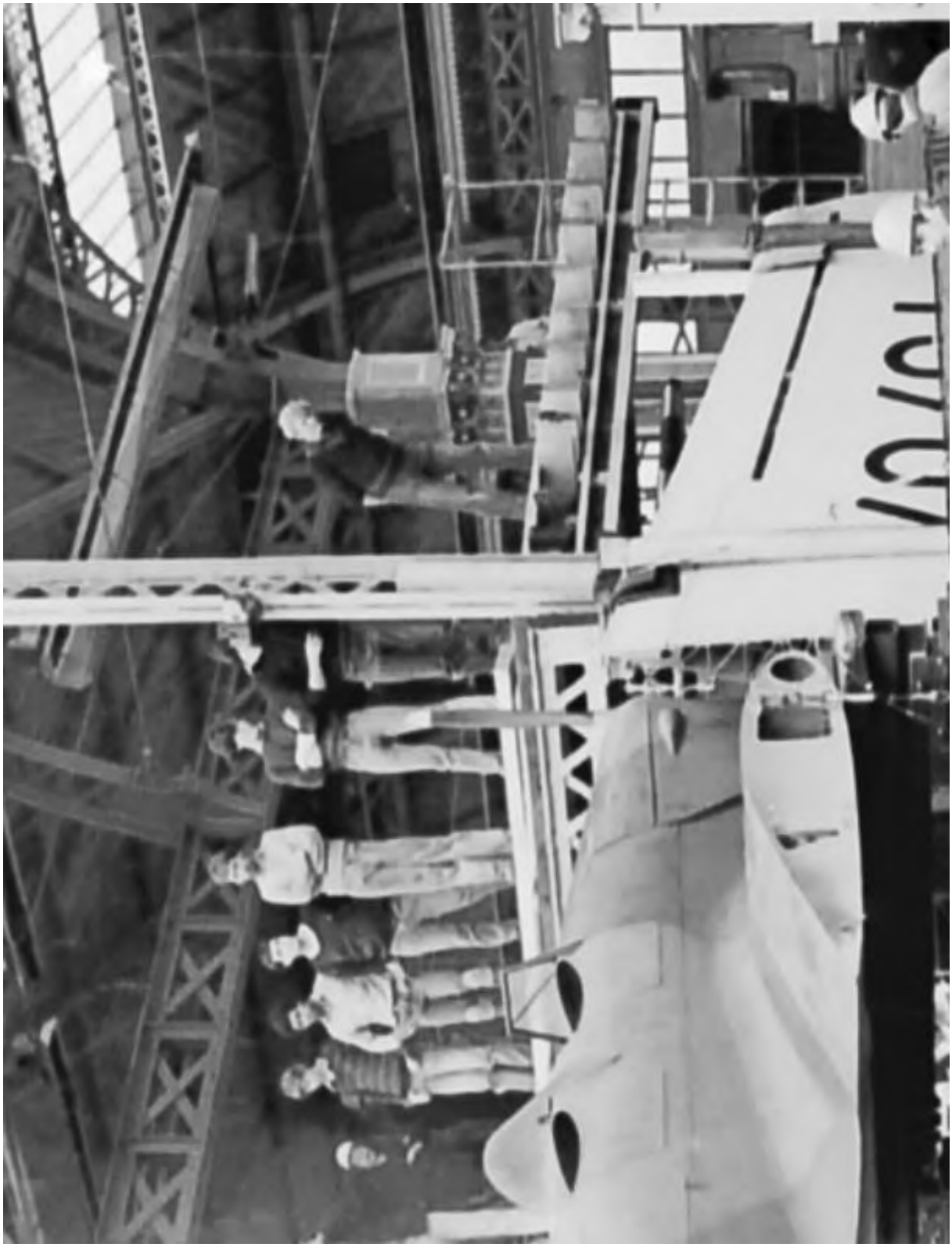


H1 – South Elevation, 1980s – Liverpool Road

This photograph illustrates the central bay of the South elevation externally during the 1980s, allowing for the original insertion of collections exhibits. Note the horizontal lattice beam to the left-hand side and make-up of the mezzanine floor.

H2 – South Elevation, 1980s – Liverpool Road

Zoomed in photograph of H1, showing lattice beam similar to that assumed to exist to the eastern bay to which is being opened up. The make-up of the mezzanine floor structure can also be seen in the background.



J – South Elevation, 1980s – Liverpool Road

This photograph illustrates the central bay of the South elevation internally during the 1980s, allowing for the original insertion of collections exhibits. Note the make-up of the mezzanine floor.

K – South Elevation, 2020 – Liverpool Road

This photograph illustrates the South elevation currently in present day with full perimeter scaffold.