RIBA Stage 1+
Hereford Museum and Art Gallery

Final Feasibility Report
Final Issue

REF / 10265
Revision Number --
October 2021

ARCHITYPE

Sign-off Page

Sign off	Initials
Report Revision:	Final Issue
Client: Roger Allonby [on behalf of Herefordshire Council]	RA
Signature:	
Date:	

Revision Page

Rev.	Revision Description	Initials
1	1st Draft for Design Team Review 19th Sept 2021	AS
2	Final Draft for Client Review & Feedback 23rd Sept 2021	AS
3	Final Issue 28th Oct 2021 - Incorporating ‘amends, corrections and additions’ as review & feedback have identified.	AS

Introduction and Scope

Hereford Museum & Art Gallery Feasibility Study

Introduction
Herefordshire Council have commissioned Architype to undertake a Feasibility study for the redevelopment of the Broad Street Museum & Gallery facility, Hereford Museum & Art Gallery [HMAG], as well as to develop a Project Brief for client approval, as part of an agreed RIBA Stage 1 scope of works.

In order to best appreciate the needs of the Broad Street Museum it should be considered alongside the other [HMAG] Museum facilities in Hereford. Hereford Museum & Gallery services are delivered over multiple sites around Hereford City: Hereford Museum & Gallery [Broad Street] publicly accessible exhibitions; The Black & White House [High Town, Hereford City Centre] a stand-alone publicly accessible exhibit with contextual exhibitions; Museum Resource & Learning Centre [Friar Street] housing the Herefordshire permanent collection, conservation and many of the back of house facilities required to service the Broad Street Museum service delivery. These sites are run by the Herefordshire Museum Service, which is a local authority service.

The current 'vision' statement set out in Herefordshire's Museum Service Business Plan [2020/1-2024] defines a strategy and ambition for care that "connects people with Herefordshire's past by creating opportunities for direct engagement with museum objects for exploration, enjoyment, curiosity and wonder" through adopting the mission statement 'Celebrating and preserving our past in the present for the future.'

The key goal for the Herefordshire Museum Service is to provide upgraded and enhanced museum premises in order to facilitate a greater volume of Museum collections to be displayed for the benefit of the public. Breaking these down into five key aims and objectives, the plan looks to:

- To provide a sustainable and vibrant museum service for the county of Herefordshire;
- To be a prominent part of the tourism and visitor economy;
- To develop and enlarge the current display capacity;
- To ensure best practice in collection care and provide access for all;
- To support lifelong learning, mental heath and well-being.

These outlined aims also fulfil the wider ambitions of the Herefordshire Council County Plan 2020-2024 which seeks to enhance the "sustainability, connectivity and well-being" of the county.

Scope
This report sets out the feasibility brief development and strategic proposals for the expansion and upgrade of Hereford Museum and Art Gallery. As part of this process, Architype agreed to undertake a number of key studies and bodies of work [these include reference to elements progressed from early stage feasibility proposals in January 2021]:

- Review existing briefing documents [CMP, business case proposals, P+P Report, etc.];
- Undertake site visits;
- An initial forensic investigation and modelling using the Passivhaus energy balance spreadsheet, PHPP 9;
- Undertake consultation with key stakeholders;
- Undertake early discussions with statutory consultees, including the Local Planning Authority [in particular, Conservation] and Historic England - supported further by a exploratory design study for Historic England input;
- Contribute to drafting of project brief and outline project parameters;
- Develop target accommodation schedule and confirm preferred arrangements;
- Work with the Structural Engineer [appointed through Architype] to identify key findings and any additional structural survey work which may be required into next stages;
- Review site/survey information and contribute to high level feasibility study, whilst developing a more accurate reflection of the project brief requirements;
- Review and advise on relevant design standards, such as key Museum best practice standards such as BS EN 16893 & BS 4971;
- Attend briefing workshop;
- Contribute to project budget costs and project programme including a cost estimate design tool;
- Set sustainability and quality targets, including information on 'Net zero carbon' considerations and 'EnerPHit' quality assured accreditation;
- Risks, recommendations and project next steps outlined, including identifying necessary design team input for the next stage;
- Appendices providing additional reference and key background information.

The topics and areas illustrated for review do not necessarily form a final set for consideration, merely a starting point and spring-board for further discussions ongoing if required. The scale of potential intervention and development is mutable and modular and the particular interventions examined illustrate 'moments' on the sliding scale where variations exist, for the range of key principles discussed.

The scope and intention is to ensure and support a transparent dialogue that encourages outcomes of mutual benefit to all participating stakeholder groups.

Outcomes
A concluding set of recorded 'Risks & Recommendations' aims to outline a number of areas requiring further study to better inform Herefordshire Council's strategic decision making moving forward.

The exploratory journey from initial feasibility work undertaken as part of the Stronger Towns Fund submission in January 2021, as well as other further brief development and the ongoing consultative dialogue of this piece of work has begun to clarify the emerging brief requirements for this upgraded Museum facility. It is intended that this piece of work will continue to be built upon in preparation for the commencement of RIBA Stage 2 works.

Fig. 1 / Ice Age Exhibition at the Hereford Musuem & Art Gallery / Source: https://www.visitherefordshire.co.uk/discover/hereford-museum-and-art-gallery

Introduction and Scope

Hereford Museum & Art Gallery Design Journey

This developed feasibility report supplements the initial feasibility work undertaken as part of the Stronger Towns Fund submission in July 2021 and has proceeded on the basis of assessing the context of the preferred Option 2.1.

The work undertaken since has been progressed in order to develop a more accurate reflection of the project brief requirements, as well as consideration of the challenges, constraints and opportunities associated with the existing building.

This document aims to collate this body of work within a defined narrative, defining a framework for a clear and informed brief for the Hereford Museum & Art Gallery facility, together with a high-level feasibility study that demonstrates an early stage feasible architectural response on site.

1/ Initial Feasibility - Stronger Towns Funding Bid Supplementary

2/ Outline Feasibility Development - Stronger Towns Funding Bid Supplementary

3/ Historic England Report - Planning & Conservation Design Discussion

This Report

4/ RIBA Stage 1 HMAG Feasibility Report

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1/ Preliminary - Order of Magnitude Cost Estimate By Smith Thomas Consult

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2/ Preliminary - Order of Magnitude Cost Estimate By Smith Thomas Consult

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4/ Cost Benefit Analysis - Calibration New Build Estimate By Smith Thomas Consult

4/ Cost Estimate Design Tool By Architype

RIBA Stage 2

Jan 2021

Feasibility study by Architype submitted as part of the Stronger Towns Funding submission by the HC in support of strategies to expand and upgrade the Hereford Musuem and Art Gallery Building.

The Study and Order of Magnitude Estimate considers:

- Option 1. Minimum Intervention
- Option 2. Maximise Existing Building Fabric
- Option 3. New Purpose Built Facility

Option 2 was preferred, and developed as a concept as part of this high level exploration.

July 2021

A further Business Case supplementary was carried out by Architype.

Requiring to meet a budget target of only £15m a further options / cost appraisal of the current Option 2 assessed 3 variants [Options 2, 2A.1 & 2A.2]. It identified that the 3rd floor [in its entirety] of current Option 2 was not a revenue generating space and removal of it would bring the project budget closer to the £15m required.

The Order of Magnitude Estimate considers Options 2, 2A.1 & 2A.2, with Option 2A.1 identified as the most realistic aproach of enabling the project to move forward within the 15m budget.

September 2021

This document aims to 'explore' constraints & opportunities around some of the key areas documented within the 'Conservation Management Plan' by JS 'Conservation Management and Town Planning' requiring 'attention' or consideration regarding historic context and city presence for the Hereford Museum and Art Gallery building.

A range of design explorations on a spectrum of 'light touch' to 'significant intervention' are evaluated and presented as a basis for further discussion, to help find mutual benefit amongst the Historic, Conservation, Planning and Museum stakeholder groups.

September 2021

This report sets out the feasibility brief development and proposals for the Hereford Museum and Art Gallery in Hereford City Centre, to meet the RIBA Stage 1 requirements.

Following an interrogation of the initial project brief and discussions with the project team the brief has been developed alongside various cost-benefit analysis, and sensitivity to significant Heritage aspects that are to be considered as part of the design process.

The revised Order of Magnitude estimate has utilised approximate £/m2 rates to identify the potential size of new build facility that could be generated for the notional target cost of £15.0m.

Fig. 2 / Strategic Development by Architype

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Executive Summary

Introduction
Herefordshire Council [HC] have aspirations for HMAG to increase its delivery of national collections exhibitions and attract visitors from across the UK, creating a national destination - in addition to representing and exhibiting local and regional social-history and arts. Architype have undertaken an exploration of architectural 'opportunities' that begin to explore and demonstrate how some of these aspirations can be realised within the constraints of the existing site and historically sensitive building.

Architype have formulated this Stage 1 Feasibility Report to record, collate and compile the necessary baseline information required to evidence and inform key strategic decisions and support the continued design development of the HMAG facility, located on Broad Street, Hereford.

Architype have undertaken a review of existing baseline information, shared and consulted with key stakeholders and developed a brief [see Section 8].

Key Aspirations & Targets
This document identifies and clearly define the goals, targets and aspirations for Hereford Museum & Art Gallery [HMAG]

- Enable a greater National Collections lending program
- To become a National destination
- Provide a cultural hub for Herefordshire
- Contribute to the regeneration and attraction of visitors to Hereford City centre
- Ensure sufficient revenue generating facilities are included and adopted to enable ongoing economic self-sufficiency
- Showcase the county's extensive heritage collections
- Successfully develop the project for a total project budget of £15m

Identified & Explored Historic Building Sensitivities
The historically sensitive nature of the building and site requires greater input from statutory authorities such as Historic England [HE] in addition to the local authority Conservation and Planning teams. This document has collated a set of identified historically sensitive building elements and explored 'opportunities' of design development for discussions with HE, Conservation & Planning to explore and discuss, in order to find solutions of mutual benefit between the statutory authorities and the Museum's needs.

Identified key areas for exploration & discussion are:

- 1. The Broad Street Facade
- 2. The Woolhope Room
- 3. The Foyer & Central Stairwell
- 4. Upper Domestic Accommodation
- 5. Roofscape
- 6. Broad Street Piazza

The explored opportunities are diagrammatically located on an axis with minimal intervention at one end and maximum intervention at the other. All options define a level of historic building sensitivity and Museum positive impact.

The resultant 'modulus' of design solutions are able to be 'interchanged' to inform a holistic arrangement. Architype have highlighted one such arrangement of modules to illustrate the holistic, aspirations for the facility and for Hereford.

Cost Benefit Analysis
The cost benefit analysis comprises of two different sections:

- Global Costs & available GIFA
- Greater detail & breakdown of Fit-out Costs

The 'global' cost benefit analysis investigated an option for developing the facility with a new build on a 'hypothetical' clear urban site and found that there was likely to be very little difference in available floor area, only the freedom to define how that floor area could be layout out without existing and historic building constraints, within the constraints of a £15mm project.

A greater exploration of the detail informing what makes up the 'Fit-out' cost section of the OoM Cost Estimate [Smith Thomas Consult, Rev. 4] showed that when following guidance from both Arts Council and industry specialist consultants a total fit-out cost saving of approximately £2m was possible. In 'bricks and mortar' terms this equates to another storey of accommodation of around 370sq.m.

Risks, Recommendations & Next Steps
A number of key risks have been identified and discussed highlighting where further study, exploration, information or decision making is required [see section 13].

- very low current staffing levels threaten to delay the project due to limited resource able to engage with project and then subsequently deliver the revenue generating services required to sustain economic viability
- a very ambitious project program to develop the business case [including design development to RIBA Stage 4, Tender Process in place] for June 2022 risks slippage and over-run
- appointment of non-sector specialist Project Management team risks serious oversight of subtleties and specialties required for a project of this magnitude

Recommendations concluded, outline a number of key considerations where the project can substantially benefit:

- Adopt EnerPHit as the accredited energy standard for the project
- Adopt RIBA or LETI Zero Carbon standard for the project
- Ensure compliance with sector specific best-practice standards, including: GIS; BS EN 16893: 2018 & BS 4971: 2017
- commit to a staffing level that is sufficient to support the desired facility
- consider appointing a sector specialist PM
- consult with the wider stakeholder groups – including the public
- continue to develop the design and cost plan to a greater level of detail
- arrange workshop to bottom out risks around program, sequencing and program delivery expectations
- appoint Architype to pull the agreed strands from Stage 1 and define a fully robust brief demonstrated architecturally at Stage 2
- appoint P+P to continue reviewing and contributing to Architype's design development and help develop the final business case
- ensure a dialogue is established between Hereford City Masterplanning design team and the Museum design team to ensure the Museum's needs are fully represented
- review structural engineer appointment

Further design development and consultation is required to cohere the presented modulus of design opportunities into a definitive 'concept design' at Stage 2. Next steps to aid the design development process include:

- Arrange a workshop to explore potential pinch-points and bottlenecks in the program is critical.
- Undertake a thorough interrogation of the 'Fit-out' costs section of the cost plan is key to realising a potential floor area yield.
- Arrange precedent visits to recently completed regional museum sites to learn from others experiences.
- Consult with a broader cross section of the listed stakeholder groups.
- Review recent Industry conference literature and seminars to appreciate current trend and direction of developments.
- Undertake a site visit and exploratory dialogue with Historic England, Conservation and Planning to agree on mutually beneficial design options.
- Collate mutually beneficial design elements into a cohesive arrangement and develop a concept design.
- Refine OoM Cost Plan.

1.0 / Information & Professional Standards

Information & Professional Standards

1.1 / Baseline Information

Baseline information comprises of all information that informs how the Herefordshire Museum Service operates. The majority of information resides with the staff who deliver the service and the regulatory bodies that govern their professions, as well as guided consultee input. A number of documents have been cited as part of the brief and design development and are referenced below.

Conservation Management Plan [CMP, 2013]
This Conservation Management Plan (CMP) concerns the Hereford Library and Museum building located on Broad Street, Hereford. The CMP is intended to enable a better understanding of the significance of a building and develop principles and policies to best manage any change, alterations and maintenance so that the significance of the building can be enjoyed by future generations.

The document's aim is to help guide and inform the future layout, management and conservation of the building. This includes a high level assessment of building elements' 'Significance, Risks and Opportunities.'

The CMP has been used to guide explorations of key areas documented within the Conservation Management Plan requiring 'attention' or consideration regarding historic context and city presence, documented in Section 6.0 / Planning and Conservation" on page 21 onwards.

Prince + Pearce Findings & Recommendations Report - Income Generation for a Redeveloped Hereford Museum
In July 2021 Herefordshire Council appointed P+P to provide a independent appraisal of the proposals to create a new museum in Broad Street.

The report proposed some key recommendations which provided an independent, professional guidance on the way in which the proposed museum could operate with a view to maximising their income potential whilst preserving their essential function as a social institution for the benefit of Hereford, its people and the wider community.

The recommendations proposed the addition of some key ancillary revenue generating spaces, such as a shop, a ground floor cafe and a roof-top activity venue/ events space and/or education space.

Please find the full P+P Report in Appendix E: 14.5 / Appendix E - P+P Report"

Herefordshire Museum Service Business Plan
This document outlines the draft Museum Plan for the period 2020/1 - 2024, outlining the key aims and objectives of the Herefordshire Museum service, and how these can be achieved.

Key aims are outlined below and developed alongside brief proposals:

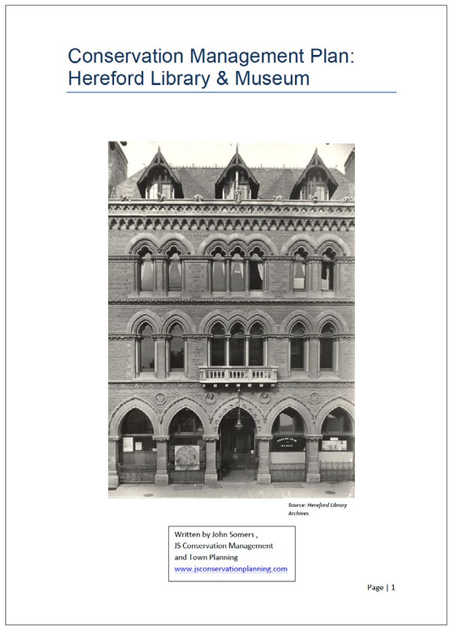
- To provide a sustainable and vibrant museum service for the county of Herefordshire
- To be a prominent part of the tourism and visitor economy
- To develop and enlarge the current display capacity
- To ensure best practice in collection care and provide access for all
- To support lifelong learning, mental heath and well-being

Initial Outline Brief - Draft Proposal [JS, 2017]
An initial brief proposal for the upgrade of the Hereford Museum and Art Gallery was provided by Judith Stevenson in 2017 [Museum Head]. This document formed the initial basis of brief discussions and development for RIBA stage 1, and has been supplemented / developed further through stakeholder consultation groups as part of this scope of works undertaken by Architype.

It is essential to highlight this original brief proposal is for approximately 4,100sq.m. of accommodation requirements. Art's Council England benchmark guidance [2010] further suggests that for the regional population density equivalent to that of Herefordshire, a museum floor area in the region of 5,400sq.m would be approximately appropriate.

Significantly, this is in excess of what the existing facility on Broad Street is providing, approximately 1810sq.m - however this does not take into account the additional service buildings, such as the Museum Resource & Learning Centre on Friar Street.

Please refer to Section 8.0 / Outline Brief & Brief Development" on page 46 for outline brief development, subject to further development in the next steps of RIBA Stage 2 works.

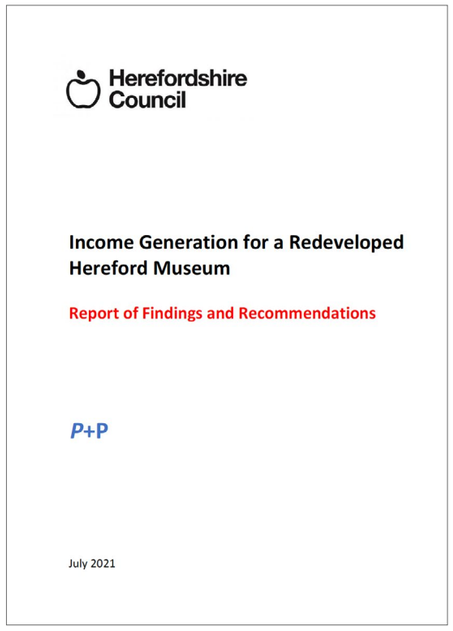

Conservation Management Plan:
Hereford Library & Museum

Source: Hereford Library Archives

Written by John Somers ,
JS Conservation Management
and Town Planning
www.jsconservationplanning.com

Page | 1

Fig. 3 / Conservation Management Plan / Hereford Library and Museum, Somers, c.2013


Herefordshire Council

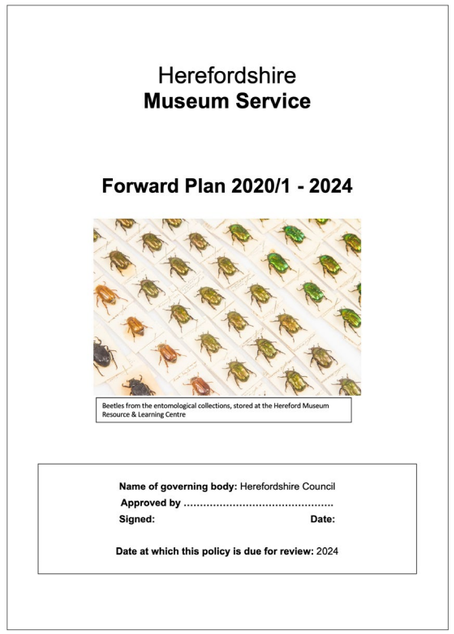
Income Generation for a Redeveloped Hereford Museum

Report of Findings and Recommendations

P+P

July 2021

Fig. 4 / P+P Findings + Reccommendations Report/ Income Generation for a Redeveloped Hereford Museum [July 2021]


Herefordshire
Museum Service

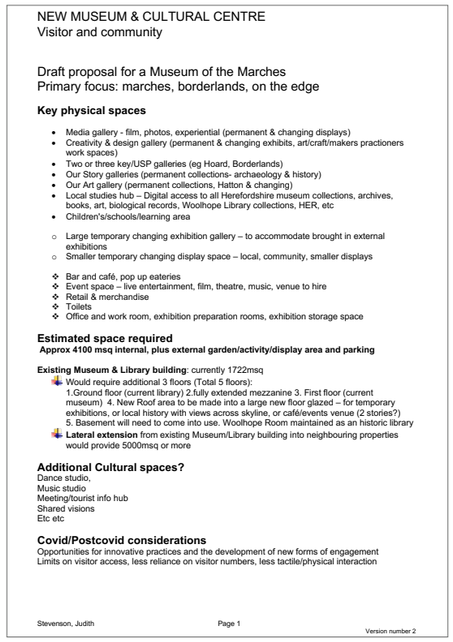
Forward Plan 2020/1 - 2024

Beetles from the entomological collections, stored at the Hereford Museum Resource & Learning Centre

Name of governing body: Herefordshire Council
Approved by .....
Signed: **Date:**

Date at which this policy is due for review: 2024

Fig. 5 / Herefordshire Museum Service Business Plan [2021]


NEW MUSEUM & CULTURAL CENTRE
Visitor and community

Draft proposal for a Museum of the Marches
Primary focus: marches, borderlands, on the edge

Key physical spaces

- Media gallery - film, photos, experiential (permanent & changing displays)
- Creativity & design gallery (permanent & changing exhibits, art/craft/makers practioners work spaces)
- Two or three key/USP galleries (eg Hoard, Borderlands)
- Our Story galleries (permanent collections- archaeology & history)
- Our Art gallery (permanent collections, Hatton & changing)
- Local studies hub – Digital access to all Herefordshire museum collections, archives, books, art, biological records, Woolhope Library collections, HER, etc
- Children's/schools/learning area
  - Large temporary changing exhibition gallery – to accommodate brought in external exhibitions
  - Smaller temporary changing display space – local, community, smaller displays
- Bar and café, pop up eateries
- Event space – live entertainment, film, theatre, music, venue to hire
- Retail & merchandise
- Toilets
- Office and work room, exhibition preparation rooms, exhibition storage space

Estimated space required
Approx 4100 msq internal, plus external garden/activity/display area and parking

Existing Museum & Library building: currently 1722msq
- Would require additional 3 floors (Total 5 floors):
  1.Ground floor (current library) 2.fully extended mezzanine 3. First floor (current museum) 4. New Roof area to be made into a large new floor glazed – for temporary exhibitions, or local history with views across skyline, or café/events venue (2 stories?) 5. Basement will need to come into use. Woolhope Room maintained as an historic library
- **Lateral extension** from existing Museum/Library building into neighbouring properties would provide 5000msq or more

Additional Cultural spaces?
Dance studio,
Music studio
Meeting/tourist info hub
Shared visions
Etc etc

Covid/Postcovid considerations
Opportunities for innovative practices and the development of new forms of engagement
Limits on visitor access, less reliance on visitor numbers, less tactile/physical interaction

Stevenson, Judith Page 1 Version number 2

Fig. 6 / Initial Outline Brief - Draft Proposal [JS, 2017]

Information & Professional Standards

1.2 / Key Standards & Guidance

Standards and Policies
All collections facilities adhere to a set of common standards, set either by over-arching umbrella organisations or the organisation with accreditation by an umbrella organisation.

Hereford Museum service is a multi-site facility, operating over three sites: The Museum & Gallery on Broad Street; The Museum Resource & Learning Centre on Friar Street and; the Black & White House, High Town [Hereford city centre]. Furthermore, Hereford Museum service has a remit to provide professional accredited expertise and guidance to the wider partner organisations throughout the county, occasionally including stewardship of collection items and/or whole collections.

As a multi-site service resource is often spread across all the sites with the majority lot of 'back of house' & supporting services required for Hereford Museum [Broad Street] being undertaken at The Museum Resource & Learning Centre at Friar Street [MRLC].

Hereford Museum Service currently adheres to a Government Indemnity Scheme (GIS) requirement and a number of policies, procedures and plans, listed below:

- Collections Development Policy 2020-24
- Archaeological Deposition Policy 2021-25
- Humans Remains Policy 2020-24
- Care and Conservation Policy 2020-24
- Care and Conservation Plan 2020-24
- Documentation Policy 2020-24
- Documentation Manual 2020-24
- Documentation Plan 2020-24
- Loans Policy 2020-24
- Handling Collection Policy 2020-24
- Access Policy 2020-24
- Access Plan 2020-24
- Exhibition Policy 2020-24
- Emergency Procedures
- Emergency Disaster Plan 2020-24
- Volunteer Procedures 2020-24
- Succession procedures 2020-24
- Environment Policy 2020-24

A small study is required to highlight any variances between internal policy and Government Indemnity Scheme (GIS) requirements and BS 4971:2017 and BS EN 16893:2018.

BS 4971:2017 and BS EN 16893:2018 refer to best practice British Standards for collection care. These standards are seriously compromised by the exitsing Hereford Museum & Gallery site on Broad Street, due to the lack of facilities and staff. These standards provide guidance to professionals working in the collection care sector, and assurances of quality care for owners, insurers, lenders, and collection stakeholders alike.

- BS 4971:2017 Conservations and care of archive and library collections

- BS EN 16893:2018 Conservation of Cultural Heritage - Specifications for location, construction and modification of buildings or rooms intended for the storage or use of heritage collections

Guidance covers all areas from environmental conditions required for storing, caring for and movement of collection items; to site location and risks of damage and deterioration (including flood, insects & spores, UV penetration, fire, security), and architectural and sustainable specifications.

Government Indemnity Scheme [GIS]
The Government Indemnity Scheme [GIS], administered by Arts Council England, aims to enhance and widen access to objects of a scientific, technological, artistic or historic nature, by underwriting the insurance of loans between UK borrowing and lending cultural heritage organisations. [Arts Council England, 2016].

This scheme therefore facilitates loans to cultural institutions such as museums or libraries, as well as between each other, which they could not have necessarily otherwise afforded. This enables the wider public to benefit through access to these exhibitions. The Hereford Museum and Art Gallery is subject to this scheme.

Professional collaboration
As the entire collection care sector is guided by BS EN 16893:2018 and BS 4971 in one form or another, compliance ensures common best practices and quality assurance for organisations lending collection items to each other and third parties.

Many organisations will not loan items to (or from) others that do not adhere to a recognised set of professional standards.

Utilising Staff Knowledge
The Hereford Museum service staff are professionally trained and obligated to maintain standards. Their experience and training is a key asset for HC and Hereford Museum & Gallery.

Precedent and research visits and tours to recently completed, similar scale projects is essential to derive lessons learned by others and incorporate where practicable. Setting these up in the near future would help raise awareness for the staff, design team & project group.

Adoption of the current British Standards often result in significant risk mitigation and cost savings for both Capital and Operational expenditure.

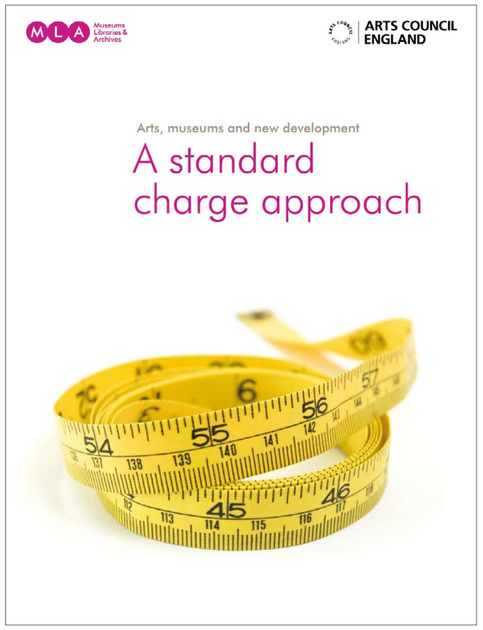


Fig. 7 / Arts, museums and new development: A standard charge approach [Arts Council England/MLA, 2010]

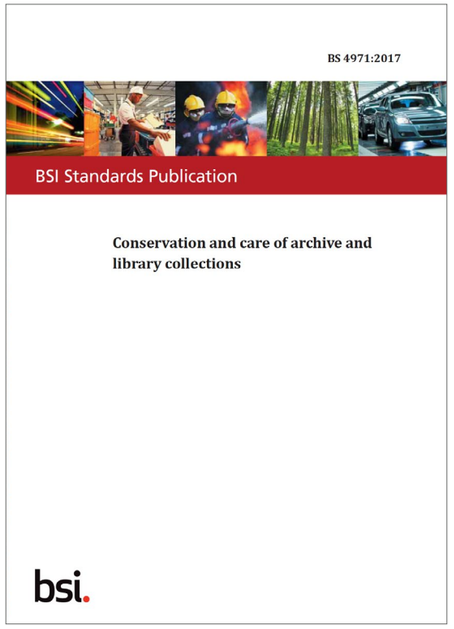


Fig. 8 / Document BS 4971:2017

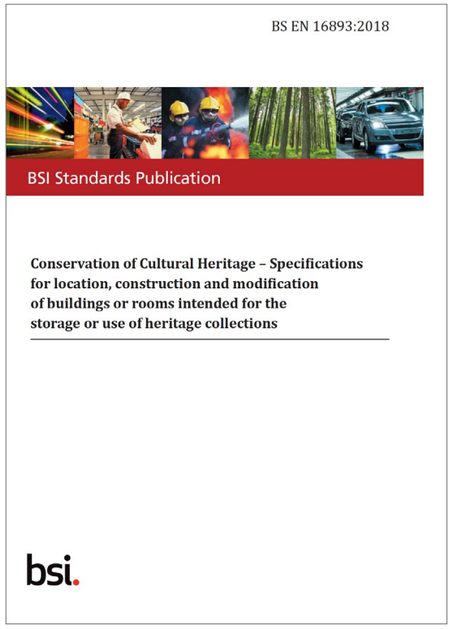


Fig. 9 / Document BS EN 16893:2018

Information & Professional Standards

Key Standards & Guidance

Building Regulations
Facilities will be required to comply with current Building Regulations. The regulations cover minimum standards for design, construction and alteration to almost any building. This includes access and accessibility, general health and safety, safety at work etc.

Professional Accreditation
It is expected that Accredited Museums Galleries and Collections Facilities are required to meet the standards in BS EN16893:2018 and BS 4971.

Recommendations
The Hereford Museum service, through the requirement of an upgraded Museum and Art Gallery facility on Broad Street, has the opportunity to relocate into accommodation that facilitates collection care, exhibition and management to the highest industry standards, ensuring greater longevity of the collection.

A new best practice facility provides opportunity to review current working practices, to identify areas where changes will benefit the Collection and could enable optimisation of workflows. The overriding priority is to ensure greater longevity, visibility and protection of the Museum Collections for the future.

Fig. 10 / Herefordshire Life Through a Lens Exhibition / Source: https://www.herefordshirelifethroughalens.org.uk/news/a-multi-venue-retrospective-of-the-derek-evans-studio-collection/

2.0 / Site Analysis

Site & Surrounding Context

2.1 / Site Location

The Hereford Museum and Art Gallery is located within the County of Herefordshire, in the south-west of the Midlands.

The main retail precinct of Hereford is bound by the partial ring road and the River Wye to the south. Broad Street, where the Hereford Museum and Art Gallery is located, runs south from High Street. The building can be found located at the end of the street opposite the Cathedral. The rear elevation of the Museum and Art Gallery has secondary frontage onto Aubrey Street.

The prominent view to the north is the spire of the All Saints church, and the Cathedral to the south-east. However, a key view of the historic roofscape is currently only possible from the Broad Street dormer windows, from a ladder.

Fig. 11 / Herefordshire County Diagram

Fig. 12 / Site Aerial / Source: Bing Maps 2021

Fig. 13 / Site Location / Scale 1:1000 @ A3

Site & Surrounding Context

2.2 / Central Hereford Building Heights

Central Hereford Building Heights
A large proportion of central Hereford consists of 4 and 5 storey buildings, dropping in height to 2 and 3 storey buildings toward the inner ring road.

Hereford Museum and Art Gallery has street frontage on Broad Street (front) and Aubrey Street (back). Broad Street consists of 4 and 5 storey buildings with 5 storey backs facing Aubrey Street (the Green Dragon and the government offices to the south), as well as a tall flat-roofed water tower belonging to the Green Dragon.

This existing precedent for taller, simpler massing of buildings towards Aubrey Street has been considered during the design exploration processes documented in this report.

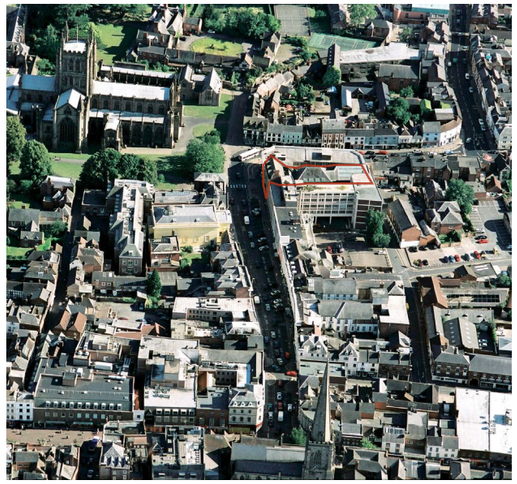


Fig. 14 / Central Hereford Aerial Views - Aerial view base source: A characterisation of The Historic Townscape of Central Hereford February 2010, Herefordshire Archaeology Report no. 266 [p.25]

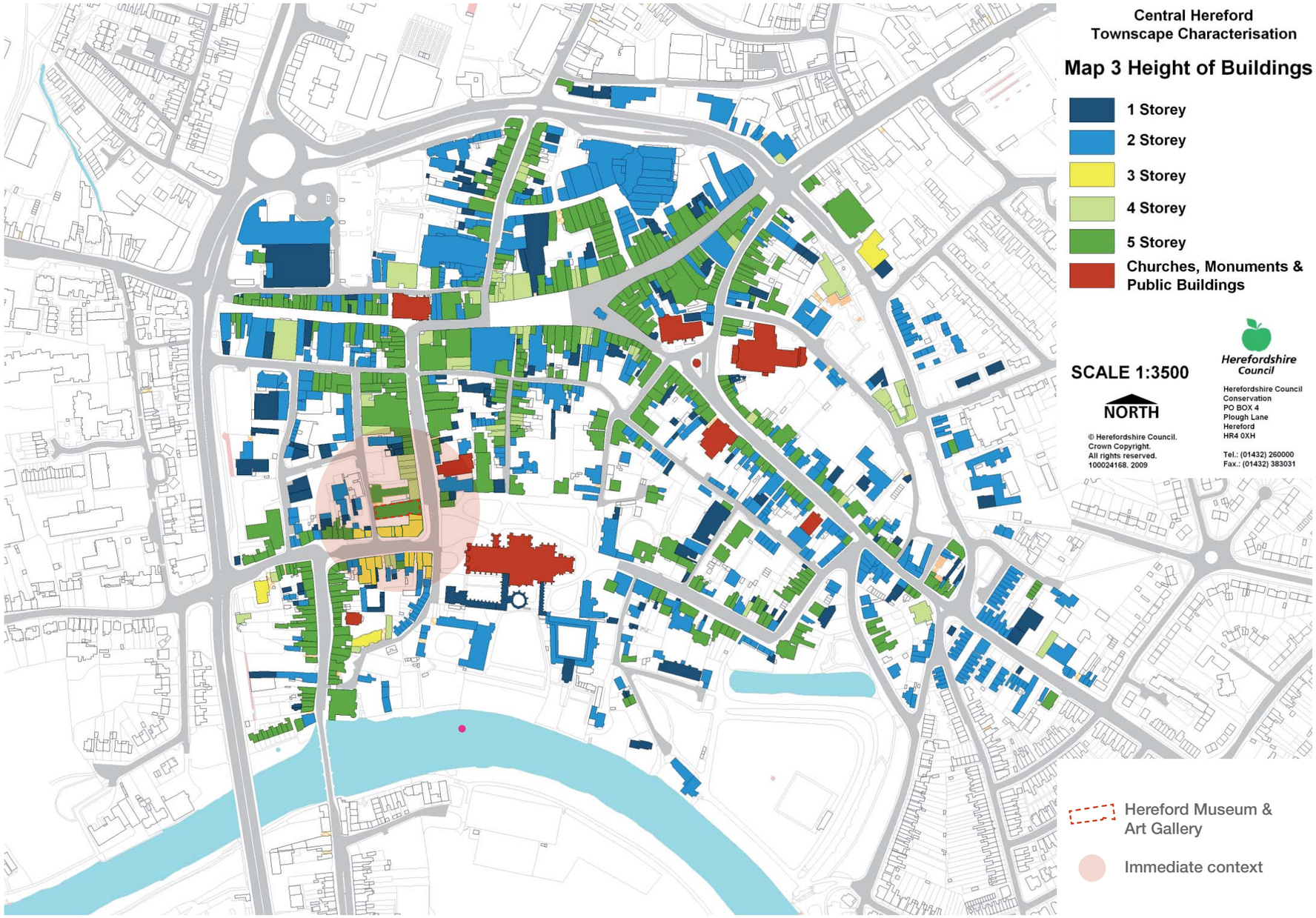


Fig. 15 / Central Hereford Map: Height of Buildings - Map base source: A characterisation of The Historic Townscape of Central Hereford February 2010, Herefordshire Archaeology Report no. 266 [p.7]

Site & Surrounding Context

2.3 / Central Hereford Building Dates

Central Hereford Building Dates
The majority of buildings within the centre of Hereford are 20th Century with a small number of remaining 16th-17th Century & Medieval buildings scattered throughout, neighbouring a larger proportion of 18th-19th Century.

The Cathedral & [old] Palace buildings adjacent to the Castle form a historic heart to the city located on the north bank of the River Wye.

The Herefordshire Archaeology Report notes that on Broad Street 'there is a total interruption in the retail offer with a consequent reduction in footfall through the streets further south'(A characterisation of The Historic Townscape of Central Hereford February 2010, Herefordshire Archaeology Report no. 266 [p.31]). These inactive street frontages include the museum's large archways which are blocked up with notice boards. If these were opened, activating the front elevation, more visitors would likely be attracted to the area.

Broad Street was 'the most important street of the Saxon town, most probably the principal market place' (A characterisation of The Historic Townscape of Central Hereford February 2010, Herefordshire Archaeology Report no. 266 [p.31]). Enhancing Broad Street to prioritise pedestrians, could re-establish this street as a hub of cultural activity between two of the key historical/cultural landmarks in Hereford, being the cathedral and the museum. The potential for a new public plaza is illustrated at the end of this document.

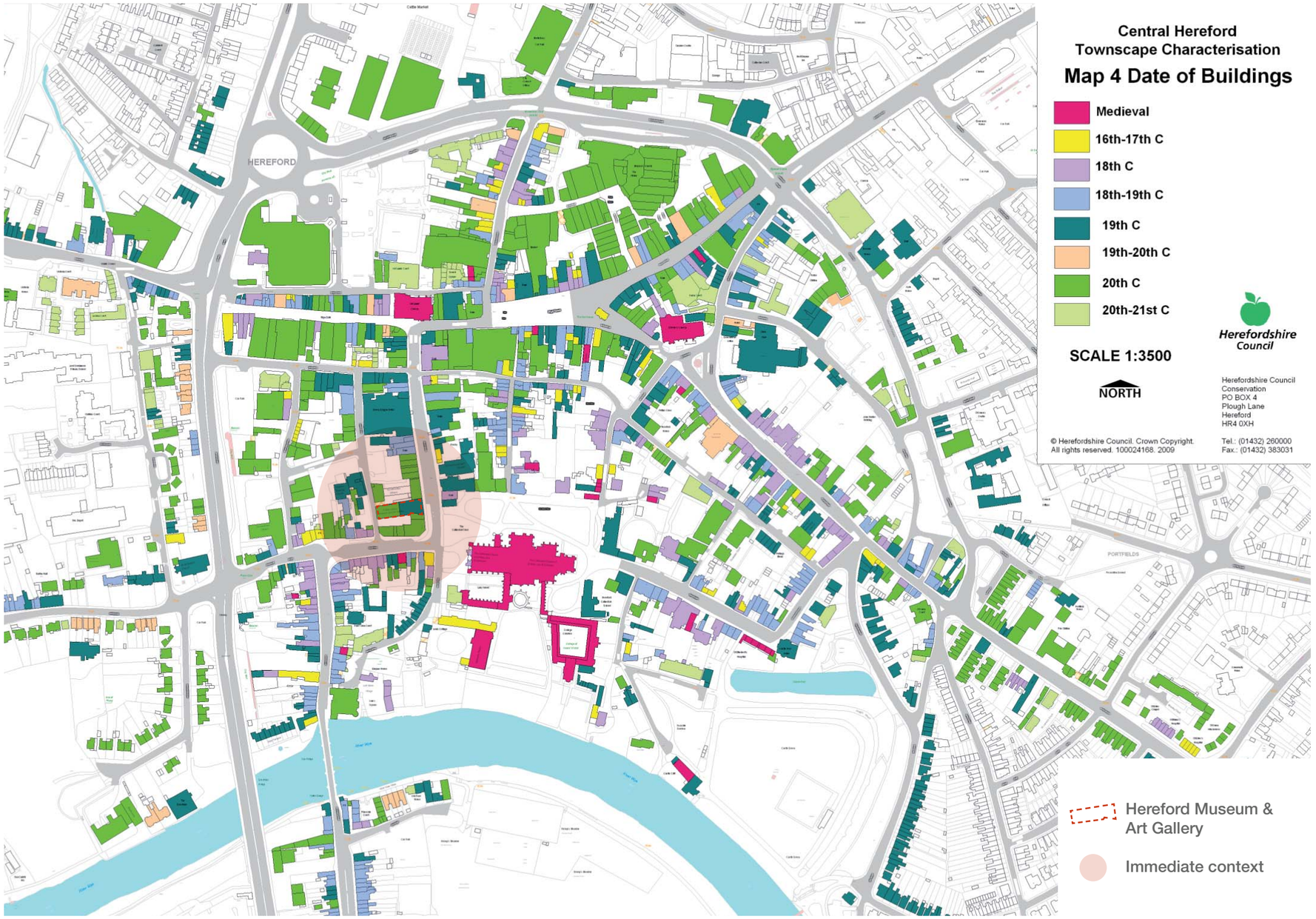


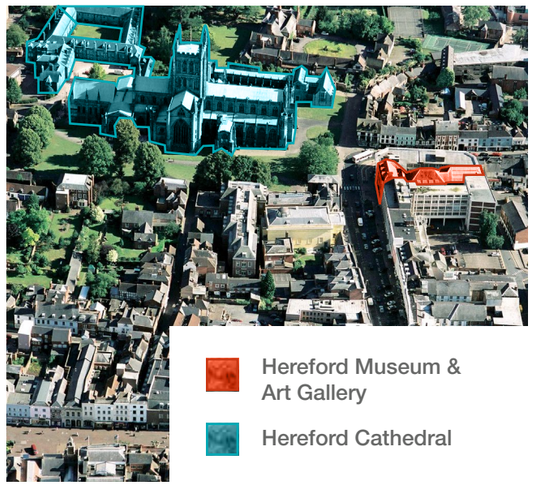
Fig. 16 / Central Hereford Map: Date of Buildings - Map base source: A characterisation of The Historic Townscape of Central Hereford February 2010, Herefordshire Archaeology Report no. 266 [p.9]

Site & Surrounding Context

2.4 / Local Network of Related Buildings

Hereford Museum and Art Gallery has relationships with other council owned buildings in the city centre, and more broadly, heritage and archive buildings across the county. It is useful to view these buildings holistically when considering design options, as they function as a collective, for example the museum offices and collections storage are housed in the Museum Resource and Learning Centre The diagrams on this page show their physical relationships.

Black and White House Museum



Hereford Museum & Art Gallery

Hereford Cathedral

Fig. 17 / Central Hereford Aerial Views - Aerial view base source: A characterisation of The Historic Townscape of Central Hereford February 2010, Herefordshire Archaeology Report no. 266 [p.14 & 25]

Hereford Museum & Art Gallery

Museum Resource and Learning Centre

Black and White House Museum

Hereford Cathedral, Cloisters & Diocese

Fig. 18 / Central Hereford Council Owned Buildings - Figure ground base source: A characterisation of The Historic Townscape of Central Hereford February 2010, Herefordshire Archaeology Report no. 266 [p.13]

Fig. 19 / Herefordshire Market Towns - Hereford Museum and Art Gallery provide expertise, collections and are the point of contact for heritage sector partners across the market towns of Herefordshire; Hereford, Ross-on-Wye, Ledbury, Bromyard, Leominster and Kington.

3.0 / Existing Building Overview

Existing Building Overview

3.1 / Existing Building Massing

The existing building can broadly be separated into three main masses, with the original massing dating back to 1874, and the rear massing dating back to 1910.

In comparison to the fine Venetian Gothic facade fronting Broad Street, the facing extension to Aubrey Street features a more modest design. Initially proposed to have an ecclesiastical styled Gothic appearance with a main entrance, the red brick extension today is simply detailed featuring three bay windows higher up on the facade, with a stepped parapet design.

Internally the building arrangement is complex, with differing levels between the Broad Street massing and the other elements resulting seven levels across three storeys and a basement. The roof arrangement is a further complex arrangement of different structures that undulates east-west across Hereford City skyline.

There have been numerous additions and alterations to the Hereford Library and Museum over the years, please refer to Page 15, Figure 27 for a diagrammatic representation of these elements.

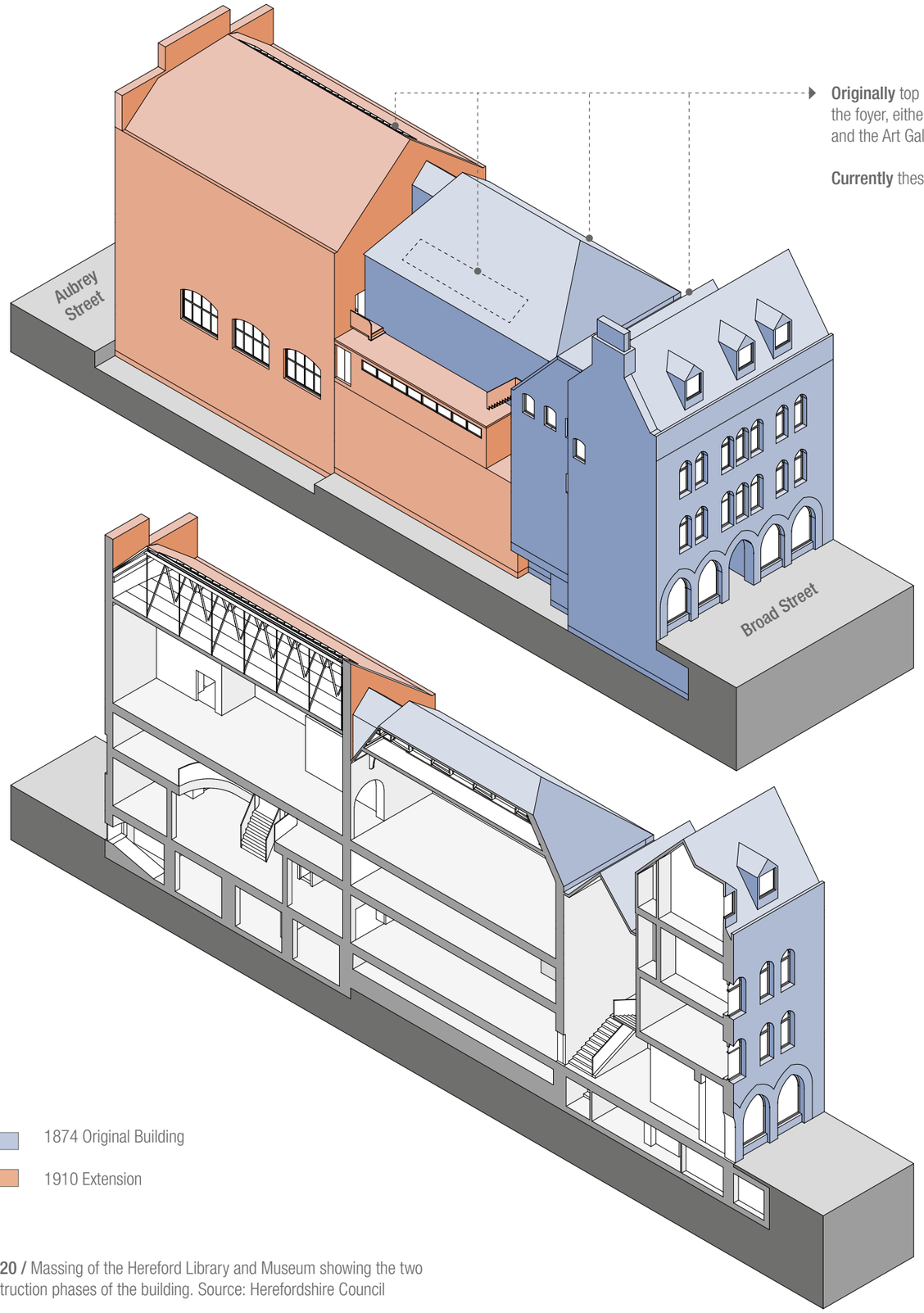


Fig. 20 / Massing of the Hereford Library and Museum showing the two construction phases of the building. Source: Herefordshire Council

Fig. 21 / The intricate Venetian Gothic Facade fronts Broad Street.

Fig. 22 / The Aubrey Street frontage is modest by comparison.

Existing Building Overview

Evolution of Building Additions and Uses

The existing Hereford Museum and Library building is a significant asset to the city, representing the first free Library in Herefordshire contributing to the knowledge and culture of the local users. It has remained in its current public use for the last 138 years.

During this time, the building has been altered on numerous occasions in order to meet the changing needs of the building use and its community. The mezzanine floor added in 1963 and extended in 1974 represents a major growth in the use of the library at the time despite having a detrimental impact on the once double height Victorian space.

The Library

Fig. 23 / The Library c.1930's, prior to the installation of a mezzanine level. Source: Herefordshire Council Museum Archives

Fig. 24 / The Library today, with the lower level serving a children's library. Source: Architype, 2020

The Gallery

Fig. 25 / Art Gallery c.1930's. Source: Herefordshire Council Museum Archives

Fig. 26 / Gallery Space today / Source: Herefordshire Life through a Lens exhibition, 2020. Available at: https://www.herefordshirelifethroughalens.org.uk/

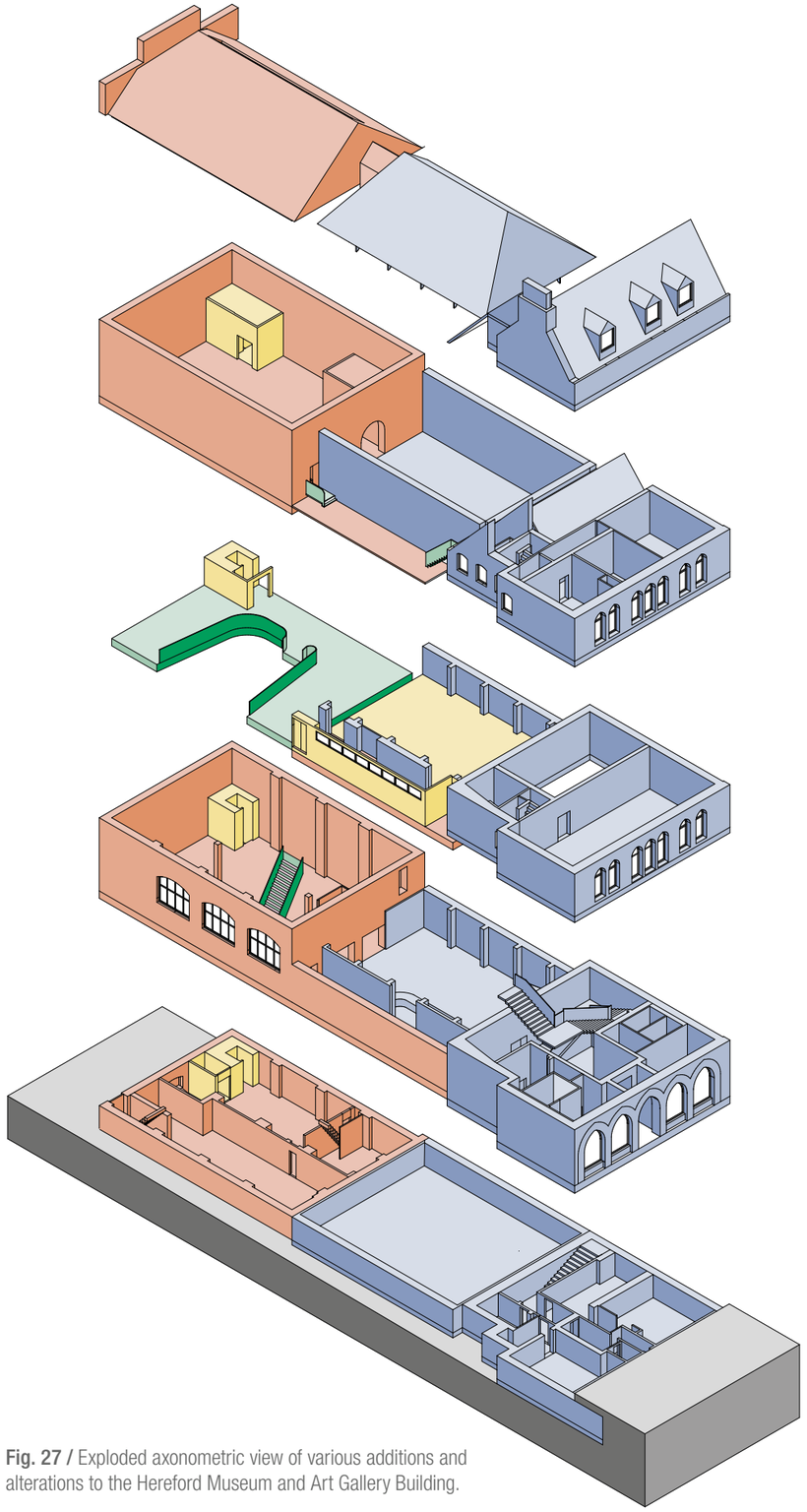


Fig. 27 / Exploded axonometric view of various additions and alterations to the Hereford Museum and Art Gallery Building.

Existing Building Overview

3.2 / Key Challenges Identified

The adjacent and following drawings are indicative of the existing Hereford Library and Museum and have been used for initial desktop survey and concept development. These drawings are schematic only, with plans provided by others and sections generated from them. Proposals have been checked against a recently commissioned measured survey that now informs subsequent stages of work.

Key Access Challenges
The building is subject to a number of access and fire escape challenges arising from numerous alterations and additions to the building over time. In part, this is the reason why elements of the building are currently not used or requiring maintenance works, and space provision is tight and of a domestic scale.

In overview, current access challenges include:

- Lack of external space around the building, particularly limited maintenance access and no level delivery access to the west basement.
- Current internal accessibility for disabled users is poor. There is no lift access to the original Broad Street building, with the only lift provision to the rear of the building onto Aubrey Street.
- Connectivity between various spaces within the building is complex and limited. For instance, the main stair serves the upper Gallery and Museum and the Woolhope room, but a second stair is used to access the upper levels of the original building.

Fire Escape Challenges
The current arrangement for Fire Escape is inadequate and will need to be addressed in any proposed alterations. These are inclusive of:

- Proposals will require a minimum of two stair cores appropriately located. Considering travel distances for this type of building stair cores to the East and West of the floor plan would satisfy standard means of escape requirements.
- New lifts to be provided to East (passenger lift) and to the West (goods lift) The East lift may be an evacuation lift dependent on management plan and detailed discussions in next stages. This is not specifically required. There should be disabled refuges to be provided in protected stair.
- Due consideration should be given to proposal if exceeding 18m. In this scenario, a fire-fighting shaft, lift, lobbies etc. may be required. This will require detailed discussion in the next stage of works.
- Stair width is dependent on number of people, to be calculated using space factor once spaces are defined. For initial stage, a stair 1400mm wide is considered to be adequate for a fairly high space factor over 4 storeys (this does not include capacity at ground floor).

Mission, Objectives and Vision
This feasibility report is part of Hereford County Council's plan to regenerate and manage Hereford's existing assets for the benefit of Herefordshire's population and the wider city centre. This study forms the early phase options appraisal to improve and extend the existing Museum and Art Gallery, with the Library collections to be rehoused in a new public library facility away from this location.

Broadly, the study responds to several key aims & existing issues summarised below:

- HC require HMAG to provide delivery of revenue generating services sufficient to support a business model that, as a minimum, sustains and future-proofs the facility.
- HC aspires to provide a quality facility sufficient to attract visitors and tourists nationally in addition to the obligations to local residents.
- HC aspires to providing sufficient facilities to enable a continuation and growth of hosting fee-paying nationally-recognised temporary exhibitions.
- HC aspires to provide a 'destination': A desirable location for 'drop in' and coffee in addition to events and activities, utilising a beautiful rooftop venue.
- The museum aims to exhibit and represent the life, art and craft of Hereford, Herefordshire and the wider region.
- The museum aims to represent and exhibit the historic context of its location within Hereford, Herefordshire and the wider region of 'The Marches' and 'The Borderlands'.
- The existing Museum and Art Gallery spaces are unable to realise full capacity and there is a broader ambition to expand this facility by up to double the existing floor area.
- Access to the Museum and Art Gallery is via the central stair or a small passenger lift to the rear of the building. These are used for the manoeuvring of collections, but are not ideal for this purpose nor for providing full accessibility for those who are mobility impaired.
- The current arrangement for Fire Escape is inadequate and will need to be addressed in any proposed alterations. There is currently no fire escape provision from the original Broad Street building.
- The basements are currently used for storage and plant access, but are in need of some general repair and enhancement.

4.0 / Survey Information

Survey Information

4.1 / Record of Information Received & Outstanding

Survey Information
A record of information requested and recieved is documented in the table adjacently. Information from a number of supporting surveys remain outstanding:

- The Structural Report identifying constraints and opportunities is awaiting issue.
- The Services and Utilities Survey / Context topo has been received but is currently non-functional [.dwg format not able to be opened]
- An Ecological Survey is currently in the process of being commissioned
- A Historic England Building Inspector contact has been made, and in the process of being formally appointed.

These have been recorded in Section 13.0 / Risks, Recommendations & Next Steps" on page 74 and will be essential in progressing into RIBA design Stage 2.

Survey Information						
ID no.	Survey / Information Type	Appointed	Commentary	Due Date	Status	Status Indicator
01	**Structural Survey**	Andrew Collinson	› Investigate existing foundations; › Determine capacity of wrought iron/steel beams in old part of building; › Determine structural details of all floors; › Measure up existing museum/gallery roof spaces to assess support required. › Identify additional structural survey or conditions work following these initial investigations (Note that more intrusive survey works may be required, in order to follow due process and seek relevant approvals, it is unlikely that these would be completed until later in the year).	29.07.2021	› Initial survey has been completed. › A full report identifying constraints and opportunities is anticipated to be issued imminently from the Engineer. › The report will highlight any need for the requirement for any further invasive survey work. It is anticipated that there will be a need for further [more invasive] survey work to be undertaken.	PENDING ISSUE
02	**Measured Building Survey**	Laser Surveys	› The previous design explorations have been based on historic drawings and will be required to be calibrated to the measured survey drawings. › Laser surveys were appointed to undertake survey work	29.07.2021	› The measured building survey has been undertaken and issued in 3D format on 05.08.2021 - Revit and Sketchup models › 2D format information [plans, sections & elevations] were issued on 31.08.2021	COMPLETE
03	**Asbestos Survey**	Environmental Management Solutions on behalf of HC	› The Asbestos Survey has been undertaken	Received 20.07.2021	› A Recent Survey [Feb2021] concludes that asbestos is/ remains present throughout [locations identified] requiring careful ongoing monitoring and active management solutions if refurbishment works are planned and/or demolition plans. › Architype has issued to Andrew Collinson [SE] on 03.08.2021	COMPLETE
04	**Services & Utilities Survey / Context Topo**	Laser Surveys	› Laser surveys were appointed to undertake survey work › Commissioned by Roger Allonby [HC] [SRO]	30.08.2021	› 2D Services and utilities information was issued on 31.08.2021 › Current DWG format is not functioning for use - Roger Allonby/ Laser Surveys to re-issue	ISSUED - NCOMPLETE
05	**Ecological Survey**	TBC	› To be commissioned by Roger Allonby [HC] [SRO]		› The Ecological Survey is currently being arranged and booked in for the appropriate 'sensitivity' window for bats hibernation and nesting cycles. › The results are unlikely to be available until Sept/Oct. › Roger Allonby [HC] [SRO] will appoint.	PENDING
06	**Historic England Building Inspector**	TBC Sarah Lewis	› Architype have made contact with Sarah Lewis at Historic England, for a potential site visit. › Sarah has a copy of the Outline Feasibility Report issued in January of this year.		› Roger Allonby [HC] [SRO] will appoint.	PENDING
07	**Planning and Conservation**	› Charlotte Atkins [Principal Planning Officer] › Nick Joyce [Conservation Officer]	› The Planning and Conservation case officers' contact details have been forwarded for meetings and a site walk around to be arranged.		› Principal Planning Officer, Charlotte Atkins and Conservation Officer, Nick Joyce visited for a walk around the Hereford Art Gallery & Museum site. › Discussing key views and vantage points enabled a number of sensitive discussions around 'massing' and presence to be aired.	ONGOING

5.0 / Client Consultation

Client Consultation

5.1 / Site Visits & Miro Online Consultation Board

Site Visits - Hereford Museum and Library Site
A visit to the site was initially undertaken back in December 2020 to better understand the site context. Further site visits since have helped to gain understanding and better inform architectural explorations and responses.

On site investigations comprised of:

- Architype visited the existing Museum facility for a general tour of the building, to better understand the existing building conditions and collections/staff requirements, as well as high level investigation works. This included visual and thermography assessments of the existing buildings fabric condition.

- The site visit gave a better understanding of the site and building constraints and opportunities, scale of the adjacent surrounding buildings, processes and relationships between the facilities and BOH operations.

- A further site visit with Planning and Conservation officers engaged project involvement from an early stage. Key views and vantage points enabled a number of sensitive discussions around ‘massing’ and presence to be aired. The planners and conservation, to a large degree, are likely to be led by Historic England

- As a multi-site service resource with a lot of ‘back of house’ & supporting services required for Hereford Museum [Broad Street] being undertaken at The Museum Resource & Learning Centre at Friar Street, a member of the Architype team undertook a general tour of these spaces to better understand the site’s services and operations.

This process has been invaluable to the design process and has helped to inform the proposals to date.

Fig. 28 / Site Visit Explorations / Source: Architype, 2021

Miro Online Consultation Tool
An online Consultation and Engagement 'miro' online board has been set up as part of RIBA Stage 1 consultation. The platform invites participation from the Museum staff to engage with the design process, and contribute.

The 'miro' platform enables a shared space where participants can access recent documents, review current thinking, and illustrated diagrams and leave comments, thoughts, as well as upload your own images, web links and small documents, and download any present on the board.

This will be used to ensure that we have captured sufficient detail from all staff to inform a robust brief for the deisgn development of the Musuem that reflects both the needs for the Museum's service delivery and staff requirements.

The consultation board[s] will remain active throughout this and the next design stage of the project and will enable collation and a record of all contributions and thoughts. As such it will be a ‘live’ document and intentionally ‘fluid’ to enable successful cross-team collaboration and dissemination.

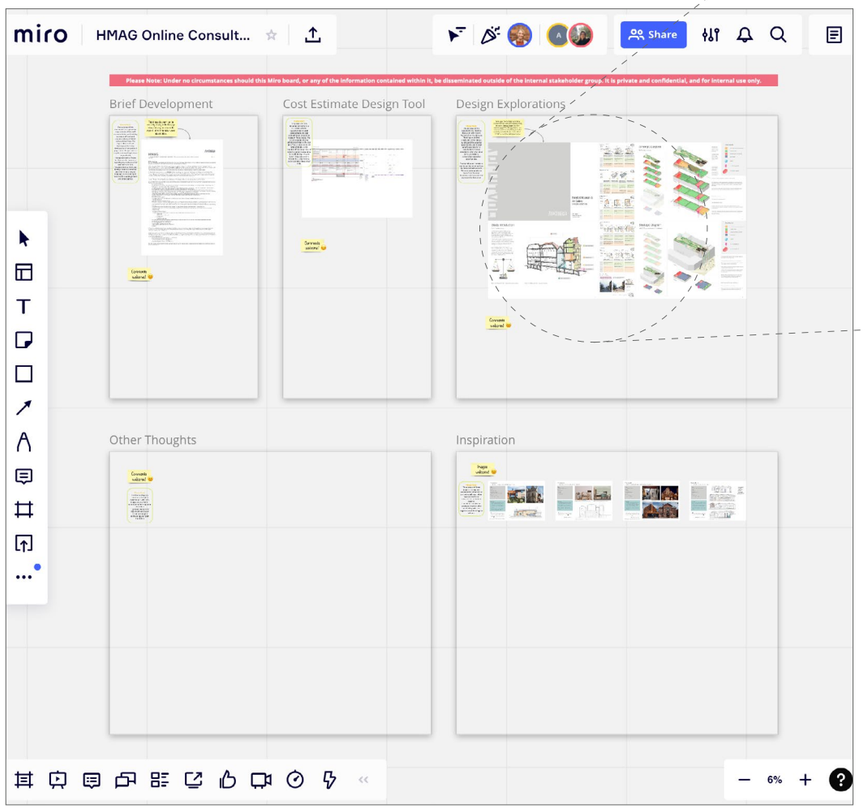


Fig. 29 / Online Consultation Platform / Miro Consultation Tool

Client Consultation

5.2 / Stakeholder Consultations

Stakeholder Consultations
Following an interrogation of the initial project brief and discussions with the client team, a number of Stakeholder Workshops have been held throughout August 2021 to gain an initial high level understanding of the stakeholder ideas and requirements for the new Museum facility.

These workshops form the first tranche in a series of Stakeholder engagement sessions that have helped to develop and inform the outline brief, pending further refinement in the next design stages.

The initial workshop on the 4th August, 2021 included a recap of the business case options, costings and P+P report, as well as an introduction to Architype and the archives, collections and cultural work that we have and are currently undertaking.

Further workshops have facilitated ongoing discussions about the key requirements of the brief such as spatial and access requirements, the Museum's service delivery and staff requirements, broader ambitions and needs for the project to generate income revenue, and environmental performance considerations.

Whilst Staff and Leadership consultation has been undertaken as part of this RIBA Stage 1 Feasibility reporting, it was agreed that public consultation would be delayed until such a time that funding is secured and an appropriate design incorporating wider Hereford[shire] considerations has been developed.

For notes of consultations, please refer to to 14.2 / Appendix B - Client Consultations".

Key Points

The preliminary set of Stakeholder Workshops have been held to gain an initial high-level understanding of the stakeholder ideas and requirements for the improved HMAG facility.

- These have been accompanied with site visits to both the Hereford Museum and Library Site, as well as it's partnering site in Hereford - The Museum Resource and Learning Centre.
- An online consultation platform has been set up and will be ongoing into next design stages. This will be used to ensure that we have captured sufficient detail from all staff to inform a robust brief for the design development of the Museum that reflects both the needs for the Museum's service delivery and staff requirements.

Consultation Workshops Summary

Date	Atendees	Summary of Discussions
04.08.2021	HC › Roger Alonby › Jon Chedgzoy › Robert Ewing P+P › David Prince › Simon Pearce Architype › Ade Scholefield	**Project, Progress & Next Steps Meeting** › Cabinet feedback from recently issued business case options, costings and P+P report were discussed. Broadly the stakeholders were in agreement to proceed with proposals under the £15m Funding budget using the P+P Report as a basis, supplemented by stakeholder engagement. › Staff and leadership consultation agreed to commence immediately › It was agreed that public consultation would be delayed until such a time that funding is secured and an appropriate design incorporating wider Hereford[shire] considerations has been developed. › A covenant on the building exists requiring its use as a 'Library'. This is owned by Hereford Cathedral!! Lawyers are currently examining the implications.
10.08.2021	Principal Planning Officer › Charlotte Atkins Conservation Officer › Nick Joyce Museum Head › Judy Stevenson Architype › Paul Neep › Polly Upton › Ade Scholefield › Katie de Silva	**This was an on site visit with Conservation and Planning, by means of introduction and project engagement from early stages.** › A walk around the site, taking in a few key views and vantage points enabled a number of sensitive discussions around 'massing' and presence to be aired. › The planners and conservation, to a large degree, are likely to be led by Historic England - a site visit [and meaningful dialogue between Architype, Historic England, planning and conservation] is being set up by Roger Allonby for some time towards the end of August/September.
11.08.2021	P+P › Simon Pearce HC › Jon Chedgzoy › Corolyn [?] Museum Head › Judy Stevenson Collections Officer › Catherine Wilson › Sally [?] Architype › Ade Scholefield › Katie de Silva	**On site Consultation Workshop at the Museum Resource & Learning Centre** › This preliminary consultation workshop took the form of a discussion and Q&A, with the purpose of setting a baseline brief by strategic decision and facility operations. › P+P provided an update and insight into the importance of a successful income generation revenue model by strategies to increase footfall through some key approaches, such as attracting visitors by a ground floor cafe. › Key discussions included the broader aspect of Broad Street Masterplanning, street presence and entrance points, highlighting the Museum's currently subservient street presence. › Brief development was discussed with some key issues highlighted by stakeholder group, such as the need for more storage, more BOH facilities for staff/ caretaker, as well as the need for exhibition preparation/packing space.
31.08.2021	Museum Head › Judy Stevenson Collections Officer › Catherine Wilson Architype › Ade Scholefield	**Brief Development Consultation Workshop** › This secondary consultation workshop took the form of a discussion and Q&A with reference to the 'Historic England' building development exploration document, the revised cost-plan tool and precedent examples. › The discussions broadly set out the brief development for RIBA Stage 1 Feasibility works and explored key 'Day in the Life' of both BOH and Exhibition services, as well as setting out key facility requirements for efficient and effective function. › Further detail on brief development can be found in section 8.0 / Outline Brief & Brief Development" on page 46 and will be subject to further refinement in the next RIBA design stage.

6.0 / Planning and Conservation

Planning and Conservation

6.1 / Study & Purpose

The Hereford Museum and Library building has been in ownership by the Herefordshire Council since 1872, and is documented as having significant historical importance.

Alongside developing a brief for the facility at Broad Street, this section aims to 'explore' constraints & opportunities around some of the key areas documented within the 'Conservation Management Plan' by JS 'Conservation Management and Town Planning' requiring 'attention' or consideration regarding historic context and city presence.

The section explores a range of design strategies, each with their varying pro's & con's when judged on a range of factors, intended to provide a basis for further discussion, evaluation and hopefully to help find mutual benefit amongst the Historic, Conservation, Planning and Museum stakeholder groups.

Historical Significance
In 1974 the Hereford Library and Museum was registered as a Grade II listed building of special architectural interest. The main elements detailed refer to the Broad Street Facade, the Woolhope Room and the Foyer Central Staircase. This exploratory study section also includes the old Librarian's accommodation quarters above the Woolhope Room, the general roofscape and massing and the public realm in front of the main entrance on Broad Street.

The key considerations and opportunities for regeneration, refurbishment and development of Hereford Museum's historic public building on Broad Street, explored in this section, include:

- Preservation of the building's historic record and value
- Impact of the building's presence in Broad Street, Hereford and for the population of Herefordshire and visitors from further afield
- Regeneration, upkeep and preservation of the building fabric for the next 100+years
- Ongoing energy performance with 'EnerPHit' quality assured accreditation
- Wellbeing of occupants and visitors managed through considered environmental control/moderation
- Provide an attractive and inviting destination for Hereford, Herefordshire and the UK
- Comply with current Museum best practice and environmental control to BS EN 16893 & BS 4971
- Realising the recommendations outlined in the P+P Business Model report 'Income Generation for a Redeveloped Hereford Museum'
- Provide adequate space for the Hereford Museum & Gallery to operate and successfully deliver their service

The topics and areas illustrated for review do not necessarily form a final set for consideration, merely a starting point and spring-board for further discussions ongoing if required. The scale of potential intervention and development is mutable and modular and the particular interventions examined illustrate 'moments' on the sliding scale where variations exist, for the range of key principles discussed.

The scope and intention is to ensure and support a transparent dialogue that encourages outcomes of mutual benefit to all participating stakeholder groups, including the Local Planning Authority, Conservation, Historic England and the Museum.

Fig. 30 / Broad St. Streetscape c.1860's showing purchased building / Source: Churcher et al 1999:4

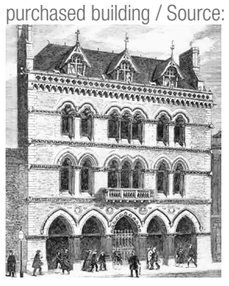


Fig. 31 / The Broad Street Facade / Source: Herefordshire History, Images Collection

Fig. 32 / The Ministry of Information at Hereford Museum & Library / Source: Herefordshire Council Archives

Fig. 33 / Hereford Museum and Art Gallery today / Source: Architype, 2021

1872 — Broad Street site was purchased by Hereford Council and construction work commenced

1874 — Hereford Museum and Library is opened to the public

1910 — The Council purchased land fronting Aubrey Street to extend the rear of the building

1912 — The extension was opened to the public, providing an extended library to the rear and an art gallery on the first floor

1939-45 — The library was used as a base during the Second World War by the Ministry of Information

1963 — A mezzanine floor is installed in the library

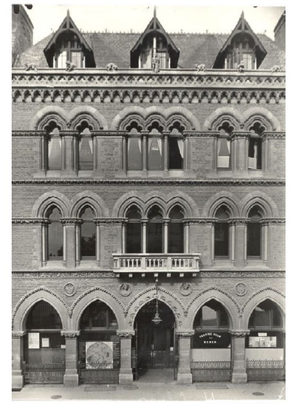
1973 — The Hereford Library and Museum is registered as a Grade II building on the Statutory List of Buildings of Special Architectural or Historic Interest.

1974-75 — The mezzanine floor is extended, and a lift is added to the rear extension.

2021 — Architype are appointed to carry out this Stage 1 report, investigating options to expand the area of the building and improve the thermal performance of the building fabric.

Fig. 34 / Chronology of the Hereford Library and Museum / Source: CMP Hereford Library & Museum, Somers, c.2013

Conservation Management Plan:
Hereford Library & Museum



Source: Hereford Library Archives

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Fig. 35 / Conservation Management Plan / Hereford Library and Museum, Somers, c.2013

Historic England Document

- The contents of this section were presented in a standalone document in September 2021 by means of facilitating further discussion amongst the Historic, Conservation, Planning and Museum stakeholder groups.

September 2021

3/ Historic England Report - Planning & Conservation Design Discussion

Planning and Conservation

6.2 / Study & Purpose

In 1974 the Hereford Library and Museum was registered as a Grade II listed building of special architectural interest. The main elements detailed refer to the Broad Street Facade, the Woolhope Room, original fireplaces with Godwin Tiles, ceiling roses and the main staircase (CMP, 2013).

These features, along with other elements of historic value i.e. the roofscape and upper accommodation, have been considered through explorations for sensitive enhancement. Preserving heritage value while improving usability and attractiveness, will help to ensure the building is future-proofed.

Another aspect of the brief is to improve the environmental performance of the building; to make sure it is built to last, to improve the wellbeing of the occupants, and to play an active role in mitigating climate change by reducing energy consumption. These considerations will need to be weighed up and viewed holistically i.e.. performance targets to be balanced with historical value of building features.

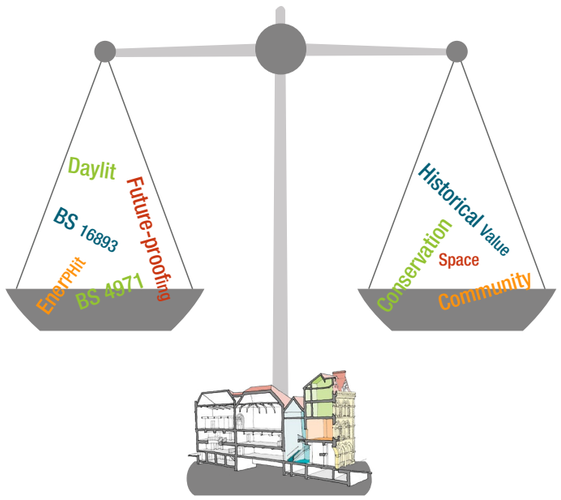


Fig. 36 / Hereford Museum & Art Gallery - Balancing design principles and targets

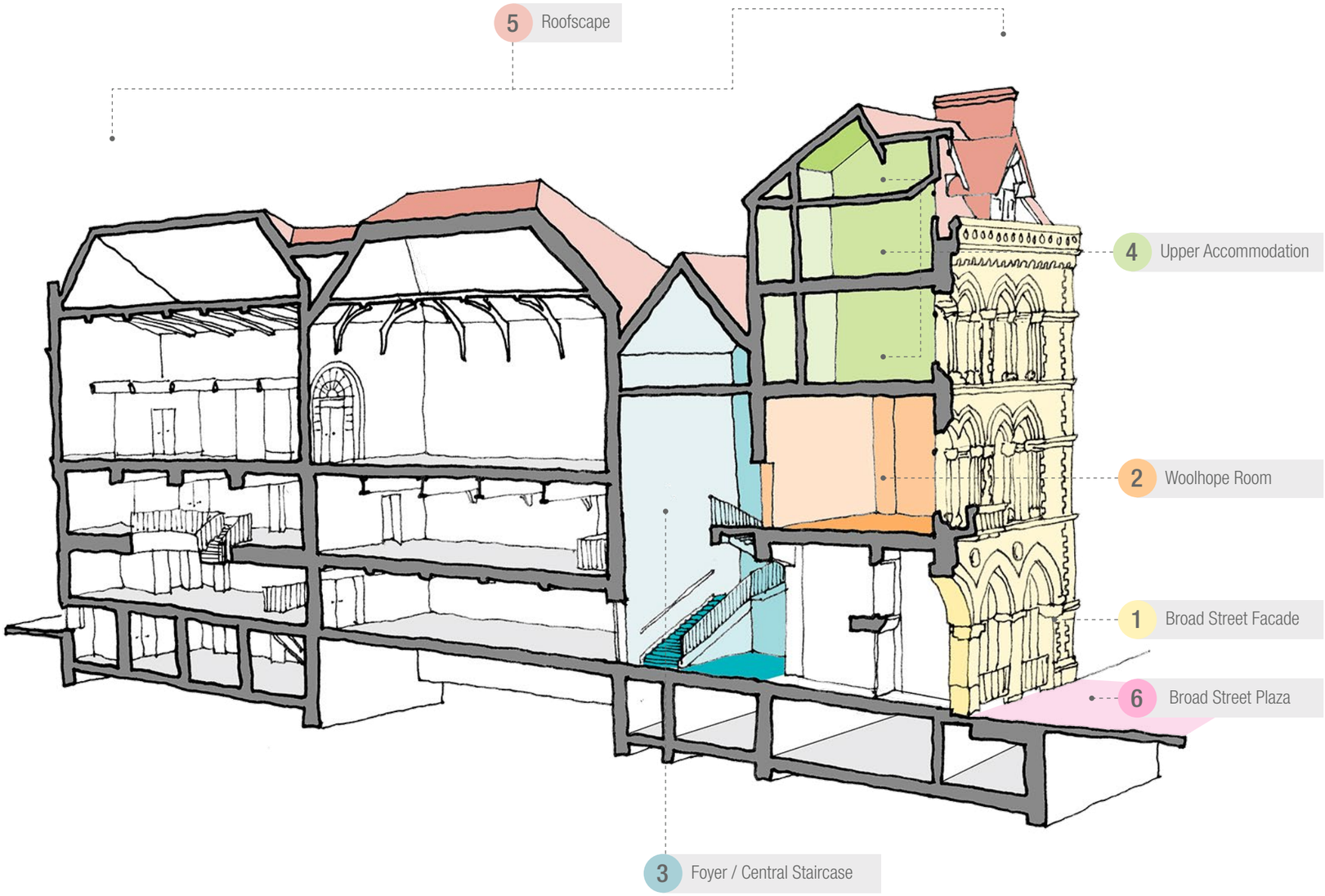


Fig. 37 / Hereford Museum & Art Gallery - Key Areas for Exploration

Planning and Conservation

6.3 / 01: Broad Street Facade

Statutory Designation /
› Grade II Listed Building
› Hereford Cathedral Conservation Area

Construction / 1874

Use / Main Entrance since 1874

Description /
The Broad Street facade of the building is characterised as Anglicised Venetian Gothic decorated with intricate carvings which depict various animals, foliage and symbols. This element is of significant historic importance.

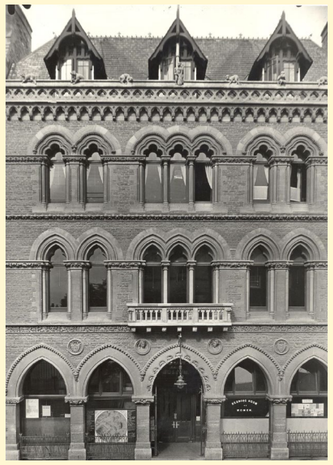


Fig. 38 / Broad Street Facade [CMP, 2013]

Statement of Significance / [As outlined in Hereford Library & Museum CMP]

National Significance:
› The Broad St. main facade is a fine example of Victorian Anglicised Gothic Architecture
› The Broad St main façade as a fine example of Architectural sculpture
› The Broad St main façade as a contribution to the architectural community

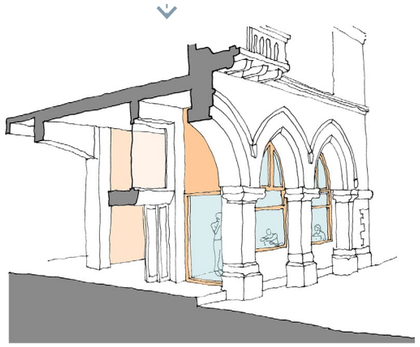
Regional Significance:
› The Broad St main façade is an association with Victorian architectural sculpting
› The Broad St main façade as a contribution to the architectural sculpting community.

Current Identified Issues /
› Generally good condition, however, some evident wear to stone carvings and facade has been reported as 'crumbling' in places and will require further investigative works
› Glass display cases added to the front facade results in a reduction of natural light to the interior without visual connection to the outside, and a closed off 'entrance zone'
› The entrance point is not very inviting/open from Broad Street to encourage foot fall into the museum
› The single glazing in the facade results and contributes to high heat loss and therefore poor environmental performance of building fabric. Secondary glazing could be a considered option to tackle this.
› Any alteration to original facade will require a conservation approach to maintain its significance

The Intervention Spectrum / The Facade

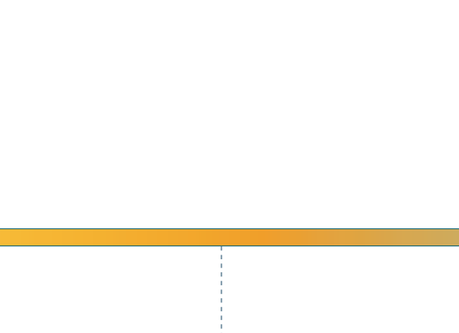
LIGHT-TOUCH APPROACH

INNOVATIVE APPROACH



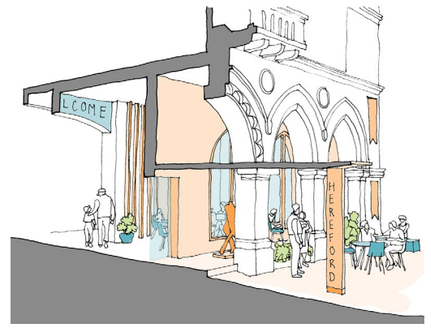
A

Remove display cases, add openings



B

Open & activate with Cafe



C

Open & activate to public plaza

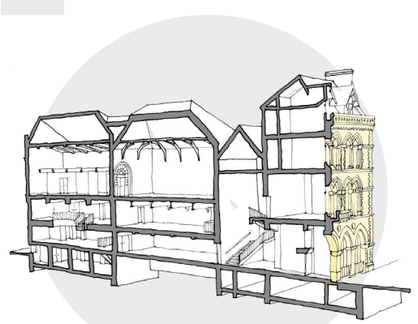


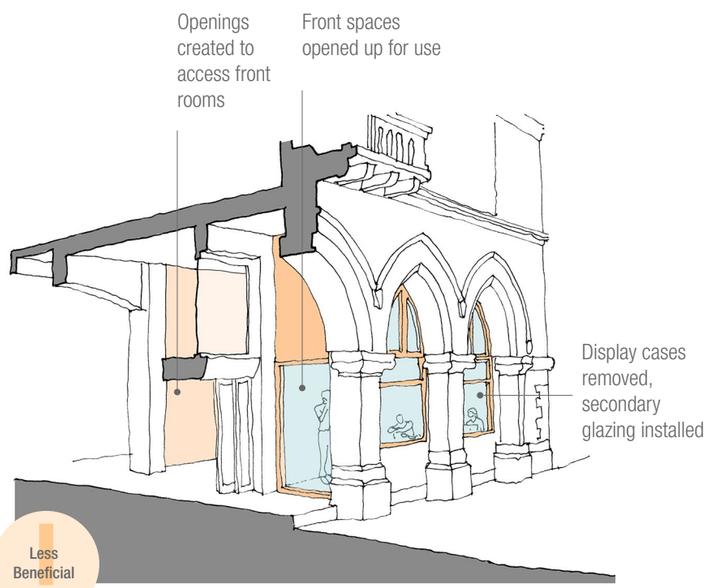
Fig. 39 / Explorations A-C, The Facade

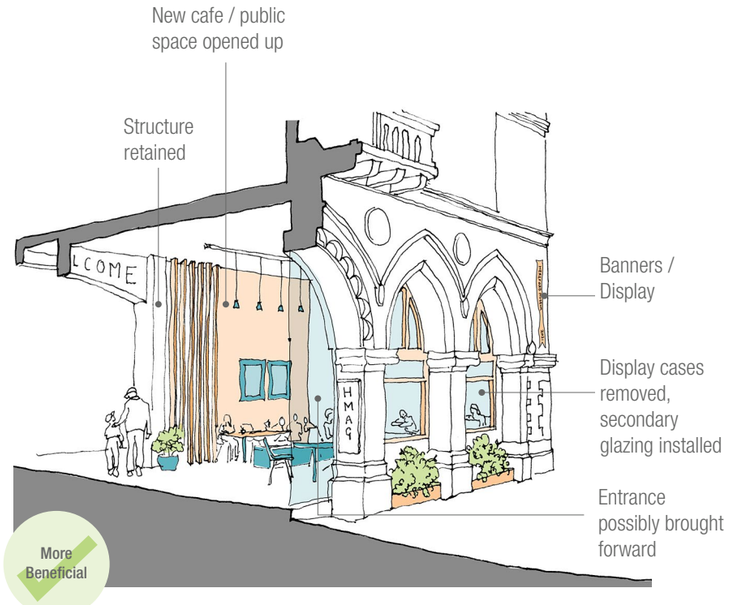
Planning and Conservation

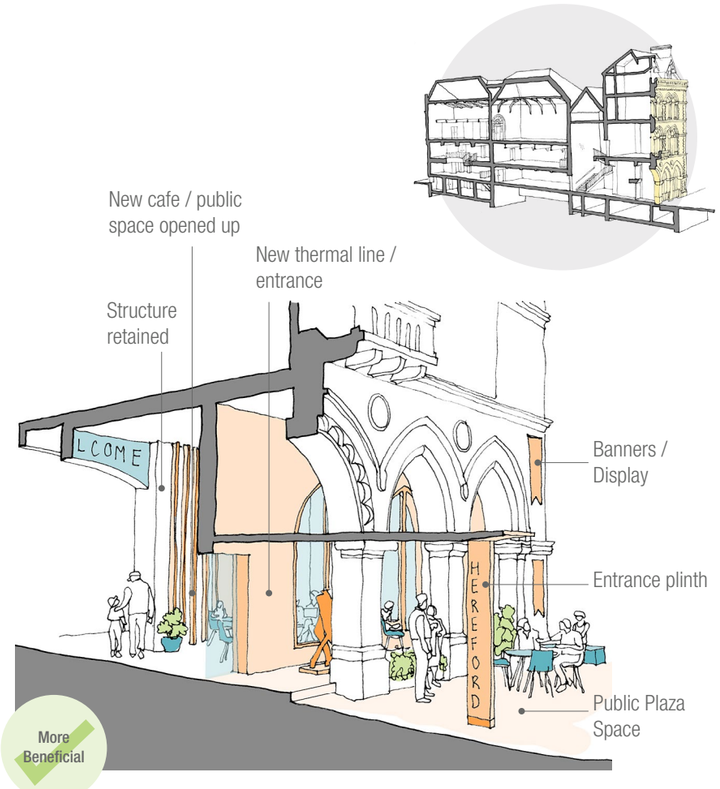
01: Broad Street Facade

Please Note /

- Anything coloured in orange/blue /green largely denotes fabric/ area/space explorations and proposals for discussions.
- The explorations as shown are not discrete design options but a collection of design ideas which can be integrated/combined with each other following consultation and feedback.







Exploration A: Remove display cases, add openings

- Remove display cases from front facade to improve daylight and public frontage. Open up use in front rooms of building.

Exploration B: Open and activate with cafe

Open out the front spaces of the building with public spaces / cafe - activate the front of the building with views into the space, banners and planting.

Exploration C: Open and activate to public plaza

- The facade is retained as a colonnade element, and the boundary between a open public inside space and an exterior plaza

Pros

- No works undertaken would result in compromising significant historical value of existing building fabric
- Removing the display cases along the front facade would increase daylight into the deep and existing poor-lit foyer space, as well as helping to activate the public front of the building
- Secondary glazing [or similar] would help improve environmental performance by reducing heat losses

- Possible opportunity to bring entrance onto the ‘public edge’ opening up the interior into a well-lit, activated public space
- Secondary glazing [or similar] would help improve environmental performance by reducing heat losses
- Building frontage activates the street more successfully than Exploration A
- Future proofing space

- Facade is retained as a colonnade element with the thermal line and entrance set back. Windows can be removed from the existing facade and high performance options can be implemented in new fabric.
- Opportunity to spill the public frontage onto the street as part of a ‘public plaza’ and wider master planning of Broad Street - existing bike racks could be relocated to enable this on the already widened part of building frontage.
- New thermal line will help to significantly improve thermal performance
- Future proofing space

Cons

- With limited thermal upgrade potential this would not have a significant improvement on the environmental building performance
- Architectural redevelopment potential is limited
- Would not future proof space to any significant advantage

- This would not have a significant improvement on the environmental building performance, but would provide an improvement on Exploration A
- Walls are load bearing and modifications will require in detailed discussions with a SE as well as an appropriate conservation approach
- Substantial disturbance to a space which is largely in its original state

- Walls are load bearing and modifications will require in detailed discussions with a SE as well as an appropriate conservation approach
- Substantial disturbance to original fabric of building

Planning and Conservation

01: Broad Street Facade

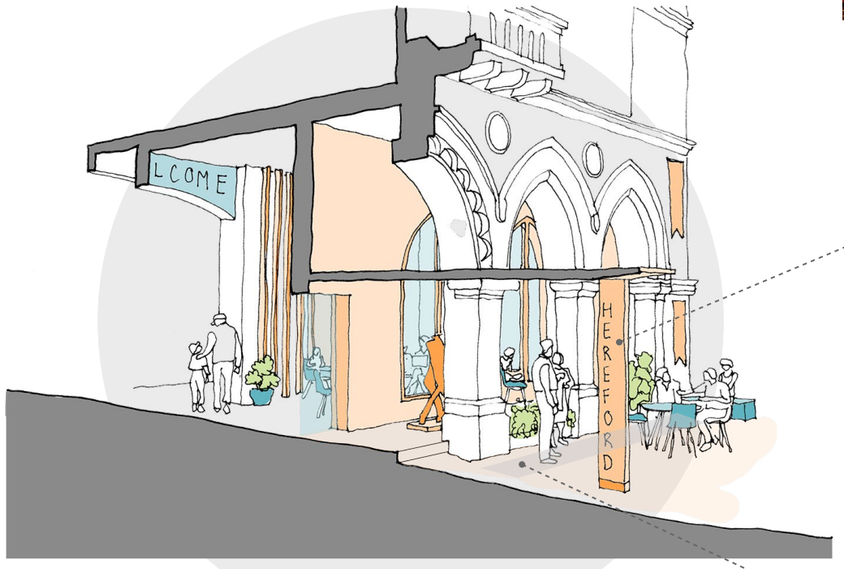
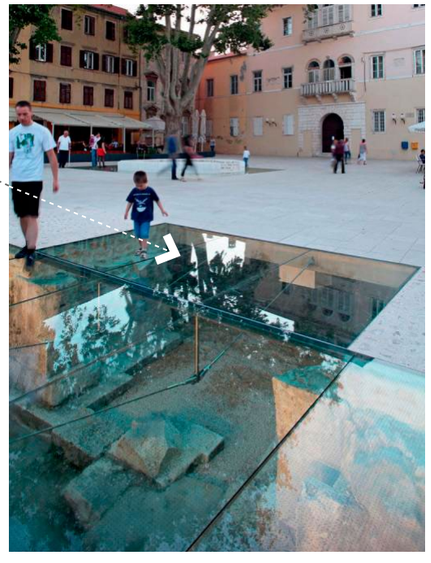


Fig. 40 / Battersea Art Centre re-imagined by Haworth\Tomkins - entrance signage



"a glass interface between the Roman and medieval finds below and the contemporary square above"

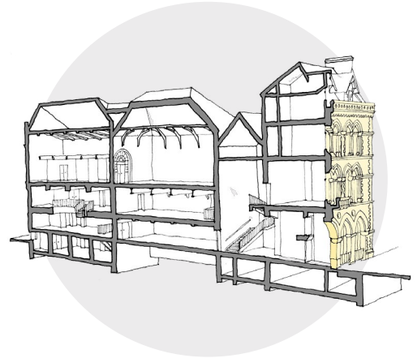


Fig. 41 / Petar Zoranic Square in Croatia [Image by Damir Fabijani]

Planning and Conservation

6.4 / 02: The Woolhope Room

Statutory Designation /
- Grade II Listed Building
- Hereford Cathedral Conservation Area

Construction / 1874

Description /
The Woolhope Room is situated on the first floor at the front of the original building, as is of significant historic value. The room is largely intact to its original state, lined with bespoke cabinetry that is one of the few surviving unaltered features of the building (CMP, 2013).

Fig. 42 / The Woolhope Room [CMP, 2013]

General Information & Use /
- Public use
- Headquarters and reference library for the Woolhope Naturalists Field Club
- The timber bookcases were custom-designed and are one of the few surviving unaltered features of the building (Groome & Bettington 1905).

Statement of Significance / [As outlined in Hereford Library & Museum CMP]

International Significance:
- The Woolhope Room and its association with the Woolhope Club
- The Woolhope Room and its association with the study of Mycology
- The Woolhope Room for its association with Alfred Watkins
- (1855-1935)
- The Woolhope Room and its use of Godwin tiles
- The Woolhope Room and its association with Sir Roderick Impey Muchison (1792-1871)
- The Woolhope Room and its association with Emma Sarah Hutchinson (1820-1906)
- The Woolhope Room and its association with Dr John Henry Wood (1841-1914)
- The Woolhope Room as an intact example of an original Naturalist Field Club room.
- The Woolhope Room as a rare example of a pre-1939 interior.
- The Woolhope Room and its value to genealogy
- The Woolhope Room and Woolhope Club for the contribution to the international community of Naturalist Field Clubs.

National Significance:
- The Woolhope Room and its association with Rev. W.H. Purchas (1823-1904)
- The Woolhope Room as the headquarters of the Woolhope Club

Current Identified Issues /
- Very poor environmental control, which does not meet user comfort standards nor BS 16893:2018 or BS 4971:2017 for archive/paper material
- A water leak in ceiling from above guttering through floor void
- Current condition will not aid the future proofing and longevity of the room and it's contents over the future lifetime [60-100 years]
- Cracking to plasterwork of ceiling around ceiling roses is evident

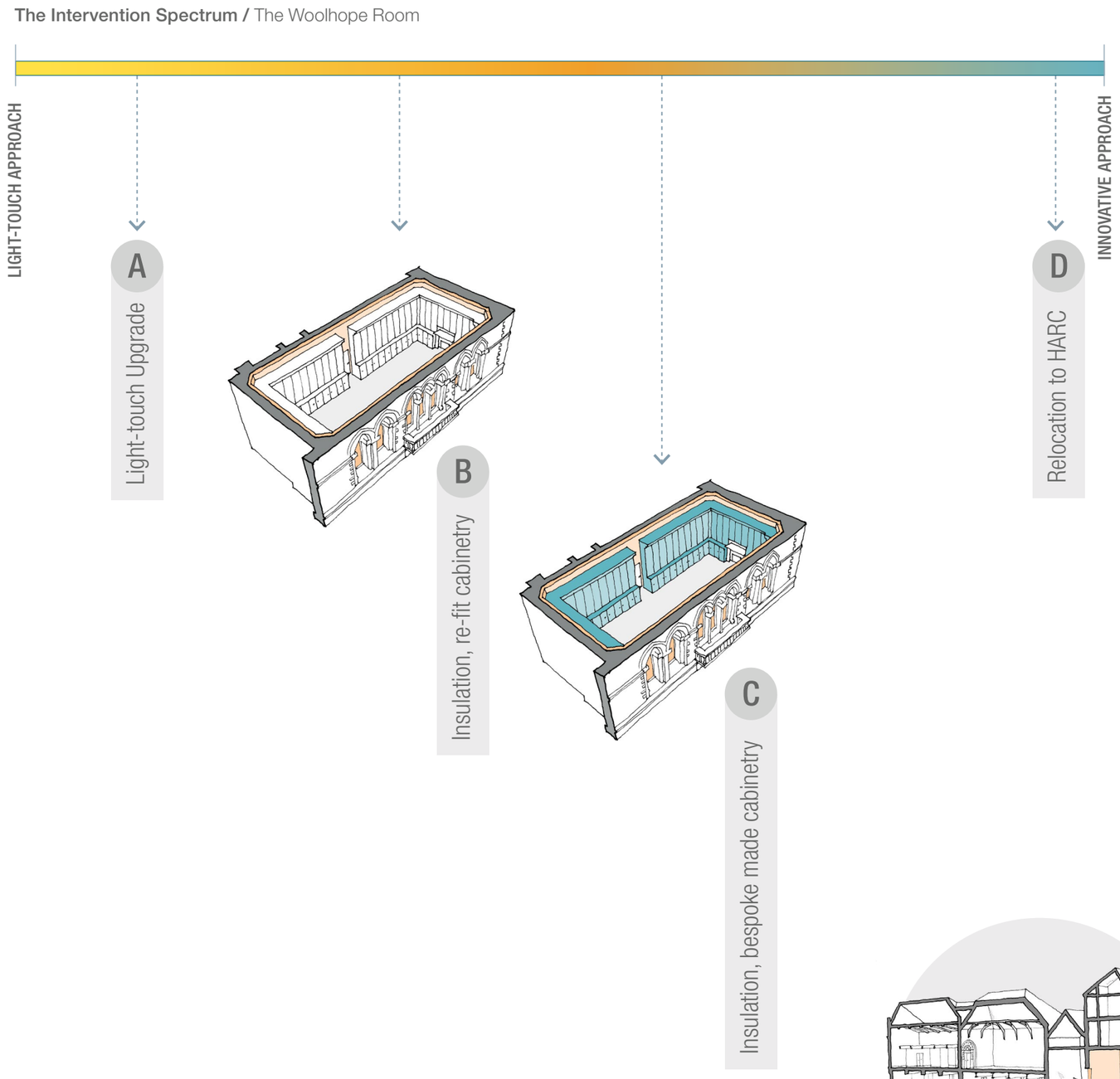
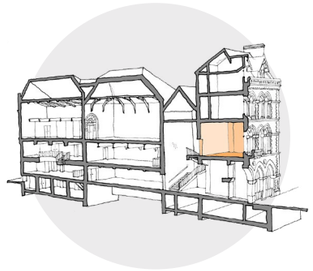


Fig. 43 / Explorations A-D, The Woolhope Room

Planning and Conservation

02: The Woolhope Room



Please Note /

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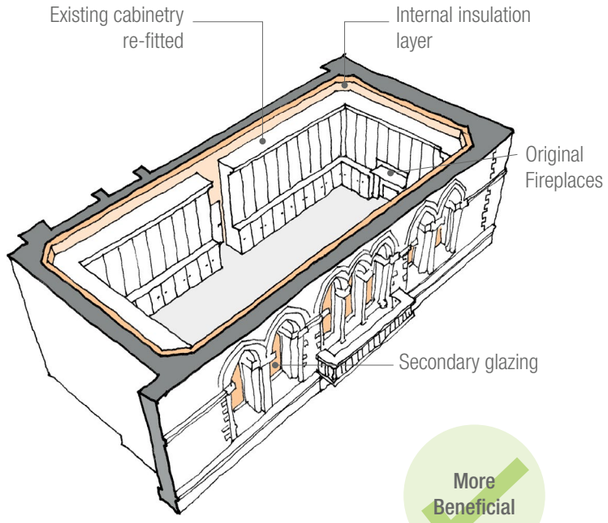

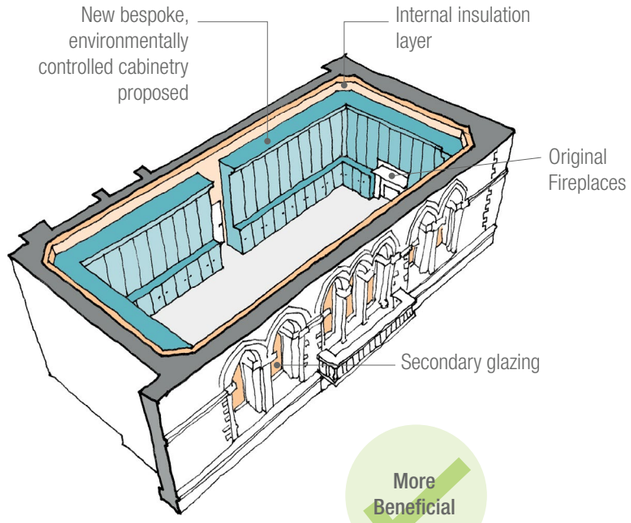

Less Beneficial

More Beneficial

More Beneficial

Less Beneficial

Exploration A: Light-touch Upgrade

- Leave cabinetry as currently located. Insulate and upgrade room fabric where possible.

Exploration B: Insulation, re-fit cabinetry

- Remove current cabinetry to insulate internally, add secondary glazing - to an EnerPHit standard.

Exploration C: Insulation, bespoke cabinetry

- As per Exploration B, but cabinetry would be upgraded with bespoke environmentally controlled cabinetry.

Exploration D: Relocation

- Woolhope Room would be relocated in purpose built Herefordshire based passivhaus archive.

Pros

- No works undertaken would result in compromising significant historical value of existing room fabric
- Some improved environmental performance, from secondary glazing and some insulation around cabinetry

- The cabinetry is one of the few surviving unaltered features of the building - removal and re-fitting of this cabinetry would ensure improved environmental performance as well as protection of historically significant cabinetry
- Improved environmental performance, continuous insulation strategy would support EnerPHit principles resulting in lower operational energy

- Would provide greatest opportunity to achieve much improved comfort levels for users, as well as environmental controls for collections material which will ensure future longevity
- Cabinetry can be bespoke made to match aesthetic nuance of existing historic cabinetry
- Continuous insulation strategy would support EnerPHit principles resulting in lower operational energy

- Option most attractive to support architectural redevelopment of existing building/spaces
- Material would be re-located to purpose built, environmentally controlled archive which would meet care standards of BS 16893:2018 and BS 4971:2017
- An example location could be Herefordshire Archive and Records Centre [HARC]

Cons

- This would not solve any current environmental issues, and would in fact exacerbate them. Insulating around the cabinetry would result in significant cold spots which would adversely effect the collections material
- EnerPHit is likely not a viable performance target with this approach
- Would not future proof space
- This light-touch minimal approach would not be deemed a viable option to proceed with

- Substantial disturbance to a space which is largely in its original state

- Substantial disturbance to a space which is largely in its original state
- Potential cost implications of new bespoke-made cabinetry with additional environmental protection

- Relocation would seemingly jeopardise historical importance of space and locations and is therefore considered deemed a non viable option
- Would result in a re-altering of the existing building [Which is part of the original building fabric]

- Retaining of the original Fireplaces is assumed in terms of their historical value. Further detailed discussion is required to understand what impact this may have in terms of building performance targets.

Planning and Conservation

6.5 / 03: Central Staircase

Statutory Designation /
- Grade II Listed Building
- Hereford Cathedral Conservation Area

Construction / 1874

Description / 19th Century staircase with original timber handrail over iron barley twist bannisters. The stairs have been re-upholstered and painted. Later additions include cement/plaster work to the edge and underside of the staircase. The rear wall of the landing has an original lancet arched window, which is currently covered up

Fig. 45 / Main central staircase [Architype]

Use /
- 1874-current : main staircase
- The main staircase located at the entrance of the building enables access to the main entrance of the museum, art gallery and Woolhope Room.

Statement of Significance / [As outlined in Hereford Library & Museum CMP]
- The stairwell has high significance as one of the original main focal points of the building, and due to modifications, and being the main escape route during an evacuation [CMP] pg 71

Current Identified Issues /
- Staircase previously been altered unsympathetically around 1960s - these include spot lighting, cement work to the underside of the staircase, plastic covering of balusters and an additional timber handrail to comply with DDA Act.
- Very poor lit space - due to suspended ceiling covering glazed atrium and original lancet window on the rear wall covered up
- The staircase does not provide access to all levels of building

The Intervention Spectrum / Central Staircase

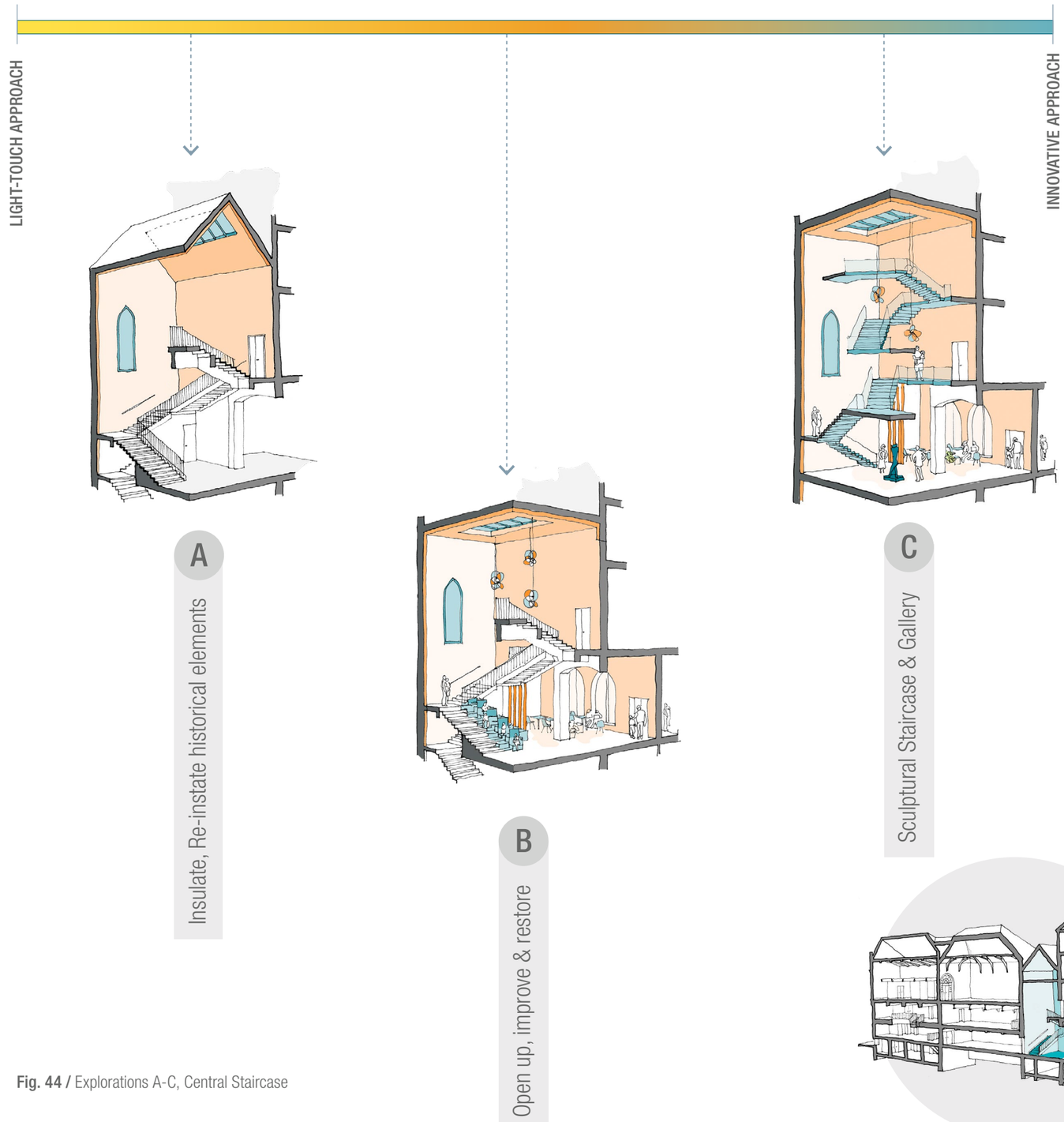

Fig. 44 / Explorations A-C, Central Staircase

Planning and Conservation

03: Central Staircase

Please Note /

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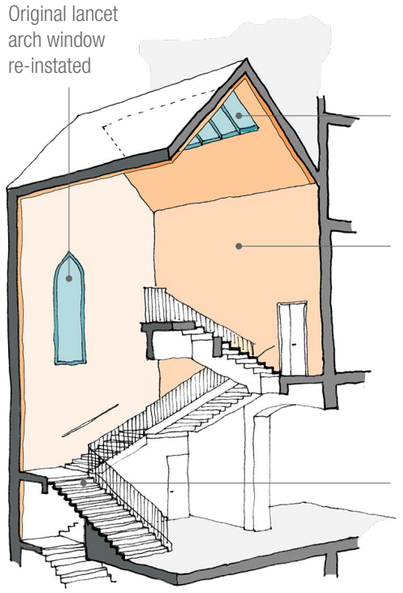

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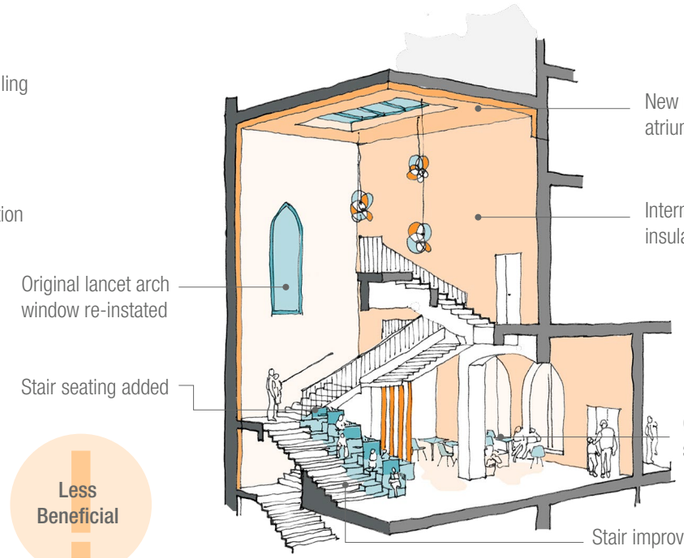

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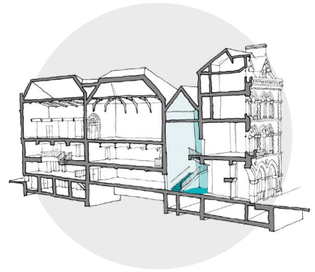
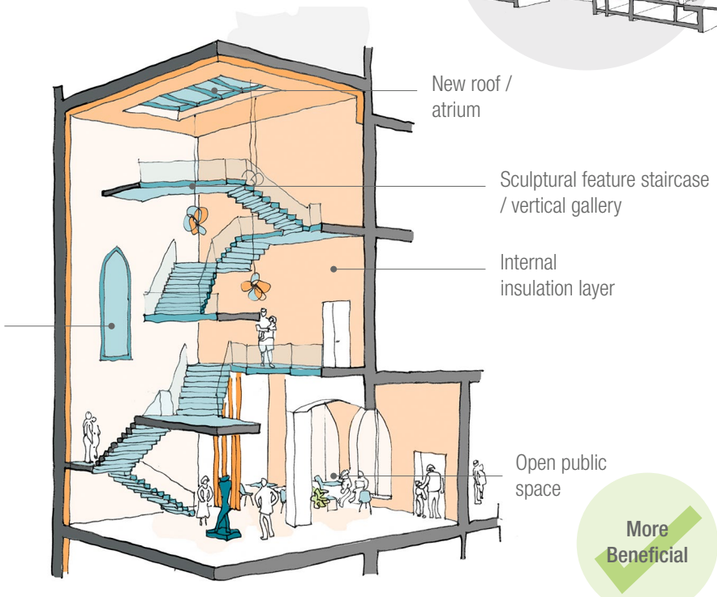




More Beneficial

Exploration A: Light-touch Upgrade

- Re-instate original lancet arch window, remove suspended ceiling

Exploration B: Open up, improve & restore

- Replace roof, open up ground floor foyer space

Exploration C: Sculptural staircase & gallery space

- Build a new sculptural staircase to access all floors, open up front foyer public space

Pros

Exploration A: Light-touch Upgrade

- Natural daylight improved significantly in space by re-instating lancet arch window and removing suspended ceiling
- Preservation of 19th Century staircase

Exploration B: Open up, improve & restore

- Natural daylight improved significantly in space by re-instating lancet arch window and removing suspended ceiling
- Preservation of 19th Century staircase with restoration / alteration works to improve it
- Improvement of building fabric would improve environmental performance
- Use and provision of ground floor as public entrance / cafe space greatly improved

Exploration C: Sculptural staircase & gallery space

- Option most attractive to support architectural redevelopment of existing building/spaces - particularly at GF level
- Would enable access to all areas of building [current staircase does not] as well as a fire escape route
- Natural daylight improved significantly in space by re-instating lancet arch window and removing suspended ceiling
- Continuous insulation strategy would support EnerPHit principles resulting in lower operational energy

Cons

Exploration A: Light-touch Upgrade

- Staircase does not provide access to all levels of building
- Ground floor configuration not architecturally improved

Exploration B: Open up, improve & restore

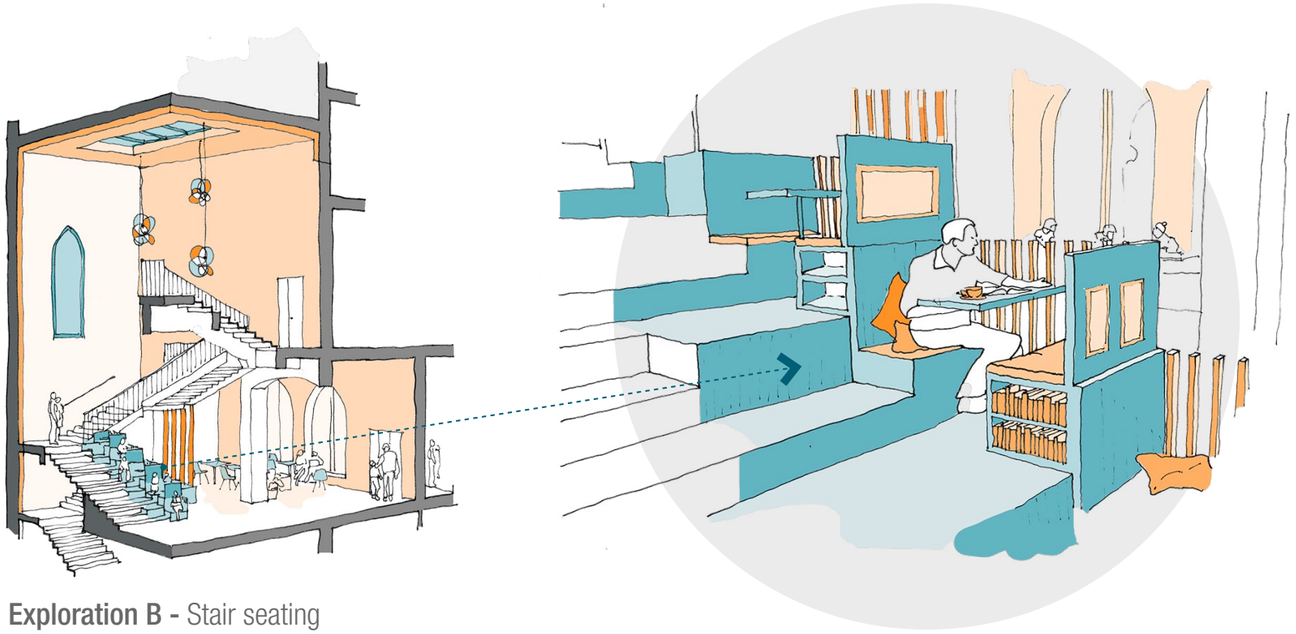
- Staircase does not provide access to all levels of building

Exploration C: Sculptural staircase & gallery space

- Loss of 19th Century staircase [however latter additions/alterations to this have been unsympathetic to historic fabric]
- More significant cost impact

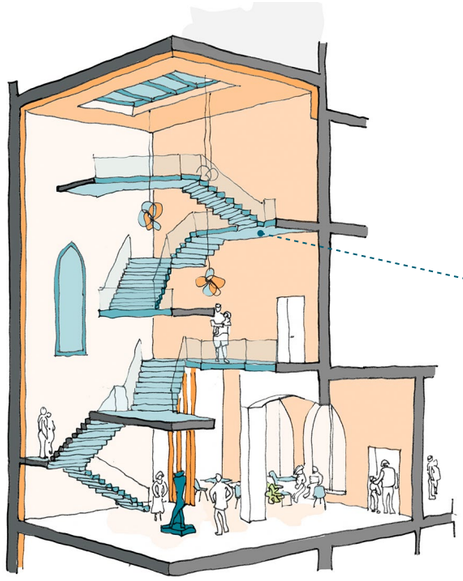
Planning and Conservation

03: Central Staircase



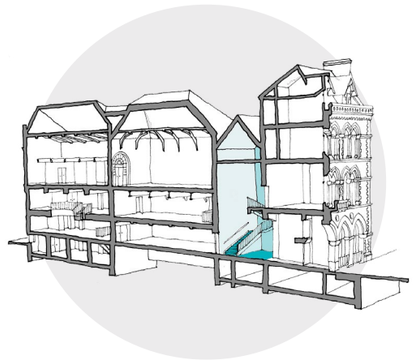
Exploration B - Stair seating

Fig. 46 / Battersea Art Centre re-imagined by Haworth\Tomkins - stair seating



Exploration C - Sculptural staircase in vertical gallery

Fig. 47 / Sculptural staircase [Source unknown]



Planning and Conservation

6.6 / 04: Upper Accommodation

Statutory Designation /

- Grade II Listed Building
- Hereford Cathedral Conservation Area

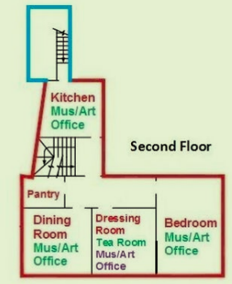
Construction / 1874

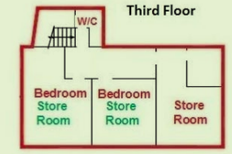
Description / The Upper Accommodation consist of the 2nd and 3rd floor rooms, both of which were part of the original living quarters of the librarian. At 2nd Floor level, there was a dining room (which has been later converted to an office), sitting room (later has had uses such as a tea room and an office), bedroom (later converted to an office) and kitchen/ pantry (now corridor). The 3rd floor houses museum storerooms, which were formally bedrooms, one being later used as darkroom for the creation of photos, possibly in connection with the Woolhope club and/or art gallery. These rooms include dormer windows (now painted over to reduce light affecting stored paintings).

Fig. 48 / 2nd Floor

Fig. 49 / 3rd Floor [CMP p.113]

Fig. 50 / 3rd Floor [CMP p.115]





	1874	Original Building
	1910	Extension to rear of building
	1963	Mezzanine Floor installed
	1974-75	Extension to mezzanine floor
	1976 –	Recent Changes
Dining Room Mus/Art Office		Indicates use of room and colouring of letters indicates the approximate date when use first started eg. Dining room (red) was 1874, and Mus/Arts office (green) since 1910.

Source: Bettington & Groome 1905a; Bettington & Groome 1905b; Churcher et al 1998; Builder 1875

Fig. 51 / Use evolution [CMP p.18]

Use /

- Originally: Librarian living quarters
- Later converted: Museum/art offices and storage

Statement of Significance / [As outlined in Hereford Library & Museum CMP]

- The original features and fittings of the rooms at 2nd and 3rd floor level tell of the original layout of the librarian's quarters and show evidence of installation of gas lighting during the 1870's and should be preserved to maintain the significance. Some works to enlarge openings for access may be possible, but any works will require a conservation approach to maintain the significance.
- Due to the poor escape routes from 3rd floor level, this floor has poor fire safety and should be restricted to uses where persons are not on this level for extended periods. [CMP] pages 108-115.

Current Identified Issues / [As outlined in Hereford Library & Museum CMP]

- The rooms at 2nd floor level are visually in good condition, however requires interior decoration.
- The rooms at 3rd floor level are visually in moderate to good condition, however require some repair work to plaster, holes in floorboards/walls, and internal decoration. The 3rd floor kitchen itself and partition walls in poor condition. Very poor lit space - due to suspended ceiling covering glazed atrium and original lancet window on the rear wall covered up [CMP] pages 108-115.

The Intervention Spectrum / Upper Accommodation

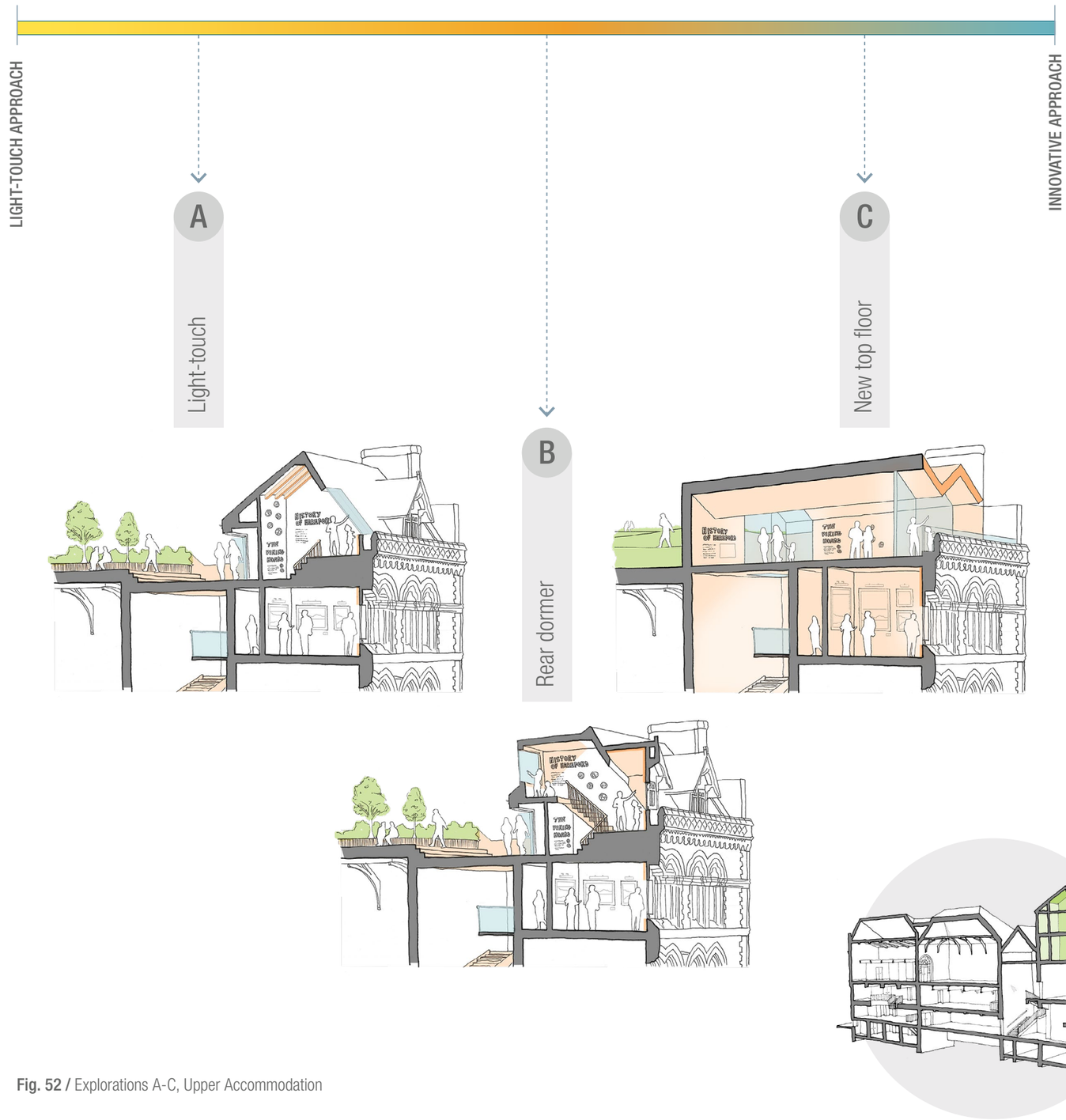


Fig. 52 / Explorations A-C, Upper Accommodation

Planning and Conservation

04: Upper Accommodation

Please Note /

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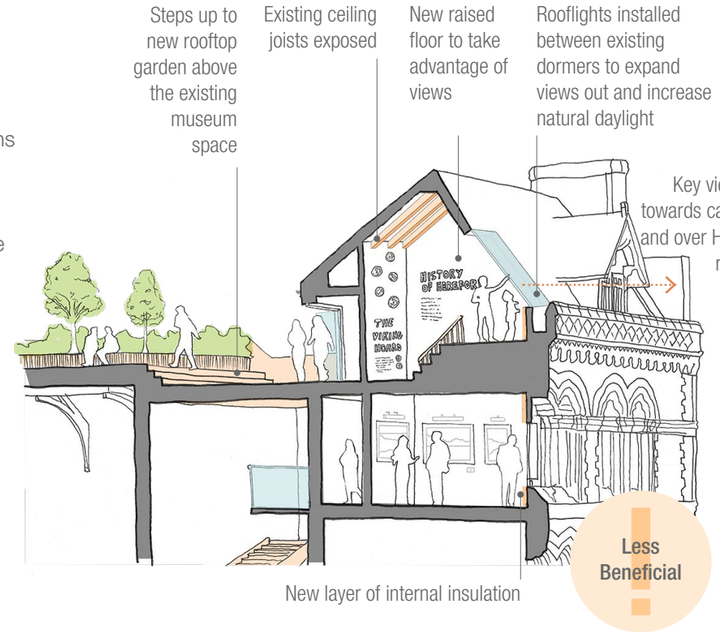
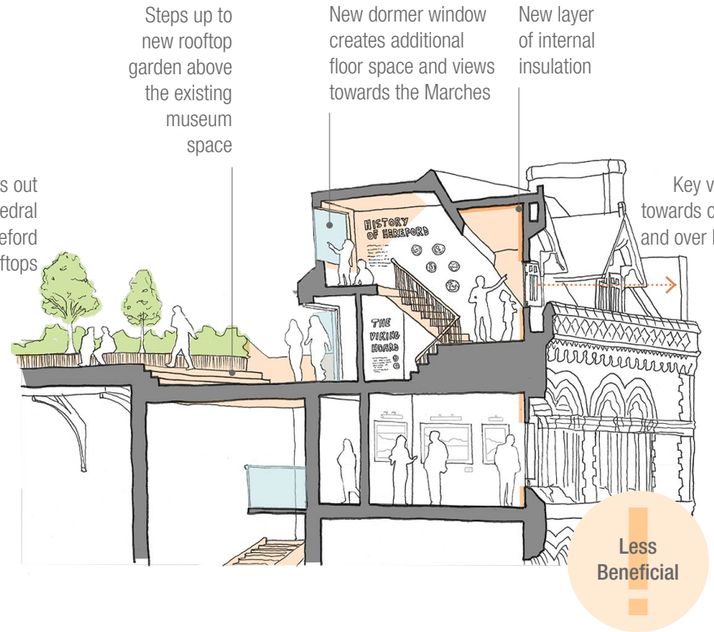
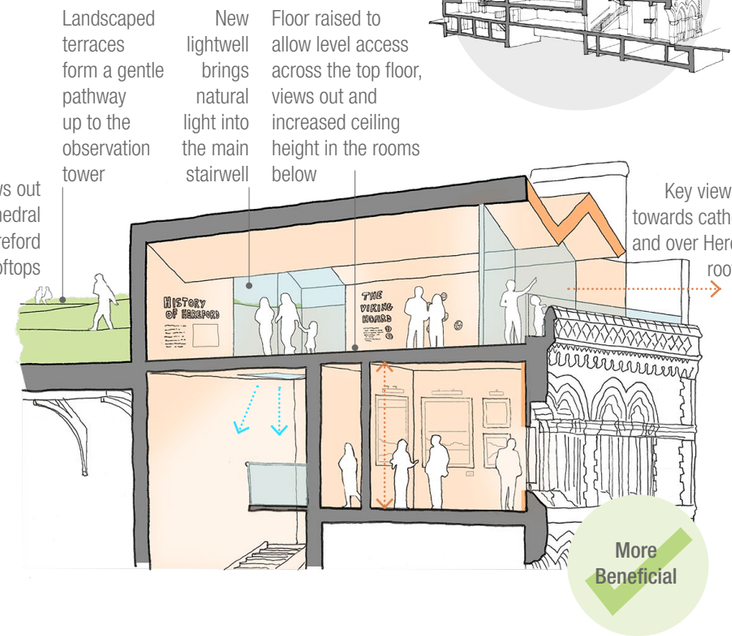
- The explorations as shown are not discrete design options but a collection of design ideas which can be integrated/combined with each other following consultation and feedback.







Exploration A: Light-touch

- Retain existing roof, add skylights between the dormers

Exploration B: Rear dormer

- Retain existing roof, add new rear dormer

Exploration C: New top floor

- Replace roof with contemporary top floor.

Pros

Exploration A: Light-touch

- Preservation of original roof, with original roof joists exposed, allowing the historic structure to be viewed.
- Some additional internal insulation follows EnerPHit principles resulting in lower operational energy.
- Minimal additions to the existing reduces embodied carbon associated with the renovation.
- Rooftop garden offers multifunctional external space which can be used for cafe spillout, event hire or educational purposes.

Exploration B: Rear dormer

- The upper accommodation benefits from additional floor space (new rear dormer) without altering the historic Broad Street facade.
- New dormer window creates additional floor space and views towards the Marches.
- Additional internal insulation follows EnerPHit principles resulting in lower operational energy
- Rooftop garden offers multifunctional external space which can be used for cafe spillout, event hire or educational purposes.

Exploration C: New top floor

- Provides the largest additional area to increase the capacity of the museum, improving what can be offered/facilitated e.g. larger events.
- Creates a new iconic building form that can be seen from a distance and attract more people to the museum.
- Floor raised to allow level access across the top floor (dictated by the new flat roof above the existing museum space), which provides the benefit of clear views out and increased head height in the rooms below (upper accommodation rooms above the Woolhope Room) which could be re-purposed as exhibition/gallery space.
- New top floor can be designed following Passivhaus principles resulting in lower operational energy.
- External space on the roof forms terraces, gently rising up to an observation area, creating a landscaped trail/journey.

Cons

Exploration A: Light-touch

- Internal space has not increased above what is existing and therefore could potentially be insufficient to facilitate current and future user needs.
- Exposing the roof joists means adding internal insulation may not be feasible and therefore other options will need to be considered to improve the environmental performance of the roof.

Exploration B: Rear dormer

- Multiple new levels with access via stairs will create issues in terms of wheelchair accessibility, and will require thought to address this.
- New dormer window faces west, so will be more difficult to shade and could cause issues with overheating if not carefully considered.
- Increased form complexity due to the new rear dormer increases heat loss areas, reducing the environmental performance of the building.

Exploration C: New top floor

- More significant cost impact.
- Impacts to heritage as roof has been altered (although this has been considered and remedied somewhat with reference to the form of the original dormer windows).

Planning and Conservation

6.7 / 05: Roofscape

Statutory Designation /

- Grade II Listed Building
- Hereford Cathedral Conservation Area

Construction / 1874 & 1910

Description /

- As shown in the aerial photograph opposite, the Hereford Library and Museum was originally top lit with roof lights lighting the foyer (orange arrow), the Museum (yellow arrow) and the Art Gallery (green arrow). The Art Gallery roof lights are the only roof lights which are not currently covered over.
- The key view of the roofscape is from the cathedral square on the other side of Broad Street from the museum (as shown in the street level photograph opposite). This view is the one which has been considered most thoroughly and illustrated to explore potential architectural interventions.

Current Identified Issues / [As outlined in Hereford Library & Museum CMP]

- The structural survey lists the replacement of the roof tiles including glass roof is urgently required as it is currently already failing. [CMP p.105]

Fig. 53 / Welsh slates and roof lights in poor condition [Source: Hereford Library Condition Survey 2010, p.42 CMP]

Fig. 54 / Photograph of 'key view' by author, 10/08/2021

Fig. 55 / Aerial photograph showing two construction phases [CMP p.25]

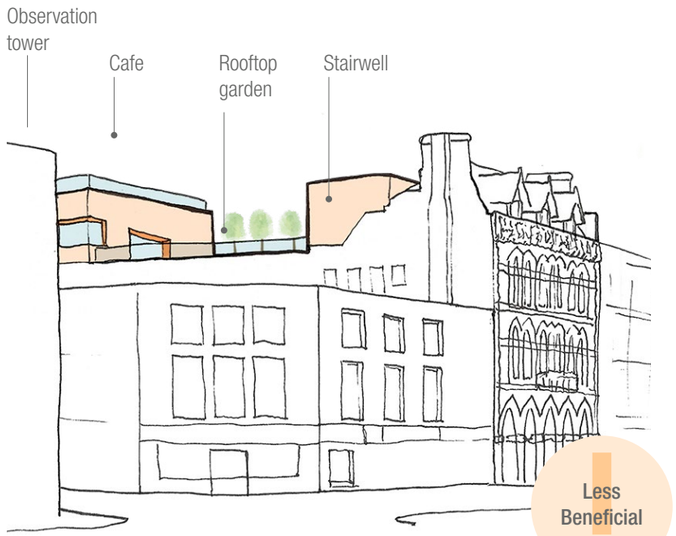
Fig. 56 / Explorations A-C, Roofscape

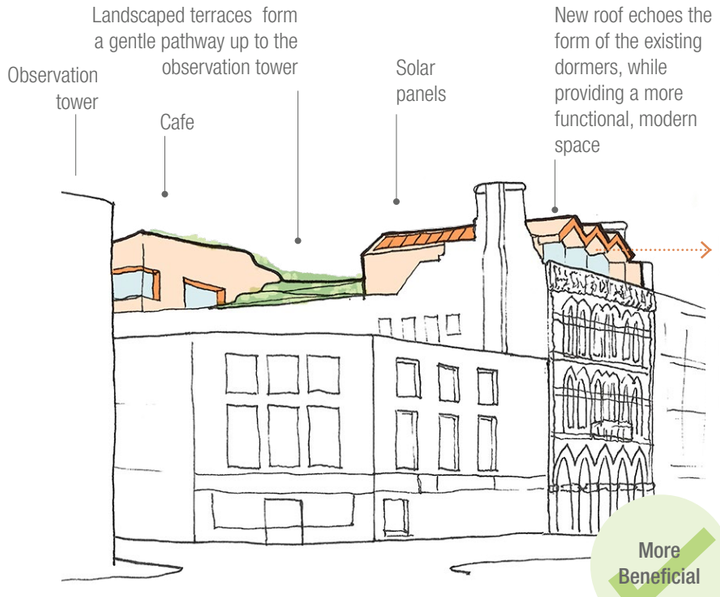
Planning and Conservation

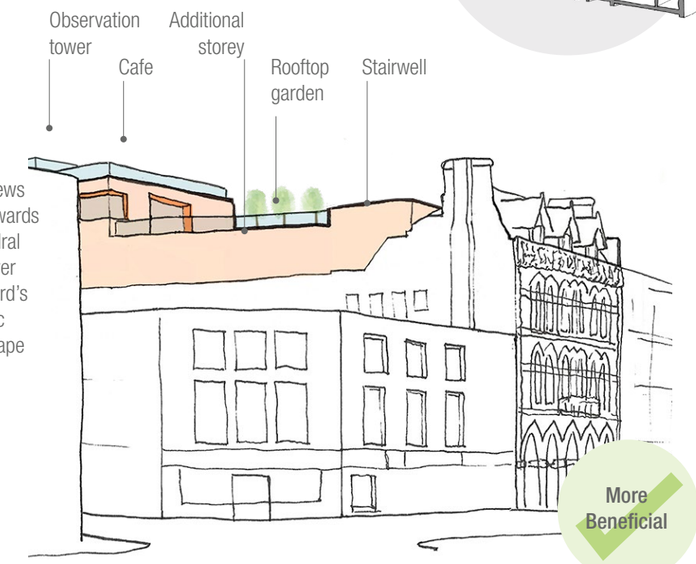
05: Roofscape

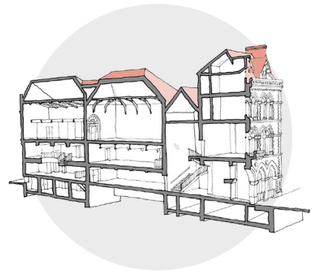
Please Note /

- Anything coloured in orange/blue /green largely denotes fabric/ area/space explorations and proposals for discussions.
- The explorations as shown are not discrete design options but a collection of design ideas which can be integrated/combined with each other following consultation and feedback.









Exploration A: Light-touch Upgrade

- Retain existing roof, with extensions to the rear.

Exploration B: Echoing the past

- Replace roof with contemporary "echo" of the existing dormers.

Exploration C: Sculptural staircase & gallery space

- Replace roof with contemporary top floor.

Pros

- Preservation of original roof.
- Rooftop garden offers multifunctional external space which can be used for cafe spillout, event hire or educational purposes.
- Least significant cost impact

- Provides more usable top floor (light and airy) for exhibitions and events.
- Extruded dormer-form roof profile hints at the original 3 dormers, whilst creating a striking, contemporary space.
- Provides key views across the Hereford city roofscape.
- Roof faces North/South, and therefore is well suited to house solar panels on the South-facing areas, providing renewable energy for the building.
- External space on the roof forms terraces, gently rising up to an observation area, creating a landscaped trail/journey.

- Provides the largest increase in space.
- Rooftop garden offers multifunctional external space which can be used for cafe spillout, event hire or educational purposes.

Cons

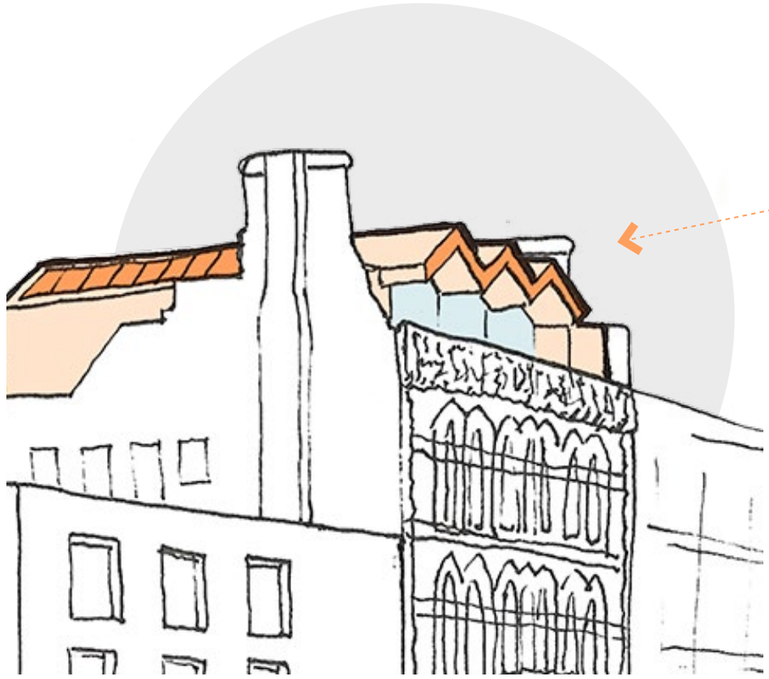
- Contemporary rooftop additions are in some areas less sensitive in design than Exploration B, which makes more use of subtle landscaping and roof forms which echo the existing.

- Impacts to heritage as roof has been altered (although this has been considered and remedied somewhat with reference to the form of the original dormer windows).

- Most significant cost impact.
- Most significant impact to the general massing of the building, especially when viewed from the cathedral square, as illustrated above.

Planning and Conservation

05: Roofscape



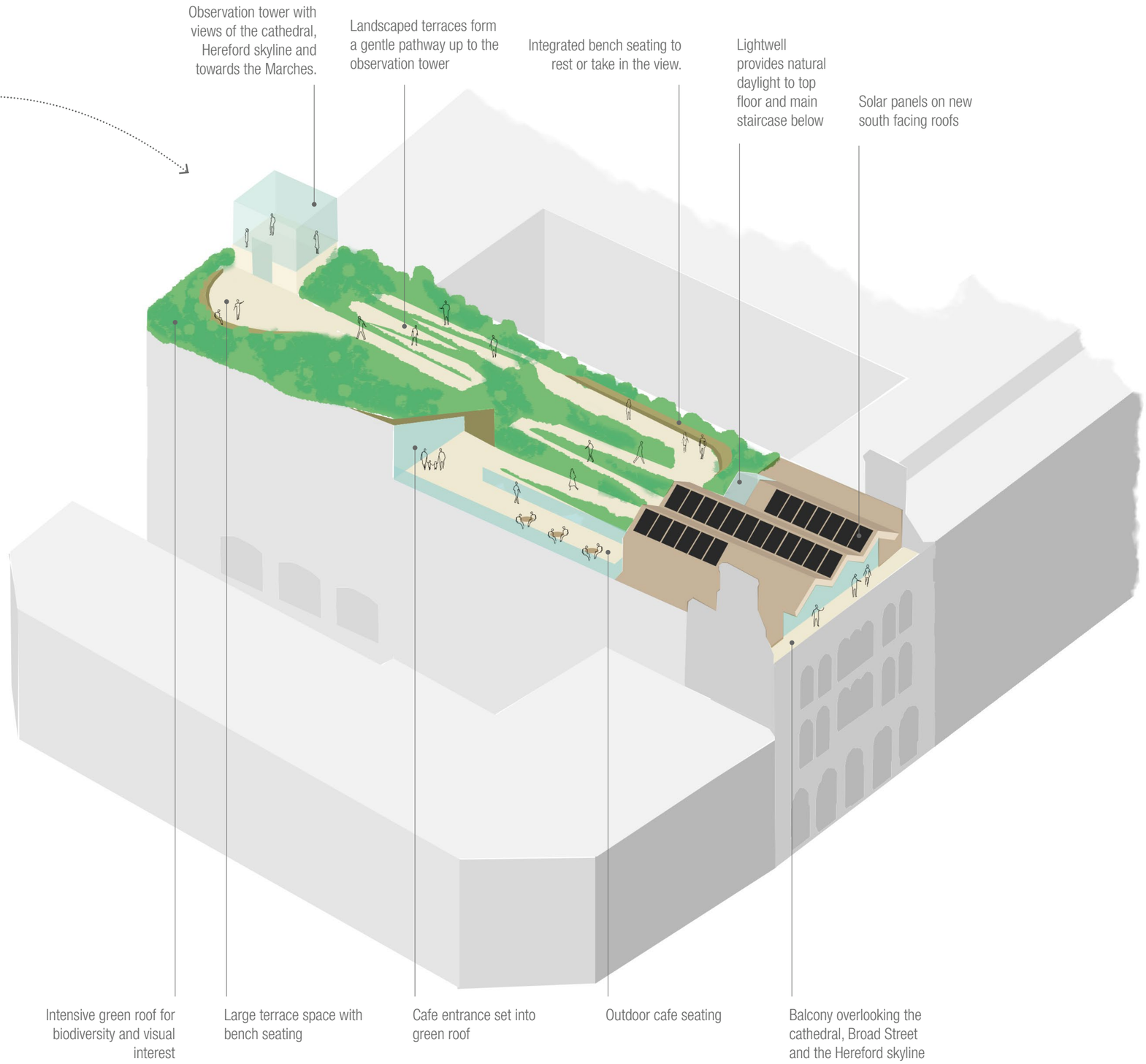
Roofscape Precedent: The Stealth Building by WORKac

This renovation and extension of a residential building in New York with one of the City's 'most beautiful and oldest cast-iron façades' has informed the explorations in this document for Hereford Museum and Art Gallery's roofscape. Similarities between the buildings include being tall, narrow, historic, terraced buildings with façades of significant heritage value, which are in need of restoration/renovation. Explorations in this document have followed a similarly sensitive approach to that which was taken in the design of The Stealth Building, respecting the historic value, while enhancing the building by providing modern, striking spaces to facilitate the current and future needs of the building's occupants.

Fig. 57 / Images of The Stealth Building by WORKac [Source: https://www.archdaily.com/799080/the-stealth-building-workac?ad_medium=gallery]

Planning and Conservation

05: Roofscape



Exploration B

This page shows a developed aerial view of Exploration B, which allows some of the more sensitive, detailed design moves to be visible, e.g. the lightwell which is centred above the main staircase, and is formed as an extrusion of a proposed new roof profile. This view also highlights more clearly the possible relationships between spaces, and opportunity for movement between the new top floor, rooftop cafe, and observation tower.

The Architectural opportunity explored in this option unfetters the facade from the clunky ‘cottage dormer’ roofscape vernacular and allows the Venetian Neo-Gothic facade to ‘sing’, offering not just a new lease of life but a celebration of the Broad Street frontage, contemporary of our time.

As with the other explorations throughout this document, this illustration shows a collection of design thinking in its early stages, rather than a finished design option, and therefore ideas presented on this page can be integrated/combined with others following consultation and feedback.

Planning and Conservation

6.8 / 06: Broad Street Plaza

The existing Broad Street frontage is currently lacking in its ability to attract visitors to the Hereford Museum and Art Gallery. Vehicles are prioritised over pedestrians with a busy road cutting the connection between two important cultural buildings, the cathedral and the museum. In addition to the road, a large section of bike stands creates another barrier, and the entrance arches are physically blocked with notice boards.

As part of the refurbishment works to Hereford Museum and Art Gallery, vast improvements could be made to the external attractiveness of the building by opening up the entrance area and creating a welcoming, accessible public plaza. This has been explored in the perspective view on this page, showing how a pedestrianised plaza could look, and how this would contribute positively to the museum.

Fig. 58 / Existing Broad Street View - Image source: Google street view

Fig. 59 / New Broad Street Plaza Exploration

New level surface (shared space), which prioritises pedestrians to encourage more footfall in and around museum and cathedral.

Entrance canopy column doubles as signage to draw people into the museum and provide information on current exhibitions.

Attention could be drawn to the museum and cathedral entrances by creating a zig-zag pathway between them, by changing the paving tone/ texture.

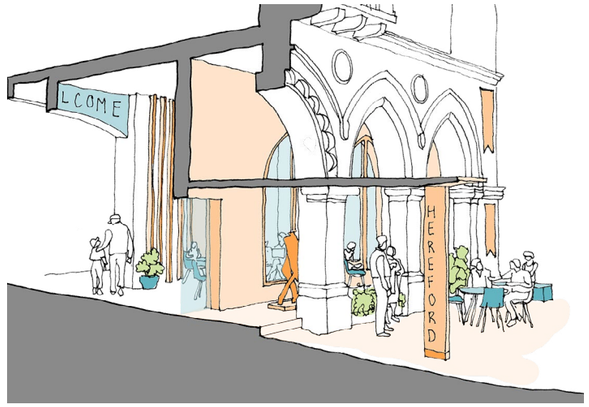
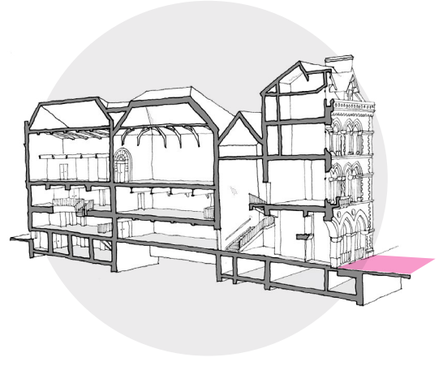


Fig. 60 / Broad Street Facade - Exploration C

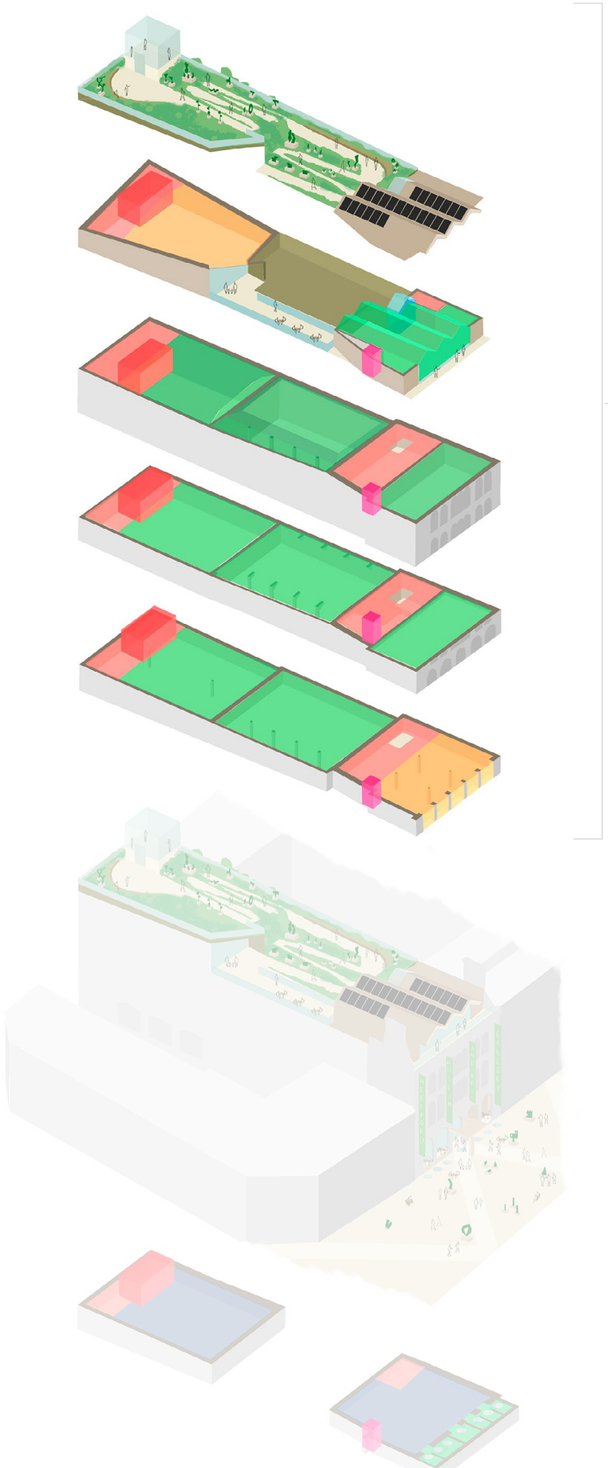
Informational exhibition banners enliven the museum facade and bring more fun and life to Broad Street.

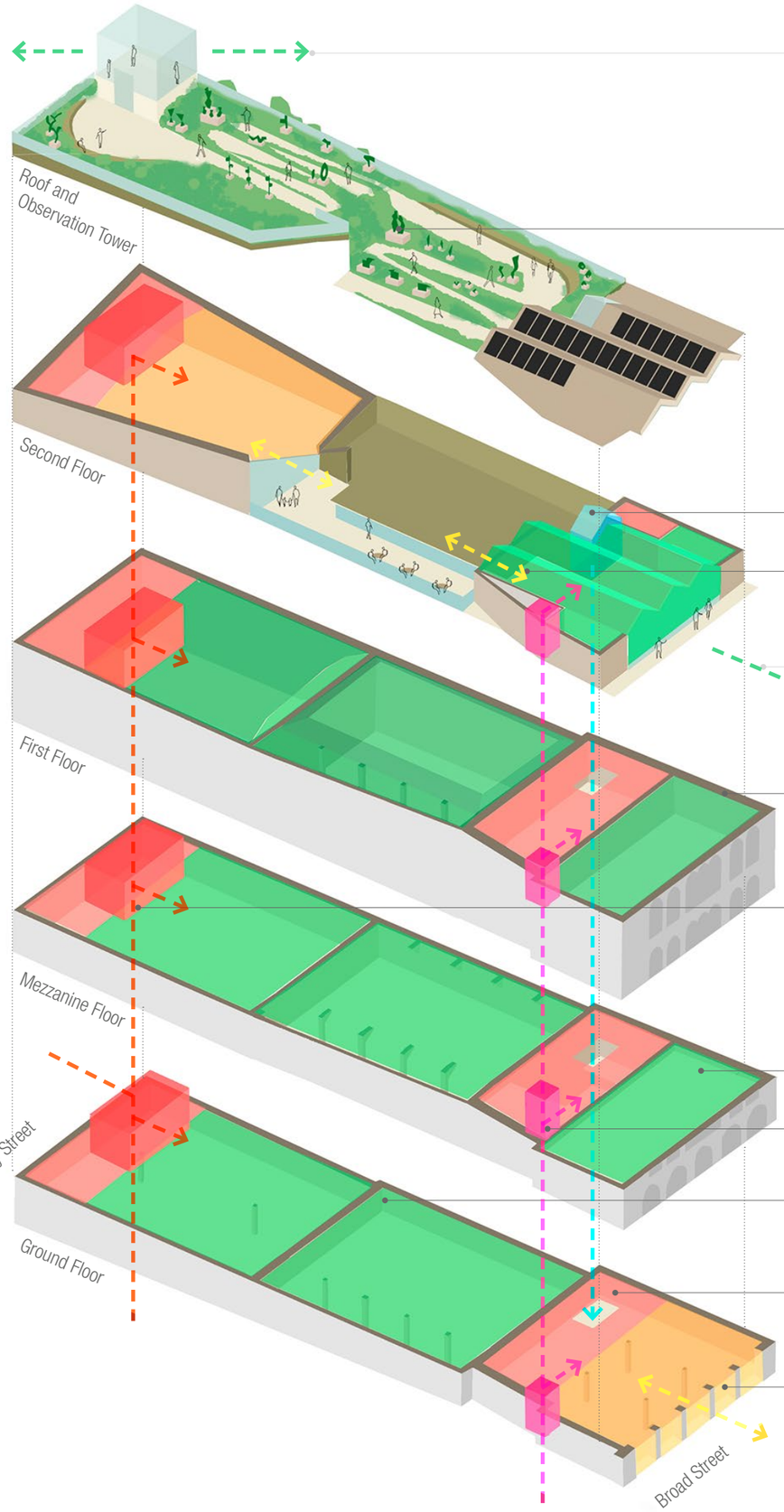
Arches opened up to provide external cafe seating which can spill out onto the pedestrianised plaza, creating an active frontage. As a result, the museum entrance is more inviting, and Broad Street more lively.



Planning and Conservation

6.9 / Strategic Moves - Upper Floors





Observation tower with views of the cathedral, Hereford skyline and towards the Marches.

Landscaped terraces pathway creates outdoor exhibition spaces which could be used to display sculptures.

Lightwell provides natural daylight to top floor and main staircase below

Top floor gallery and cafe both spill out onto external terrace with cafe seating.

Key views out towards cathedral and over Hereford's historic roofscape

New, higher Second Floor floor plate above allows ceiling height to be increased to the front rooms at First Floor level. The existing internal partitions between the existing offices will need replacing as a consequence, or this space could be opened up to provide a large exhibition/ gallery space.

New large lift to rear allows deliveries direct from Aubrey Street to be distributed through the building, as well as providing a secondary passenger lift for groups or visitors/staff.

Woolhope Room preserved.

New passenger lift improves accessibility.

Large, flexible exhibition spaces.

Circulation is clear with an open plan entrance / cafe / retail area leading to the main circulation core of the building, with passenger lift on the left and main staircase on the right, lit by a new rooflight.

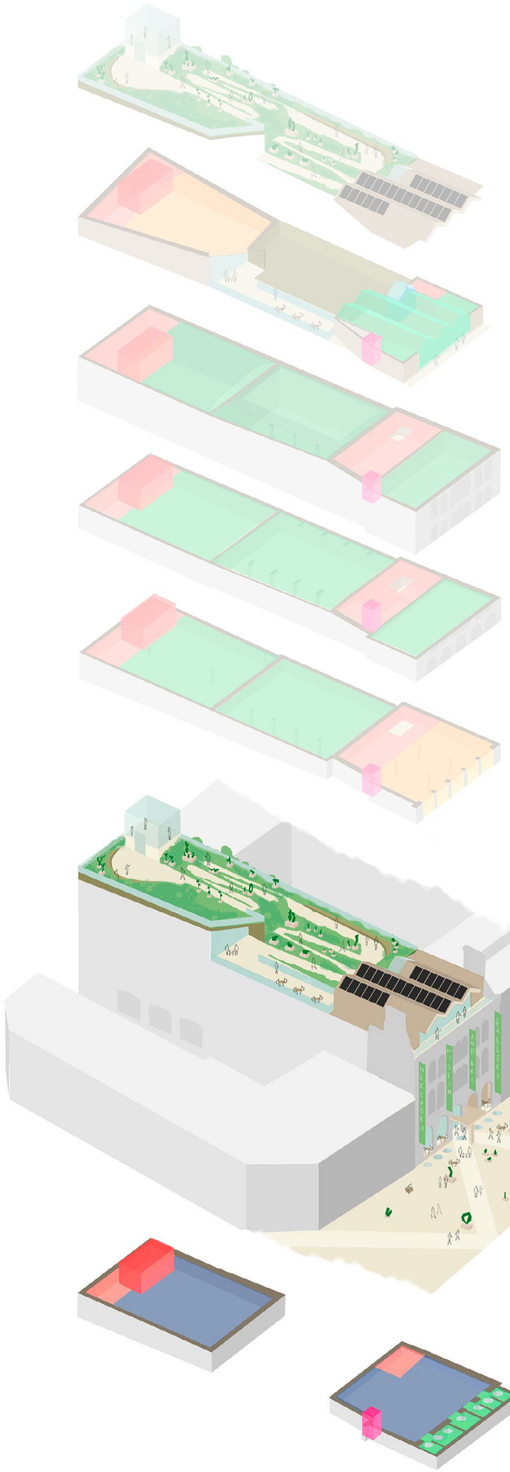
Arches opened up to provide external cafe seating which can spill out onto the pedestrianised plaza, creating an active frontage. As a result, the museum entrance is more inviting, and Broad Street more lively.

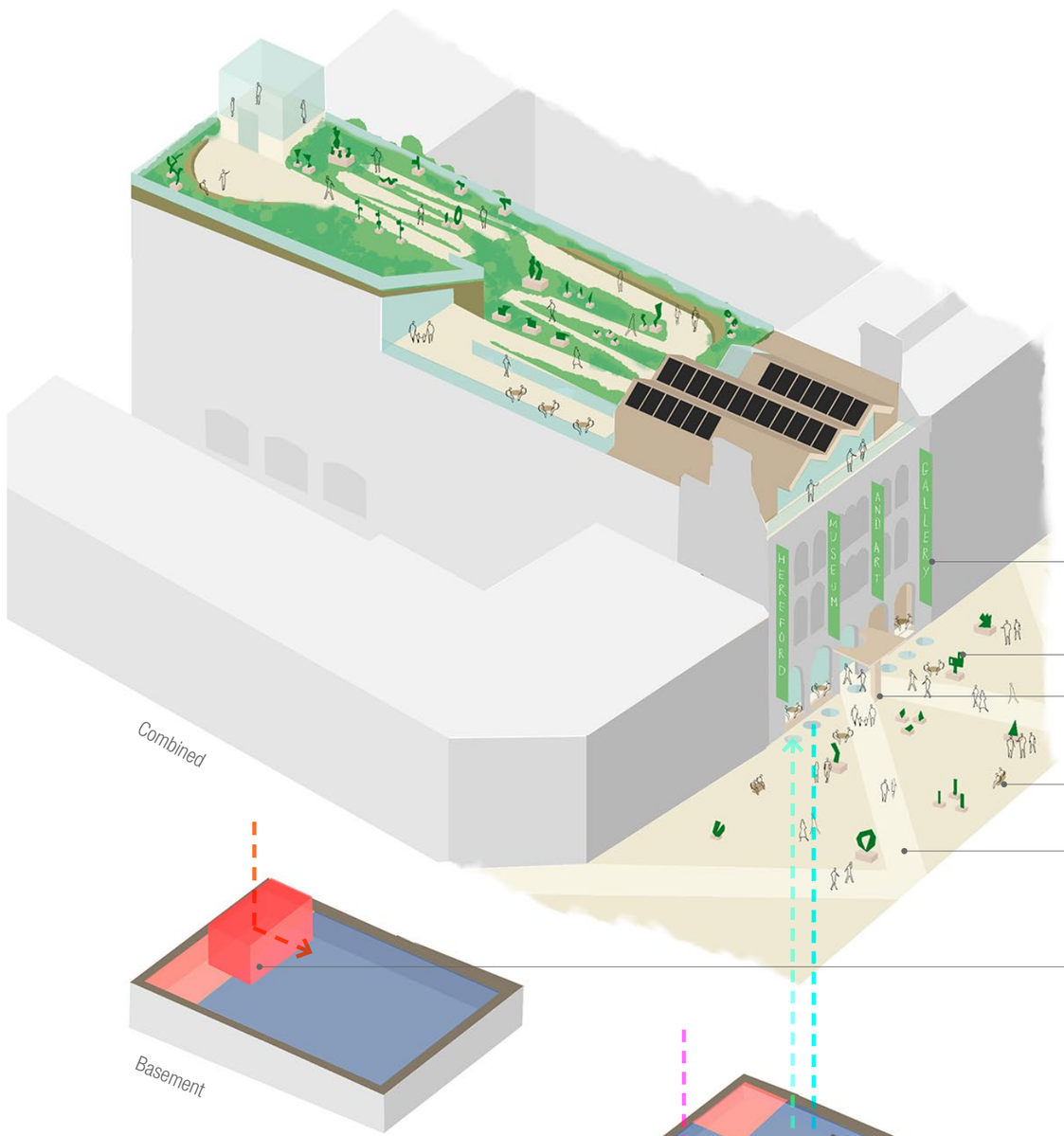
Strategic Diagram Key:

- Cafe / Retail (income-generating spaces)
- Exhibition / Gallery
- Circulation (corridors and stairwells)
- Back-of-house
- Lightwell
- 1.5 x 1.5m Passenger Lift
- 6 x 3m Goods / Group Lift

Planning and Conservation

6.10 / Strategic Moves - Basement





Strategic Diagram Key:

- Cafe / Retail (income-generating spaces)
- Exhibition / Gallery
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- Back-of-house
- Lightwell
- 1.5 x 1.5m Passenger Lift
- 6 x 3m Goods / Group Lift

Informational exhibition banners enliven the museum facade and bring more fun and life to Broad Street.

Public plaza can provide additional space to exhibit sculptures.

New canopy and column draw people to the entrance, and can be used to display information on current exhibits.

Bench seating and overspill cafe seating allow people to inhabit the newly pedestrianised outdoor space.

Attention could be drawn to the museum and cathedral entrances by creating a zig-zag pathway between them, by changing the paving tone/texture.

New large lift to rear allows deliveries direct from Aubrey Street to be distributed through the building, as well as providing a secondary passenger lift for groups or visitors/staff.

Back-of-house spaces for storage, cafe kitchen etc.

New passenger lift improves accessibility.

Historic undercroft could be viewed from the public plaza through new rooflights, which would also allow natural light into the spaces.

7.0 / Precedents

Precedent studies are included to demonstrate degrees of sensitivity when refurbishing and extending existing historic buildings, informing the design explorations.

Precedents

7.1 / Dunfermline Carnegie Library - Richard Murphy Architects

Client

Fife Cultural Trust

Location

Dunfermline, Scotland

Construction cost per m2

£3,986 (including upgrade works to existing)

Timescale

Start / November 2014
Completion / November 2016

Key Features

- Top-lit internal street, or ‘architectural promenade’, provides clear organisation and circulation to the various facilities housed in the building.
- There are internal framed views of significant nearby historic buildings, and the café on the first floor includes terraces looking out onto the Abbey and graveyard.
- Combination of stone, oak and corten steel. Corten designates the fact that a majority of the museum displays the industrial heritage of the town.

> “The brief envisaged a museum space, art galleries, local history archive and reading room, childrens’ centre, café and meeting rooms lying alongside, and integrating with, the world’s first Andrew Carnegie Library, a Grade B listed building. A Grade B listed former bank building was also part of the site.”
>
> **[Richard Murphy] /** [Founder, Richard Murphy Architects]

https://www.architectsjournal.co.uk/buildings/dunfermline-museum-by-richard-murphy-architects

West elevation view / richardmurphyarchitects.com/viewItem.php?id=2403

Entrance view / richardmurphyarchitects.com/viewItem.php?id=2403

Precedents

7.2 / Goldsmiths Centre for Contemporary Art - Assemble

Client

Goldsmiths, University of London

Location

South London

Timescale

Start / 2014
Completion / 2018

Key Features

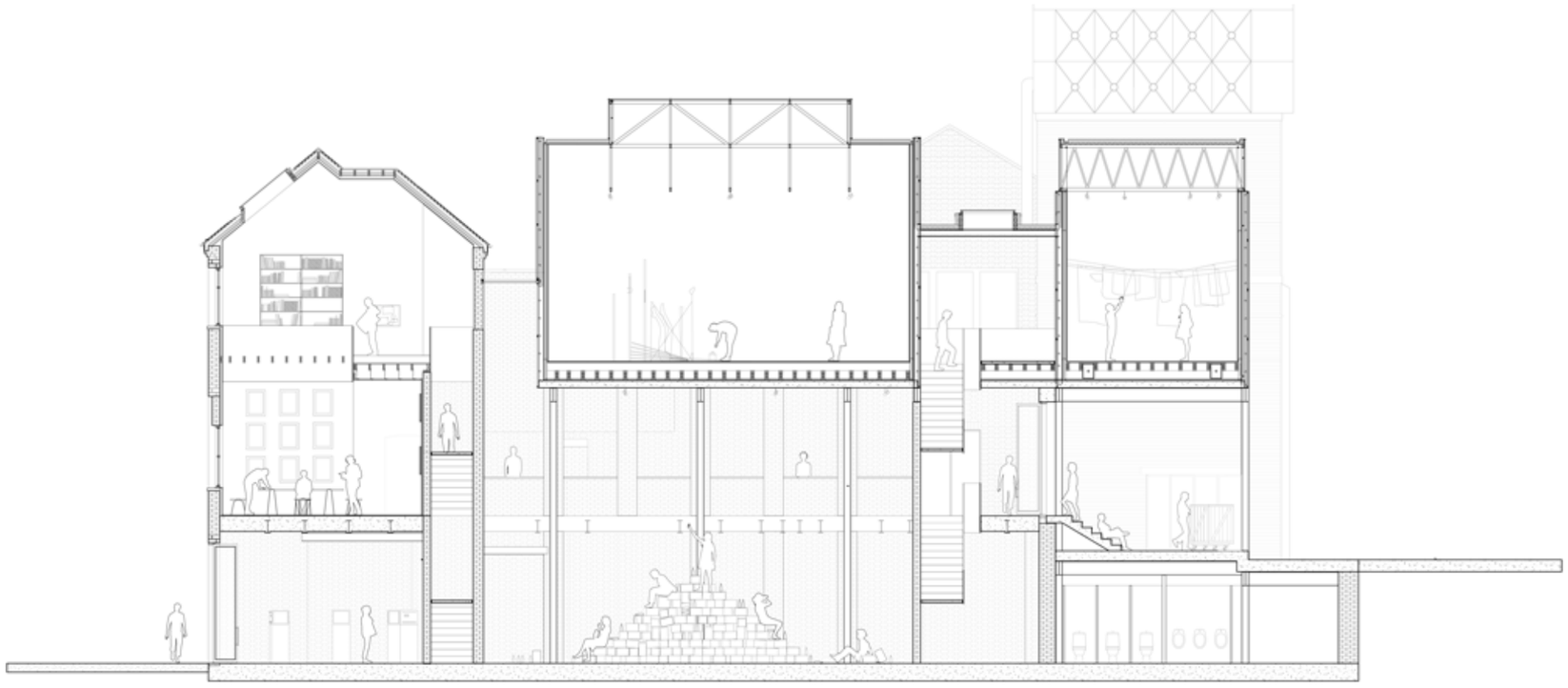
- Seven new gallery spaces, a café, curators' studio and event space within the Grade II listed former Victorian bathhouse.
- Uncovers traditional 'back-of-house' spaces, the former water tanks and service areas, and makes them accessible to the public as new gallery spaces.
- New void within the existing floor plate creates a double-height project space forming the heart of the building.

> "Our aim has been to create a welcoming and theatrical centre which connects the public to the bathhouse's past, and to its future – as a space of artistic production and exploration."

[Paloma Strelitz] / [Co-Founder, Assemble]

Sectional model / assemblestudio.co.uk/projects/goldsmiths-centre-for-contemporary-art-2

Perspective / assemblestudio.co.uk/projects/goldsmiths-centre-for-contemporary-art-2



Section / assemblestudio.co.uk/projects/goldsmiths-centre-for-contemporary-art-2

Precedents

7.3 / Manchester Jewish Museum - Citizens Design Bureau

Client

Manchester Jewish Museum

Location

Manchester

Construction cost per m²

£4,275

Timescale

Start / August 2019
Completion / April 2021

Key Features

- Corten steel with geometric perforations complement the synagogue's colour and architectural motifs.
- Built around a skylight-topped atrium, the extension doubles the size of the heritage-listed synagogue and contains space for exhibiting and storing the museum's collection of 31,000 objects.
- Large new entrance to the museum to attract visitors with a cafe and shop at the front of the extension to draw people in.

> "It's essentially an industrial shed clad in corten steel, but delicately perforated so that it acts as an intriguing moment in a cluttered streetscape, sparking conversations in one of Manchester's most culturally diverse communities."

[Katy Marks] / [Founder, Citizens Design Bureau]

https://www.architectsjournal.co.uk/buildings/manchester-jewish-museum-reopens-after-6m-citizens-design-bureau-revamp

Skylight-topped atrium / dezeen.com/2021/07/01/manchester-jewish-museum

Corten extension - night / dezeen.com/2021/07/01/manchester-jewish-museum

Corten extension - day / dezeen.com/2021/07/01/manchester-jewish-museum

Precedents

7.4 / Worcester Cathedral - Acanthus Clews

Client

Dean and Chapter of Worcester Cathedral

Location

Worcester

Construction cost per m²

£3,193

Timescale

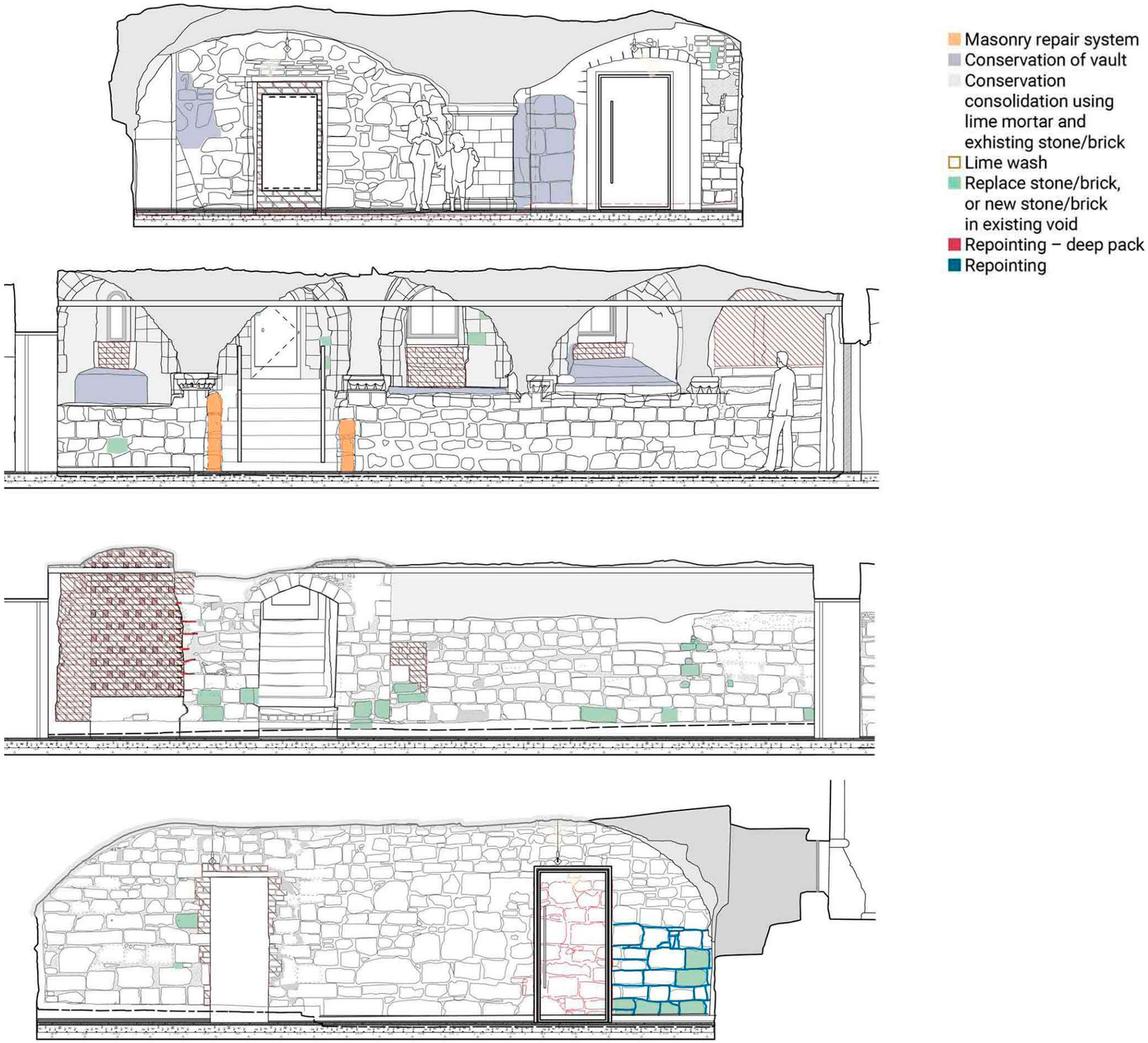
Start / July 2019
Completion / October 2020

Key Features

- The learning centre is housed in the early 12th century stone-vaulted undercroft, originally used as a store for the Benedictine Monks.
- Converts an unused space, rather than a new build, with the aim of being environmentally, socially, and economically sustainable for future generations.
- The Grade I-listed historic fabric has been conserved while giving access for all to learn from and enjoy the space.

> “We have aimed to conserve the historic fabric and deliver managed change within to give ‘access for all’ to the undercroft and to create a venue for learning, arts and heritage for the whole community.”

[Camilla Finlay] / [Director, Acanthus Clews Architects]



Internal facade detail sections / architectsjournal.co.uk/specification/case-study-worcester-cathedral-by-acanthus-clews

8.0 / Outline Brief & Brief Development

Outline Brief & Brief Development

8.1 / The Project Brief Journey

Initial Project Brief
An initial brief proposal for the upgrade of the Hereford Museum and Art Gallery was provided by Judith Stevenson in 2017 [Museum Head]. This document formed the initial basis of brief discussions and development for RIBA stage 1, and has been further supplemented/developed through stakeholder consultation groups as part of this scope of works undertaken by Architype.

The current museum areas are inadequate in terms of their spatial requirements and conditions, and support areas are not currently fit for purpose.

The initial briefing information outlined the need to provide a significant uplift in exhibition/gallery space, in order to support the existing Museum Resource and Learning Centre on Friar street, where the majority of back-of-house activities take place. Spatial suggestions included:

- Media gallery
- Creativity & design gallery
- Two or three key/USP galleries
- Our Story Galleries
- Our Art Gallery
- Local Studies Hub
- Children's/school's/learning area
- Large temporary changing exhibition gallery
- Smaller temporary changing display space
- Car and cafe, pop up eateries
- Event space
- Retail & merchandise
- Toilets
- Office and work room
- To provide circa 4,100sqm of floor space [The existing building has circa 1810m^2 GIFA, therefore the initial brief is proposing an uplift in area by 126%]

The document highlighted the existing building would require approximately 3 additional floors. This has been further explored in developing studies against cost-benefit analysis'.

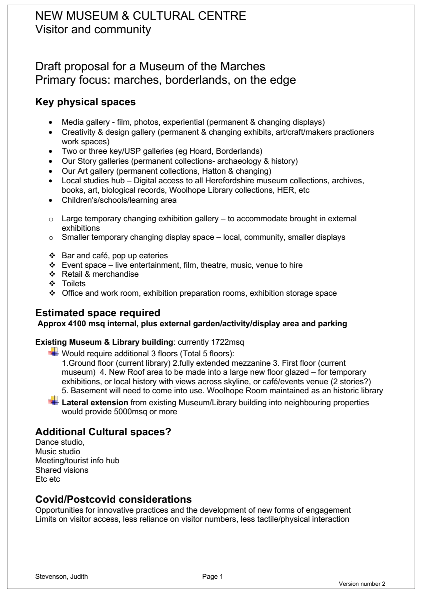
Brief Development
Following an interrogation of the initial project brief and discussions with the stakeholder groups the brief has been further progressed, as described in the 'Brief Development Chronology' diagram in Figure 63.

Most recently, a standalone Briefing Development was issued in September 2021 by Architype, recording notes from the Brief Development Consultation Workshop, with additional initial amendments by Judith Stevenson, Museum Head. The consultation workshop took the form of a discussion and Q&A with reference to the 'Historic England' building development exploration document, the revised cost-plan tool and precedent examples. The notes are presented in the following pages for reference.

It was further discussed and recommended that part of this brief development process should include a couple of site visits to recently completed, similar scale, projects would be extremely useful and lessons learned by others incorporated where practicable.

Please note, the initial areas indicated in accommodation schedule are likely to change as the requirements and accommodation brief is refined and options developed.

RIBA Stage 2 brief development will look to firm up the floor area split between exhibition & gallery [served] and public/back of house [service] accommodation once current exploratory variables [detailed previously] are agreed.



NEW MUSEUM & CULTURAL CENTRE
Visitor and community

Draft proposal for a Museum of the Marches
Primary focus: marches, borderlands, on the edge

Key physical spaces

- Media gallery - film, photos, experiential (permanent & changing displays)
- Creativity & design gallery (permanent & changing exhibits, art/craft/makers practioners work spaces)
- Two or three key/USP galleries (eg Hoard, Borderlands)
- Our Story galleries (permanent collections- archaeology & history)
- Our Art gallery (permanent collections, Hatton & changing)
- Local studies hub – Digital access to all Herefordshire museum collections, archives, books, art, biological records, Woolhope Library collections, HER, etc
- Children's/schools/learning area

- Large temporary changing exhibition gallery – to accommodate brought in external exhibitions
- Smaller temporary changing display space – local, community, smaller displays

- Bar and café, pop up eateries
- Event space – live entertainment, film, theatre, music, venue to hire
- Retail & merchandise
- Toilets
- Office and work room, exhibition preparation rooms, exhibition storage space

Estimated space required
Approx 4100 msq internal, plus external garden/activity/display area and parking

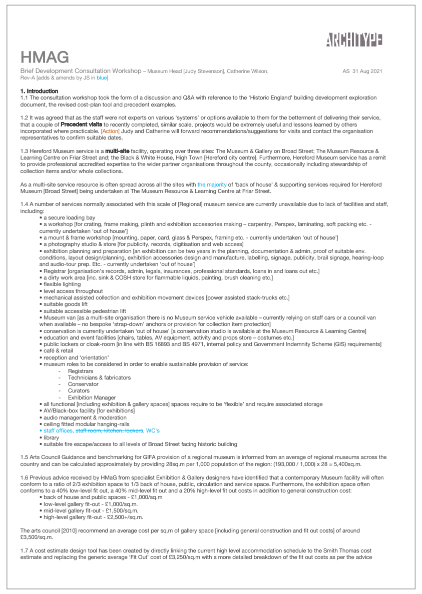
Existing Museum & Library building: currently 1722msq
- Would require additional 3 floors (Total 5 floors):
1.Ground floor (current library) 2.fully extended mezzanine 3. First floor (current museum) 4. New Roof area to be made into a large new floor glazed – for temporary exhibitions, or local history with views across skyline, or café/events venue (2 stories?)
5. Basement will need to come into use. Woolhope Room maintained as an historic library
- **Lateral extension** from existing Museum/Library building into neighbouring properties would provide 5000msq or more

Additional Cultural spaces?
Dance studio,
Music studio
Meeting/tourist info hub
Shared visions
Etc etc

Covid/Postcovid considerations
Opportunities for innovative practices and the development of new forms of engagement
Limits on visitor access, less reliance on visitor numbers, less tactile/physical interaction

Stevenson, Judith   Page 1   Version number 2

Fig. 61 / Initial Outline Brief - Draft Proposal [Judith Stevenson, 2017]



ARCHITYPE

HMAG
Brief Development Consultation Workshop – Museum Head [Judy Stevenson], Catherine Wilson,   AS 31 Aug 2021
Rev-A [adds & amends by JS in blue]

1. Introduction
1.1 The consultation workshop took the form of a discussion and Q&A with reference to the 'Historic England' building development exploration document, the revised cost-plan tool and precedent examples.

1.2 It was agreed that as the staff were not experts on various 'systems' or options available to them for the betterment of delivering their service, that a couple of **Precedent visits** to recently completed, similar scale, projects would be extremely useful and lessons learned by others incorporated where practicable. [Action] Judy and Catherine will forward recommendations/suggestions for visits and contact the organisation representatives to confirm suitable dates.

1.3 Hereford Museum service is a **multi-site** facility, operating over three sites: The Museum & Gallery on Broad Street; The Museum Resource & Learning Centre on Friar Street and; the Black & White House, High Town [Hereford city centre]. Furthermore, Hereford Museum service has a remit to provide professional accredited expertise to the wider partner organisations throughout the county, occasionally including stewardship of collection items and/or whole collections.

As a multi-site service resource is often spread across all the sites with the majority of 'back of house' & supporting services required for Hereford Museum [Broad Street] being undertaken at The Museum Resource & Learning Centre at Friar Street.

1.4 A number of services normally associated with this scale of [Regional] museum service are currently unavailable due to lack of facilities and staff, including:
- a secure loading bay
- a workshop [for crating, frame making, plinth and exhibition accessories making – carpentry, Perspex, laminating, soft packing etc. - currently undertaken 'out of house']
- a mount & frame workshop [mounting, paper, card, glass & Perspex, framing etc. - currently undertaken 'out of house']
- a photography studio & store [for publicity, records, digitisation and web access]
- exhibition planning and preparation [an exhibition can be two years in the planning, documentation & admin, proof of suitable env. conditions, layout design/planning, exhibition accessories design and manufacture, labelling, signage, publicity, brail signage, hearing-loop and audio-tour prep. Etc. - currently undertaken 'out of house']
- Registrar [organisation's records, admin, legals, insurances, professional standards, loans in and loans out etc.]
- a dirty work area [inc. sink & COSH store for flammable liquids, painting, brush cleaning etc.]
- flexible lighting
- level access throughout
- mechanical assisted collection and exhibition movement devices [power assisted stack-trucks etc.]
- suitable goods lift
- suitable accessible pedestrian lift
- Museum van [as a multi-site organisation there is no Museum service vehicle available – currently relying on staff cars or a council van when available – no bespoke 'strap-down' anchors or provision for collection item protection]
- conservation is currently undertaken 'out of house' [a conservation studio is available at the Museum Resource & Learning Centre]
- education and event facilities [chairs, tables, AV equipment, activity and props store – costumes etc.]
- public lockers or cloak-room [in line with BS 16893 and BS 4971, internal policy and Government Indemnity Scheme (GIS) requirements]
- café & retail
- reception and 'orientation'
- museum roles to be considered in order to enable sustainable provision of service:
  - Registrars
  - Technicians & fabricators
  - Conservator
  - Curators
  - Exhibition Manager
- all functional [including exhibition & gallery spaces] spaces require to be 'flexible' and require associated storage
- AV/Black-box facility [for exhibitions]
- audio management & moderation
- ceiling fitted modular hanging-rails
- staff offices, ~~staff room, kitchen, lockers,~~ WC's
- library
- suitable fire escape/access to all levels of Broad Street facing historic building

1.5 Arts Council Guidance and benchmarking for GIFA provision of a regional museum is informed from an average of regional museums across the country and can be calculated approximately by providing 28sq.m per 1,000 population of the region: (193,000 / 1,000) x 28 = 5,400sq.m.

1.6 Previous advice received by HMaG from specialist Exhibition & Gallery designers have identified that a contemporary Museum facility will often conform to a ratio of 2/3 exhibition space to 1/3 back of house, public, circulation and service space. Furthermore, the exhibition space often conforms to a 40% low-level fit out, a 40% mid-level fit out and a 20% high-level fit out costs in addition to general construction cost:
- back of house and public spaces - £1,000/sq.m
- low-level gallery fit-out - £1,000/sq.m.
- mid-level gallery fit-out - £1,500/sq.m.
- high-level gallery fit-out - £2,500+/sq.m.

The arts council [2010] recommend an average cost per sq.m of gallery space [including general construction and fit out costs] of around £3,500/sq.m.

1.7 A cost estimate design tool has been created by directly linking the current high level accommodation schedule to the Smith Thomas cost estimate and replacing the generic average 'Fit Out' cost of £3,250/sq.m with a more detailed breakdown of the fit out costs as per the advice

Fig. 62 / Developed Outline Brief - pending development in Stage 2 [Issued by Architype, Sep. 2021]

Fig. 63 / Brief Development Chronology

Outline Brief & Brief Development

8.2 / Outline Brief

Overview
Hereford Museum service is a multi-site facility, operating over three sites: The Museum & Gallery on Broad Street; The Museum Resource & Learning Centre on Friar Street and; the Black & White House, High Town [Hereford city centre]. Furthermore, Hereford Museum service has a remit to provide professional accredited expertise to the wider partner organisations throughout the county, occasionally including stewardship of collection items and/or whole collections.

As a multi-site service resource is often spread across all the sites with the majority of 'back of house' & supporting services required for Hereford Museum [Broad Street] being undertaken at The Museum Resource & Learning Centre at Friar Street.

Museum services and facilities at HMAG, Broad Street
A number of services normally associated with this scale of [Regional] museum service are currently unavailable due to lack of facilities and staff. These can be broadly split into 'Served' spaces [exhibition and gallery space], or 'Service' spaces [support spaces, such as public, storage, offices & equipment] and are outlined below. These can be cross-referenced with the Accommodation Schedule at the end of this chapter.

'Service' spaces [Public]:

- [1] Reception;
- [2] Accessible WC's;
- [3] Visitor 'orientation' space, to meet up, break out, etc.;
- [4] Public lockers or cloak-room [in line with BS 16893 and BS 4971, internal policy and Government Indemnity Scheme (GIS) requirements];
- [5] Registrar [organisation's records, admin, legals, insurances, professional standards, loans in and loans out etc.];
- [6] Suitable accessible pedestrian lift;
- [7] Education and event facilities [chairs, tables, AV equipment, activity and props store – costumes etc.];
- [8] Education and event space/venue; Specifically for HMAG, a roof-top events space
- [9] Ground floor café;
- [10] Retail provision;

'Service' spaces [Back of House]:

- [11] Staff offices/break room/kitchenette;
- [12] Plant;
- [13] A secure loading bay;
- [14] Suitable goods lift;
- [15] A workshop [for crating, frame making, plinth and exhibition accessories making – carpentry, Perspex, laminating, soft packing etc. - currently undertaken 'out of house'];
- [16] A mount & frame workshop [mounting, paper, card, glass & Perspex, framing etc. - currently undertaken 'out of house'];
- [17] A photography studio & store [for publicity, records, digitisation and web access];
- [18] Exhibition planning and preparation [an exhibition can be two years in the planning, documentation & admin, proof of suitable environmental conditions, layout design/planning, exhibition accessories design and manufacture, labelling, signage, publicity, brail signage, hearing-loop and audio-tour prep. Etc. - currently undertaken 'out of house'];
- [19] A dirty work area [inc. sink & COSH store for flammable liquids, painting, brush cleaning etc.];
- [20] Conservation is currently undertaken 'out of house' [a conservation studio is available at the Museum Resource & Learning Centre];
- [21] All functional [including exhibition & gallery spaces] spaces require to be 'flexible' and require associated storage;
- [22] AV/Black-box facility [for exhibitions];
- [23] Cafeteria kitchen;
- [24] COSH/Flammable Liquids store
- [25] Cleaners store

'Service' spaces [Equipment]:

- [26] Flexible lighting;
- [27] Level access throughout;
- [28] Mechanical assisted collection and exhibition movement devices [power assisted stack-trucks etc.];
- [29] Museum van [as a multi-site organisation there is no Museum service vehicle available – currently relying on staff cars or a council van when available – no bespoke 'strap-down' anchors or provision for collection item protection];
- [30] Audio management & moderation;
- [31] Ceiling fitted modular hanging-rails;
- [32] Museum roles to be considered in order to enable sustainable provision of service:
    - Registrars
    - Technicians & fabricators
    - Conservator
    - Curators
    - Exhibition Manager
- [33] Suitable fire escape/access to all levels of Broad Street facing historic building.

'Served' spaces [Exhibition & Gallery space] - as provided in inital brief:

Please refer to Accommodation Schedhule for more detail.

- [A] Large temporary changing 'special' exhibition gallery;
- [B] Smaller temporary spotlight-loans room;
- [C] Large permanent gallery;
- [D] Large permanent gallery for local social history;
- [E] Large permanent gallery for Agriculture and Environment;
- [F] Smaller changing fine art and costume gallery;
- [G] Smaller changing Hatton art gallery [existing size];
- [H] Media gallery - historic film, photos, digital, experiential;
- [I] Creativity and design gallery - nice to have, but may be incorporated off-site part of the Friar Street facility
- [J] Local studies hub;

Please refer to the Accommodation Schedule at the end of this chapter for a full area breakdown.

Outline Brief & Brief Development

Outline Brief

Arts Council England guidance
Arts Council England [ACE] Guidance and benchmarking for GIFA provision of a regional museum is informed from an average of regional museums across the country and can be calculated approximately by providing 28sq.m per 1,000 population of the region: (193,000 / 1,000) x 28 = 5,400sq.m. This is intended for information only, as a benchmark comparison of an average recorded floor area by ACE of similar scale Regional Museums and is not intended to be a target.

Specialist Exhibition and Gallery designers guidance
Previous advice received by HMAG from specialist Exhibition & Gallery designers have identified that a contemporary Museum facility will often conform to a ratio of 2/3 exhibition space to 1/3 back of house, public, circulation and service space. Furthermore, the exhibition space often conforms to a 40% low-level fit out, a 40% mid-level fit out and a 20% high-level fit out costs in addition to general construction cost:

- Back of house and public spaces - £1,000/sq.m
- Low-level gallery fit-out - £1,000/sq.m.
- Mid-level gallery fit-out - £1,500/sq.m.
- High-level gallery fit-out - £2,500+/sq.m.

The arts council [2010] recommend an average cost per sq.m of gallery space [including general construction and fit out costs] of around £3,500/sq.m.

Cost estimate design tool
A cost estimate design tool has been created by directly linking the current high level accommodation schedule to the Smith Thomas cost estimate and replacing the generic average ‘Fit Out’ cost of £3,250/sq.m with a more detailed breakdown of the fit out costs as per the advice previously received by HMAG and removing instances of ‘double accounting’.

The Accommodation, Area & Cost design tool has highlighted opportunity for a further potential 350sq.m of exhibition space [potentially another floor level].

General Compliances
As a minimum the design drawings will be required to reflect current UK building regulations and conform to HSE best practice, in addition to the Museum Standards BS16893 & BS4971.

Outline Brief & Brief Development

8.3 / ‘A Day In the Life’ of Exhibition ‘Get In’

Numerical or alphabetical references to spaces / facilities are indicated where appropriate in square brackets *[eg. Ref. A]***, relating back to 8.2 / Outline Brief” on page 48 and in 8.7 / Area and Accommodation Schedules” on page 54.**

1. HGV arrival, exhibition unload and movement:

- A. Ideally the unload would take place within a secure and environmentally controlled ‘Loading Bay’ *[Ref. 13]*, if a loading bay is not available then highways may need to be closed [or partially closed] during ‘get in’.
- B. Depending on insurances or exhibition loan clauses, all movement through the public realm would need to be undertaken by the haulier/ carrier and/or overseeing museum staff *[Ref. 29 - Preferably using a Museum dedicated Van]*

2. Movement
BS 4971 identifies that movement of a collection item presents a heightened risk of damage [section 5.4]; from handling, use of assisted or wheeled moving equipment [stack-trucks, trolleys, forklifts etc.], uneven floors and floor levels, steps and stairs, threshold strips and level difference, obstacles, risk of drop or collision etc.

Movement should ideally be kept to a minimum as should crossing a ‘threshold’ [each step would be considered a new threshold] [Arts Council England guidance]. *[Ref. 27 - Recommendation for level access]*

3. Unpacking and movement of exhibition items to their locations within the building:

- A. A sufficiently sized goods lift is required to move large crates *[Ref. 14]* [eg. current Grayson Perry exhibition has 3m long crates requiring object maximum carriage width plus manoeuvring/handling space as well as handlers space – possibly another 1.5-2m] [see section “ on page 53]
- B. Requires level threshold access throughout and sufficiently high door openings – up to 3-3.5m in places
- C. Acclimatisation space/time and condition check area required

Specialist trained & accredited ‘handlers’ are often required by insurers or insurer’s organisations responsible for the exhibits, for movement of an exhibition. A number of varying assisted-movement devices may be employed, ranging from stack-trucks to palette trucks and trolleys etc. *[Ref. 28]* Inspection and damage record would be undertaken by transport and Museum staff and lender notified of any issues.

4. Exhibition space preparation
Exhibition space preparation requires that the spaces have been pre-planned and fitted with the layout [positioning of mobile walls, lighting, hanging rails, acoustics, power, plinths, cabinets, text captions, labels and signage and interpretation and interactive resources preparation space] sufficient to receive the exhibition pieces *[Ref. 18, 22, 26, 30, 31 - ‘Service’ equipment]*. All of the exhibition accessories require fabrication, moving and placement. A 3m portable and flexible, modular, high wall either needs to be stored away within a false-wall adjacent to the exhibition space or transported from elsewhere within the building.

5. Storage facility
Packing cases/boxes/crates need to be cleared and stored. A storage facility of similar volume to an Arctic-trailer [91m3 – 13.6m long x 2.5m wide x 2.7m high] would be sufficient for the facility *[Ref. 21 - consideration of associated storage spaces]*.

6. Security and access
Parts of the museum may require to be temporarily closed for security and access.

Fig. 65 / Exhibition Preparation. Royal Collection Trust / © Her Majesty Queen Elizabeth II 2021 / Source: www.rct.uk/

Outline Brief & Brief Development

8.4 / ‘A Day In the Life’ of A Standard Day

1. Invigilation of temporary and permanent exhibitions.
Monitoring and environmental checks , security, lighting and electrical checks and maintenance.

2. Office Spaces
Permanent office space for Registrar duties, Exhibition Management duties, PR, digitisation and web-presence duties, in addition to a requirement for a default ‘in house presence’ of staff – which may be flexible working provision for staff who rotate roles between invigilation and other office based roles, environmental data-logging, etc. *[Ref. 5, 17]*

3. Associated office stationary, printing, copying station, storage *[Ref. 5, 11, 17]*

4. Staff respite area, kitchenette, rest and WC’s *[Ref. 11]*

5. Reception and orientation [and possible cloakroom service] *[Ref. 1, 3, 4]* **or;**

6. Lockers and public WCs
BS 16893 & BS 4971 [GIS] require all liquids and contaminants [food and drink] be left outside of exhibition spaces. It is also often considered that large bulky clothing items [overcoats etc.] and carried bags [shoulder bags, rucksacks etc.] may carry a high level of risk to exhibit[ion] damage. *[Ref. 2, 3, 4]*

7. Ground level, front of house Cafeteria and retail area *[Ref. 9,10]*

8. Cafeteria Kitchen *[Ref. 23]*

9. Education/event space
Potentially ground floor and/or rooftop provision, with associated equipment requirements [chairs, tables, AV equipment, activity and props store – costumes etc] *[Ref. 7, 8]*

10. Vertical circulation and accessibility to all floor levels.
Library/digitisation areas *[Ref. 6]*
Small library [local studies, perhaps focussed reference tied to specific exhibition topics].

Digital access to museum collections, heritage, local studies library and archives links in a quiet hub/IT stations. *[Ref. A, B]*

11. General repairs and maintenance of exhibitions: furniture, signage, etc. *[Ref. 15, 16, 19, 20 - some currently undertaken ‘out of house’]*

Fig. 66 / New Temporary Exhibition space at British Museum / Architects Journal [2014]

Outline Brief & Brief Development

8.5 / ‘A Day In the Life’ of ‘Take Down’ & ‘Get Out’

1. Packing, loading, HGV transportation.
For all intents and purposes it is the reverse of ‘2 Exhibition Get In’.

Packing crates/boxes and soft materials are brought to the exhibition floors where the packing and general crating can occur immediately as the exhibition items are removed from their exhibition display places [plinths/ cases/walls/floor/enclosed cabinets etc.]. *[Ref. 21 - Flexible spaces/storage]*

The crated and packed exhibition awaits collection from the specialist hauliers/movers by HGV [or is transported to Hereford’s permanent collection at the Museum Resource & Learning Centre in Friar Street, if an in-house exhibition or, if in-house collection items are used to augment visiting collections] *[Ref. 29]*, which will require temporary closing to the public and possible highways closure [or part closure] as the packed exhibition and accessories are loaded for transport onwards.

2. Storage facility

- Take-down of exhibition room layouts [& accessories], including temporary walls, black-box AV pods, plinths, dais’, cabinets, cases, furniture, interpretation and interactive materials.
- Storage of exhibition accessories and temporary walls. *[Ref. 21 - Flexible spaces/storage]*
- Repair make-good and wear & tear and redecorate permanent fixtures as well as accessories and furniture.
- Ready space for next exhibition and begin preparation for a new layout. *[Ref. 18]*

Fig. 67 / Museum Storage. Photography by Andrea Hagy, Associate Registrar / Source: resources.culturalheritage.org

Fig. 68 / Conservation & Storage of Collection items / https://aiccm.org.au

Outline Brief & Brief Development

8.6 / Key Facility Requirements for Efficient & Effective Function

Museums and Gallery facilities comprise of an organisational & hierarchical breakdown of spaces comprising of:

- Served: exhibition and gallery space
- Service: public, reception/orientation, café, retail, circulation, education/ event, plant, staff areas, offices, staffroom, exhibition storage, WCs, interpretation and interactive resources and accessibility materials and equipment.

Best practice guidance indicates a desired floor area ratio split [for Museums & Galleries] between 'service' and 'served' of 33% to 66%. Best practice further guidance [see section Specialist Exhibition and Gallery designers guidance" on page 49] indicates a high-level fit-out strategy for exhibition ['served'] areas of:

- 40% exhibition area for 'low-level' fit-out
- 40% exhibition area for 'mid-level' fit-out
- 20% exhibition area for 'high-level' fit-out

Further demarcation and allocation of the available accommodation for temporary and permanent exhibitions are under review and for the HMAG staff to best identify.

Further ongoing exploration and consultation throughout Stage 2 will look to identify details around specific exhibition layout requirements for AV/Black-box requirements & location - ie. demountable or permanent?; types of permanent exhibition interfaces, cabinets, signage etc.

1. Environmental control
Environmental control of all exhibition spaces, cabinetry and cases and exhibition storage spaces to ensure BS 16893 & BS 4971 recommended temperature and RH% ranges are met per material requirements and to prevent thermal & RH shock occurring to exhibits and exhibition packing.

- Daylight and UV requires moderation and control in many circumstances.
- Ventilation is also key for both visitors, staff and collection items alike.
- The acoustic environment is key to visitor and exhibition experience and will require moderation and adaptation per exhibition set-up [and particular spaces depending upon varying ontological atmospheres].

2. Exhibition/gallery spaces
The core service provision of exhibitions is broken down into varying nested categorisations:

Permanent Exhibition Space [may rotate/change every 5 – 10 years]

- Local Hereford history
- Herefordshire and region/Marches/Borderlands
- Museum collections galleries [costumes, art, natural science, archaeology, Viking hoard]
- Spotlight loans

Temporary Exhibition Space [will rotate several times a year]

- Hired in [and charged entry] – curated by others
- In-house curated exhibitions from Hereford Museum's permanent collection [& possible loans from elsewhere]
- Local art[s]

3. Exhibition accessories

- Furniture;
- Plinths;
- Cabinets;
- Mobile walls;
- Display panels;
- Cases storage area.

4. Exhibition packing

- Crates;
- Boxes;
- Transit materials storage area [inc. somewhere to store palette trucks, etc.]

5. Goods lift
A goods lift needs to provide sufficient space and volume to allow movement and manoeuvring of the largest item in the collection, large temporary exhibition crates and collection items, exhibition paraphernalia, plinths, cases, walls etc. to be able to be moved safely vertically and across level threshold.

The goods lift will also double-up as a passenger lift for large groups to provide access to the rooftop restaurant and event/education space and rooftop Hereford[shire] permanent exhibition and temporary sculpture/arts exhibitions. The largest item in the collection currently is a gypsy caravan [or similar] and would require a goods lift with a 3m high door and a floor area of 6m x 3m.

The lift is required to access all floors within the exhibition part of the building in addition to an external access from the rear on Aubrey Street.

6. Loading bay
Currently there is no capacity for a secure and enclosed loading bay or available provision for a secure delivery compound. Current discussions indicate two options:

- 1. Temporary closure of Aubrey Street and delivery direct into the goods lift from the street, or;
- 2. Come to a formal arrangement for public access to the goods lift from one of the adjacent properties with periodic use of lift for loading and uploading exhibition materials

7. Service area, deliveries & bin store
Currently there is no available site provision for a service are or bin store. Deliveries are currently made to front of house. Waste disposal requires further investigation and a strategy/policy statement developing.

8. Activity stores
Either in location within the exhibition spaces or in basement area – for: costumes; puppets; objects; TV screens; projectors etc.

9. Front of House Café and pavement presence

10. Front of House Retail

11. Orientation space: reception [possibly cloaks] / information

12. Public WCs [and possibly lockers]

13. Accessible circulation throughout

14. Restaurant / bar area at roof level
Associated to a delightful roof terrace / garden / sculpture trail / exhibition / views.

15. Events / Education space at roof level
Associated to a delightful roof terrace / garden / sculpture trail / exhibition / views and enabling the 'trickle down' museum visitor flow model.

16. Events/Education storage [chairs, tables, screens, etc.]

17. Rooftop permanent exhibition
Exhibition of Hereford and Herefordshire life with views out to the wider landscape context and Hereford historic roof scape.

18. COSH/Flammable Liquids store

19. Cleaners stores

20. Dirty work & cleaning area [with sink]

Outline Brief & Brief Development

8.7 / Area and Accommodation Schedules

The following schedule of accommodation allocates the above described facilities and services for the new museum on Broad Street. These are representative of initial high level consultation with stakeholders and captures initial first steps. This is subject to further detailed discussion and refinement within the next stages of work.

An exploration of these areas identifies a total floor area of 2,538m2 available floor area for those requirement outlined. When added to the Friar Street facility [1,500m2 approx.] we realise a total service GIFA provision of approximately 4,038m2.

This figure represents a shortfall of 1,562m^2 in comparison to the initial outline brief provided by Judith Stevenson [+ 1,500m2 approx. for Friar St.] totalling 5,600m^2, and a 1,362m2 shortfall when compared with The Arts Council [& MLA] average benchmark calculation of 5,400m^2.

However, it is critical to note that;

- The current areas/schedule of accommodation are ‘fluid’ and will need to be further explored, discussed and refined in the next stages, once key building strategies are agreed and adopted
- Some areas, pending discussion, are yet to be allocated areas; and some spaces area allocation will need adjusting
- The ‘in development’ Schedule of Accommodation records a GIFA of circa. 2,538m^2, which is approximately 373m^2 less that what is currently being achieved at 2,165m^2, demonstrated in the feasibility design block plans, Section 11.0 / Feasibility Design” on page 65.

Risks & Recommendations

The current areas / schedule of accommodation are based on initial consultation with stakeholders back in December 2020, with the addition of some key ancillary ‘revenue generating’ required spaces identified in the P+P report

The current areas accommodated within the sketch feasibility design [Section 11.0 / Feasibility Design” on page 65] falls short of meeting the current Schedule of Accommodation total GIFA by 373m^2. The impact of this against comparable benchmarks is explored further in Section 10.0 / Cost Benefit Analysis” on page 58, as well as commentary on the impact of the inclusion of a third floor is explored in Section

We are yet to receive a more updated area requirement from the staff. We anticipate this will be the result of further ongoing staff consultations, in the immediate early stages of RIBA Stage 2 work.

This information will be essential to guide the design process into RIBA Stage 2.

		SUPPORT SPACES										
		room	pair with	notes	notes	size note	m²	m² (Friar Street)	height	environmental	security zone	access
		Service' space [public]										
	1	[Accessible] WC's	1/2/3		BS 6465-1:2006+A1:2009 / BR		100				public	
	2	Visitor reception		Friendly easy access off broad street		Space provision included in 3	60				public	
	3	Visitor 'orientation' space, to meet up, break out, etc.	1/2/3/4	Fairly minimal, don't want to compromise user experience	By main entrance						public	
	4	Public lockers / cloak-room	1/2/3	In line with BS 16893 and BS 4971, internal policy and Government Indemnity Scheme (GIS) requirements							public	
	5	Registrar		organisation's records, admin, legals, insurances, professional standards, loans in and loans out etc								
	6	Suitable accessible pedestrian lift	3								public	
P+P Recommended Spaces	7	Education and event facilities [store]	8	[chairs, tables, AV equipment, activity and props store – costumes etc.			50					
P+P Recommended Spaces	8	Education and event space/venue	7	Potentially rooftop café/bar/restaurant	top floor overlooking views and in well lit space? Historical attractive rooms work well for events and hiring out. Kids lunches, bags and lockers. Could include small Community displays. Could be linked/combined with the above		400				public	
P+P Recommended Spaces	9	Ground floor café	23				60				public	
P+P Recommended Spaces	10	Retail provision - shop	3				90					
Service' spaces [Back of House]	11	Staff offices/break room/kitchenette	3?	ideally removed from the public spaces	Larger staff offices/spaces provision can be accommodate 'out of house' if needed, with a smaller space provision at Broad Street		30	60		quiet, views out	staff only	
Service' spaces [Back of House]	12	Plant		Basement?			50				staff only	
Service' spaces [Back of House]	13	Secure loading bay/external delivery	14	ideally improved, potential for larger items to access each level?	may be option for escape over car park to south						staff only	
Service' spaces [Back of House]	14	Suitable goods lift				The largest item in the collection currently is a gypsy caravan [or similar] and would require a goods lift with a 3m high door and a floor area of 6m x 3m.	18				staff only	
Service' spaces [Back of House]	15	Workshop 1		For crating, frame making, plinth and exhibition accessories making – carpentry, Perspex, laminating, soft packing etc.	Currently undertaken 'out of house' at Friar Steet facility			27			staff only	
Service' spaces [Back of House]	16	Workshop 2		A mount & frame workshop [mounting, paper, card, glass & Perspex, framing etc. - currently undertaken 'out of house']	Currently undertaken 'out of house' at Friar Steet facility			30			staff only	
Service' spaces [Back of House]	17	A photography studio & store		For publicity, records, digitisation and web access							staff only	
Service' spaces [Back of House]	18	Exhibition planning and preperation		an exhibition can be two years in the planning, documentation & admin, proof of suitable environmental conditions, layout design/planning, exhibition accessories design and manufacture, labelling, signage, publicity, brail signage, hearing-loop and audio-tour prep. Etc. - currently undertaken 'out of house'	Currently undertaken 'out of house' at Frair Steet facility	TBC what provision will be included in Broad Street musuem		12			staff only	
Service' spaces [Back of House]	19	Dirty work area		inc. sink & COSH store for flammable liquids, painting, brush cleaning etc.							staff only	
Service' spaces [Back of House]	20	Conservation Studio		Conservation is currently undertaken 'out of house' [a conservation studio is available at the Museum Resource & Learning Centre]	Currently undertaken 'out of house' at Friar Steet facility			43			staff only	
Service' spaces [Back of House]	21	Storage space for exhibition equipment and exhibition preparation		All functional [including exhibition & gallery spaces] spaces require to be 'flexible' and require associated storage;	crates, pictures	half a museum for storage. Quarter of museum for preparation [225sq.m.]	110		existing slightly small - more of an access issue?		staff only	close to goods lift
Service' spaces [Back of House]	22	AV/Black-box facility		For exhibitions							staff only	
Service' spaces [Back of House]	23	Cafeteria kitchen	9								staff only	
Service' spaces [Back of House]	24	COSH/Flammable liquids store										
Service' spaces [Back of House]	25	Cleaners store										
		Service' spaces [equipment]										
No area allocated as 'equipment based'	26	Flexible lighting					n/a					
No area allocated as 'equipment based'	27	Level Access throughout					n/a					
No area allocated as 'equipment based'	28	Mechanical assisted collection and exhibition movement devices		Power assisted stack-trucks etc.			n/a					
No area allocated as 'equipment based'	29	Museum van	13	Museum van [as a multi-site organisation there is no Museum service vehicle available – currently relying on staff cars or a council van when available – no bespoke 'strap-down' anchors or provision for collection item protection];			n/a					
No area allocated as 'equipment based'	30	Audio management & moderation					n/a					
No area allocated as 'equipment based'	31	Ceiling fitted modular hanging-rails					n/a					
No area allocated as 'equipment based'	32	Museum roles		Museum roles to be considered in order to enable sustainable provision of service: - Registrars - Technicians & fabricators - Conservator - Curators - Exhibition Manager			n/a					
No area allocated as 'equipment based'	33	Fire escape access		Suitable fire escape/access to all levels of Broad Street facing historic building.			n/a					
						Sub Total	**968**					

		GALLERY/MUSEUM SPACES										
		room	pair with	notes	notes	size note	m²		height	environmental		access/other
	A	Large temporary changing 'special' exhibition gallery	B /14	to accommodate brought in external exhibitions	key fundamental display, key attractor, central piece, big space but can be divided	double current museum	300		high - 6m	environmental control as elsewhere, no natural daylight (or controlled)	public	closer to goods lift?
	B	Smaller temporary spotlight-type loans room	A	for National loans and small changing displays	could be separate galleries	quarter size of museum	75		low - 4m (library mezzanine)	no windows in room	public	
	C	Large permanent gallery		for borderlands & Marches – archaeology, the Hoard and Magna carta, VR (or divided up)		one museum (ideally more)	300		4m or higher	variety of uv requirements.		
	D	Large permanent gallery for local social history	E	our story (co-curated with community)	top floor looking out over county	one current museum	300		4m or higher	Less restrictions of daylight/uv - but good to provide variety of conditions	public	
	E	Large permanent gallery for Agriculture and environment	D	(Bees and garden?) , large bits of equipment - ie gypsy caravan	top floor looking out over county	one current museum	300		4m or higher	less restrictions of daylight/uv - but good to provide variety of conditions	public	
	F	Smaller changing fine art and costume gallery	G	using permanent collections	same level as social history and fine art/costumes	quarter size of museum for each - ideally 2 rooms of this size (ideally half a museum)	150		3.5-4m or higher	very light sensitive	public	
	G	Smaller changing Hatton art gallery (existing size)	F	using permanent collections		current size is between store and lift in art gallery space	20		4m ideal		public	
	H	Media gallery – historic film, photos, digital, experiential		some permanent & changing displays (co-curation with external partner?)	black box space	half or quarter of museum?	75		6m?	appropriate acoustic, darkened room, could be flexible	public	
	I	Creativity and design gallery		Nice to have, but may form part of the Friar Street facility							public	
	J	Local studies hub		Digital access to all Herefordshire museum collections, archives, books, art, biological records, Woolhope Library collections, HER, etc. Possibly in the Woolhope Room	only have access to digital, can be desk point		50				private	
		FLEXI-Test Area				FLOAT Area:	0					
	10	*Creativity & design gallery*		(permanent & changing exhibits, art/craft/makers practioners work spaces)	nice to have - but may be incorporated elsewhere? i.e. off site							
						Sub Total	**1570**		/100 =	15.7		
						Total Area	**2538**					

Legend
- Back of House staff access only, service areas
- Key ancillary 'revenue generating' required spaces identified in P+P report
- 3rd Floor accommodation requiringr relocation after budget cut
- Currently under area
- No area allocation currently

Fig. 69 / Accommodation Requirement and Notes

9.0 / Initial Architectural Investigation

Initial Architectural Investigation

9.1 / Design Development

Commentary is provided below for record of brief development for the proposed upgrade of Hereford Museum and Library building. All of the explorations, information gathering and design development to date has helped to inform, develop and refine brief requirements for this RIBA Stage 1 submission, and will be essential for progression into RIBA Stage 2 Concept Design.

1 / Initial Feasibility - Stronger Towns Funding Bid Supplementary

Architype submitted an initial report in January 2021 as part of the Stronger Towns Funding Bid supplementary by the HC in support of strategies to expand and upgrade the Hereford Museum and Art Gallery.

The document outlined very initial ideas relating to possible strategies for the expansion and environmental upgrade of the building. The initial study was inclusive of:

- Analysis of the existing building including a desktop study accompanied by stakeholder engagement meetings, a one day site visit with forensic investigation, and initial modelling using the Passivhaus energy balance spreadsheet, PHPP 9.
- A brief overview of existing and potential structural principles.
- A brief overview of existing and potential thermal performance strategies.
- An appraisal of high level options for the proposed extension/ refurbishment, including environmental, structural and costing commentary. This included 3 options ranging from Minimal Intervention strategies to a New Purpose Built Facility.
- A developed concept of the **preferred Option 2** which looks to extend upwards to provide additional accommodation above the existing building. This is accompanied by illustrative drawings, massing studies and target accommodation requirements.
- A brief summary of next stages and areas requiring further investigation

Recommended Next Steps

- The commissioning of a measured survey of the existing building, as well as any legal checks on the property.
- Massing studies and explorations for discussion with Planning/ Conservation/HE on approaches taken to reduce visual impact and enhance city skyline.
- The appointment and consultation with the Local Planning Authority, Conservation and Historic England, as well as further structural, environmental and archaeological investigations on the existing building.
- The appointment of a full design team, as well as ongoing staff and public consultations to contribute towards brief development and refinement.

2 / Outline Feasibility Development - Stronger Towns Funding Bid Supplementary

Following a workshop [July 21st] between Architype Architects, P+P Museum and Gallery Consultants, and Smith Thomas [QS] a series of actions were agreed to best benefit and enable the project to move forward within the £15m budgetary constraints identified by HC.

- The incorporation of full project costs into the cost plan developed in January 2021, combined with an uplift in building costs steers the costs for the current feasibility Option 2 nearer to £17m.
- Order of Magnitude estimations for two further variants of Option 2 [Option 2A.1, and 2B.1, also commonly referred to as options 2.1 and 2.2] were assessed in terms of cost implications.
- An assessment of the current Option 2 identified that the 3rd floor [in its entirety] was not a revenue generating space and removal of it would bring the project budget closer to the £15m required.
- 2A.1 presented an option which removed the 3rd floor. Additionally, it introduced a secondary entrance at the rear of the facility as a schools & education entrance as well as a direct vertical access entry to the rooftop cafe [and roof terrace], allowing for discreet entrance and provide a ‘trickle-down’ [through the museum & galleries] behaviour. The observation was also set back towards Aubrey Street, opening up access to the roof garden.
- A further Option 2A.2 was developed to retain the 3rd floor but with a 1m lower floor to ceiling height with a lower quality fit-out, suitable for storage and plant, with the aim of reducing cost, retaining some height to the cafe and roof terrace while relocating the plant to a more central location.

Recommended Next Steps

- The Order of Magnitude costing identified 2A.1 as the only feasible approach to progress within budgetary constraints.
- However, it is noted that a further cost-calibration analysis was undertaken as part of this RIBA Stage 1 report using a ‘cost estimate design tool’ which has highlighted opportunity for a further potential 350sq.m of exhibition space [potentially another floor level] to be further explored as part of next steps.

3 / Historic England Report - Planning & Conservation Design Discussions

This document aims to ‘explore’ constraints & opportunities around some of the key areas documented within the ‘Conservation Management Plan’ by JS ‘Conservation Management and Town Planning’ requiring ‘attention’ or consideration regarding historic context and city presence.

- In 1974 the Hereford Library and Museum was registered as a Grade II listed building of special architectural interest. The main elements detailed refer to the Broad Street Facade, the Woolhope Room and the Foyer Central Staircase. This exploratory study document also included the old Librarian’s accommodation quarters above the Woolhope Room, the general roofscape and massing and the public realm in front of the main entrance on Broad Street.
- A range of design explorations on a spectrum of ‘light touch’ to ‘significant intervention’ are evaluated and presented as a basis for further discussion, to help find mutual benefit amongst the Historic, Conservation, Planning and Museum stakeholder groups.
- Precedent studies were used to demonstrate degrees of sensitivity when refurbishing and extending existing historic buildings, informing the design explorations.

Recommended Next Steps

- The appointment and ongoing engagament of a Historic England Building Inspector, as well as ongoing combined engagement with an appointed Planning and Conservation officer.
- The design development alongside budgetary constraints, considered heritage approaches and brief requirements.
- The design development with the received updated survey information.

4 / RIBA Stage 1 HMAG Feasibility Report

This report sets out the feasibility brief development and proposals for the Hereford Museum and Art Gallery in Hereford City Centre, to meet the RIBA Stage 1 requirements.

- Following an interrogation of the initial project brief and discussions with the project team the brief has been developed alongside various cost-benefit analysis, and sensitivity to significant Heritage aspects that are to be considered as part of the design process.
- The revised Order of Magnitude estimate has utilised approximate £/ m2 rates to identify the potential size of new build facility that could be generated for the notional target cost of £15.0m.

Please refer to Section 11.0 / Feasibility Design” on page 65 for design development commentary for this Stage 1 submission.

Please refer to Section 13.0 / Risks, Recommendations & Next Steps” on page 74 for commentary on recommended next steps.

Initial Architectural Investigation

9.2 / Design Development Diagram

Diagrammatic representation of design progression up to RIBA Stage 1 concept design issue; a considered design exploration taking into account cost-benefit analysis' exercises and and key heritage considerations.

Jan 2021

1/ Initial Feasibility - Stronger Towns Funding Bid Supplementary

July 2021

2/ Outline Feasibility Development - Stronger Towns Funding Bid Supplementary

September 2021

3/ Historic England Report - Planning & Conservation Design Discussion

September 2021

This Report

4/ RIBA Stage 1 HMAG Feasibility Report

RIBA Stage 2

Concept Bid Stage Visualisations

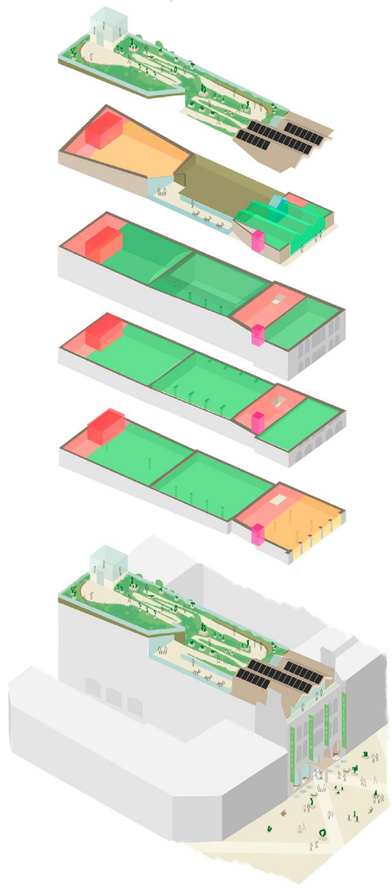
Cost-Benefit Design Analysis

Third Floor identified as none-revenue generating and potential removal [see Outline Feasibility report for more detail.]

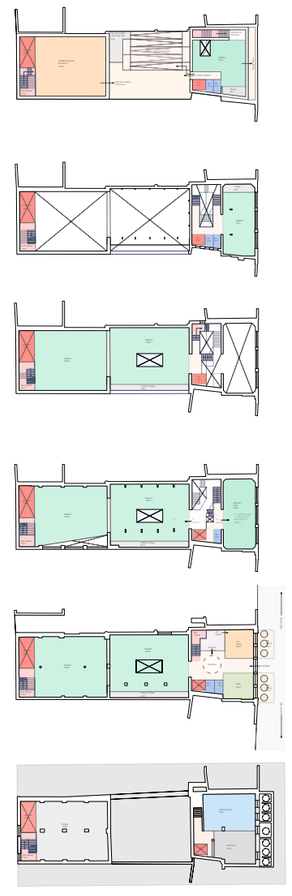
OPTION. 2A.1

OPTION. 2A.2

Strategic Design Moves - Historic England Explorations



Stage 1 Brief Development - Block Plans



10.0 / Cost Benefit Analysis

Cost Benefit Analysis

10.1 / Cost Benefit Analysis Study

Introduction
Cost estimate iterations carried out by Smith Thomas Consult have been key in informing/developing the brief to this point. The numerous revisions are listed below, and diagrammatically indicated alongside the relevant design development narrative in Fig. 69 / Accommodation Requirement and Notes".

- Feasibility [3 options: 1, 2 & 3] – construction cost [Rev.1]] by QS
- Feasibility [3 options: 1, 2 & 3] – Full project cost [Rev.2]] by QS
- Stronger Towns submission options [2 options: 2A.1 & 2A.2] – full project costs [Rev.3]] by QS
- Options Typos correction [Rev.4] by QS
- Calibration Cost Estimate – reverse-engineered from £15m budget, projecting available GIFA.] by QS
- Cost estimate design tool [detailed 'fit-out' breakdown informed by guidance and previous specialist consultants] by AS

Initial Outline Feasibility Costs
The previous outline Feasibility study identified 3 options for consideration:

- Option 1: Minimum intervention - Provision of a new lift core and main staircase; construction of new circulation elements, new stair core and goods lift to Aubrey St. entrance; insulation improvements to the retained existing building elements; basic structural repairs: approx. £5.0m allowance for museum fit out works. [£10m approx.]
- Option 2: Maximise existing building fabric - As option 1 above, but introduce additional gallery space by extending the existing building upwards to provide additional gallery and activity space. [£15m approx.]
- Option 3: New purpose built facility - Retain the Broad St. frontage and refurbish; demolish all remaining building elements and build a new purpose designed 5 storey building behind; including approx. £5.0m allowance for fit out works. [£20m approx.]

Option 2 was selected to develop further as it represented the greatest cost benefit at that time.

It should be noted that the Museum Staff preference, recorded at the consultation workshop [11th Aug 2021] was for Option 3 as it allowed a greater degree of 'bespoke design for purpose' rather than being constrained by the existing building stock required by the other options.

Cost Benefit Analysis Study
Following the cost estimate developments that incorporated full projects costs [rather than just construction cost] and a continued cost estimate development of the design options [2A.1 & 2A.2] explored to support the Stronger Towns funding submission, a degree of clarity, consistency and calibration was sought.

To better define the parameters of the project a 'calibration' cost plan was requested by Architype in September 2021 to define what the projected GIFA would be when 'reverse-engineered' from a £15m budget on an average urban site. The principle question being: 'would it be cheaper/more efficient to build a new Museum facility on a different site that wasn't bound by existing buildings, structural difficulties and sensitive historic constraints?' The calibration cost plan finds that a new-build option would not be significantly cheaper/efficient and would yield minimum uplift on GIFA.

The cost benefit analysis demonstrates that there is no cost benefit of developing a new-build facility on an alternative site. [See Appendix H to review the full cost estimate report.]

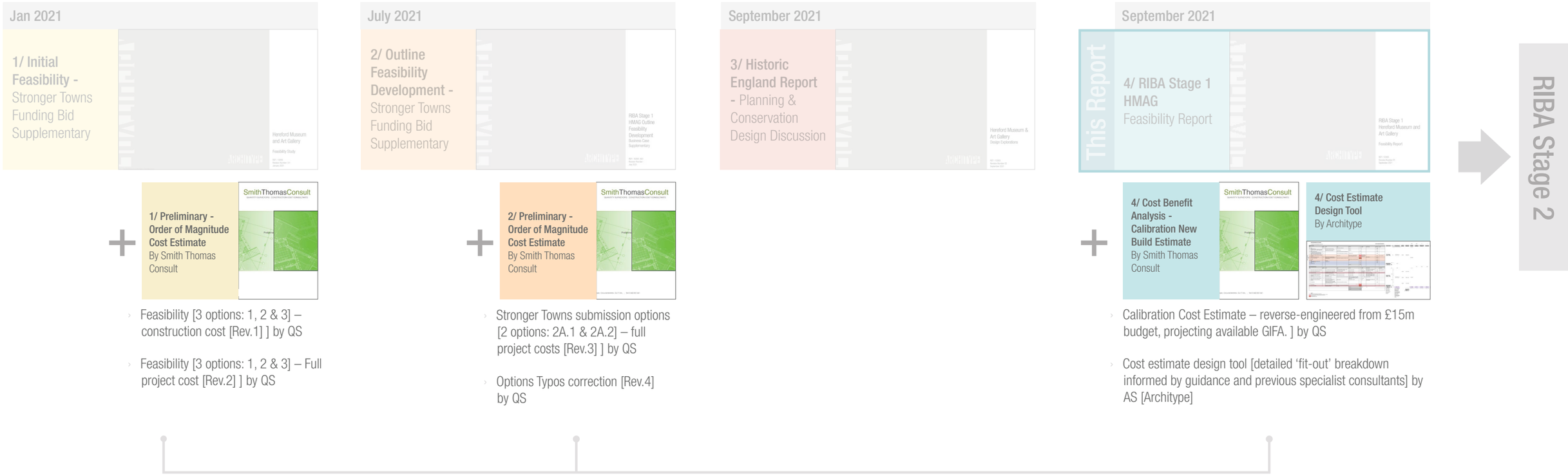


Fig. 70 / Cost Estimate Development for HMAG

Cost Benefit Analysis

10.2 / Fit-out Cost Study

Following closer interrogation, one of the categories within the cost plan, Section 8 ‘Fit-out’, was ‘flagged’ as having a potential for ‘double accounting’, requiring a greater clarity of what exactly informed the sq.m. rate adopted. The fit-out sq.m. rate represents an average rate formulated by [unknown] for inclusion within the initial OoM Cost Estimate undertaken for the first Feasibility report and has persisted throughout each iteration since. No accompanying commentary was available or referenced for this figure. It was agreed [between Architype & QS] that a more detailed breakdown of this section of the cost estimate would allow for greater clarity and refinement.

Architype undertook a short research study to better define what constitutes a ‘fit-out’ cost and what constituents define it. The Arts Council England [AC] and the Museums, Libraries & Archives Council [MLA] published a guidance document in 2010 called ‘A Standard Charge Approach’ which explored, defined and reported ‘benchmarks’ for use as guidance in development of cost estimates for both Museum and Arts provision facilities, whether refurbishment or new build. Additionally, HMAG had sought assistance from specialist Museum & Gallery fit-out specialists prior to Architype’s involvement that defined a standard breakdown of £/m2 fit-out costs per low/mid/high quality spaces and the standard ratio split between these spaces. The documentation also provides a further ratio split commonly expected between exhibition/gallery space [served] and public, café, retail, education, circulation, back-of-house staff [service] areas. These refinements were used to inform and define what fit-out costs would be expected at this level of design for a Regional Museum facility.

The Arts Council [& MLA]

The Arts Council [& MLA] report that on average an OoM fit-out cost - including construction – of £3,250/m2 would be expected.

> *“A construction and fit out cost; based on the average of costs from relevant projects covered in the sample survey, as well as comparative building cost information data from Spon’s Architects’ and Builders’*
>
> *Price Book, a figure of £3,250 per square metre (rounded), including construction and fit out costs, is suggested. The fit out costs exclude any specialist facilities or major ICT based interactive interpretation.”*
>
> From “A Standard Charge Approach’ by Arts Council England & Museum, Library & Archive Council [2010]

HMAG Calibration Cost Estimate - Smith Thomas Consult

The HMAG Calibration cost estimate produced by Smith Thomas Consult [QS] apportions a cost to ‘general build’ and ‘fit-out’ separately:

- £2,250/m2 general build cost
- £3,500/m2 fit-out cost
- = £5,750/m2 total cost

Haley & Sharpe Guidance

A detailed review of the Haley & Sharpe guidance defines costs broken down into two overarching categories [66% served & 33% service] of which the ‘served’ [exhibition & gallery] spaces are further subdivided into three quality bands of fit out:

- Low level [40%] @ £1,000/m2 fit-out cost
- Mid level [40%] @ £1,500/m2 fit-out cost
- High level [20%] @ £2,500+/m2 fit-out cost [with a potential to rise to ‘£10,000/m2’ for National/Specialist fit-outs]

The remaining ‘service’ areas [public, café, retail, education, circulation, back-of-house staff etc.] would average £1,000/m2 fit-out cost.

The cost-estimate design tool - Architype

The accompanying spreadsheet screenshot [below] demonstrates the cost-estimate design tool. The accommodation schedule has been locked into the QS cost estimate and all calculations remain the same except for the ‘fit-out’ section [8] which has been replaced by the more detailed breakdown of exhibition spaces and fit out costs. The cost-estimate design tool reports a £2m saving. A further ‘float’ box enables input of floor area that feeds directly into the cost estimate design tool total cost. This enables feedback of floor area able to make up the budget amount, in this case around 370m2 – an additional storey height approximately.

It should be noted that the cost-estimate design tool is not intended to replace the official cost estimate but merely demonstrate that there is capacity for moderation given greater levels of detail and that the brief should remain sufficiently fluid until greater levels of design and costing can be investigated.

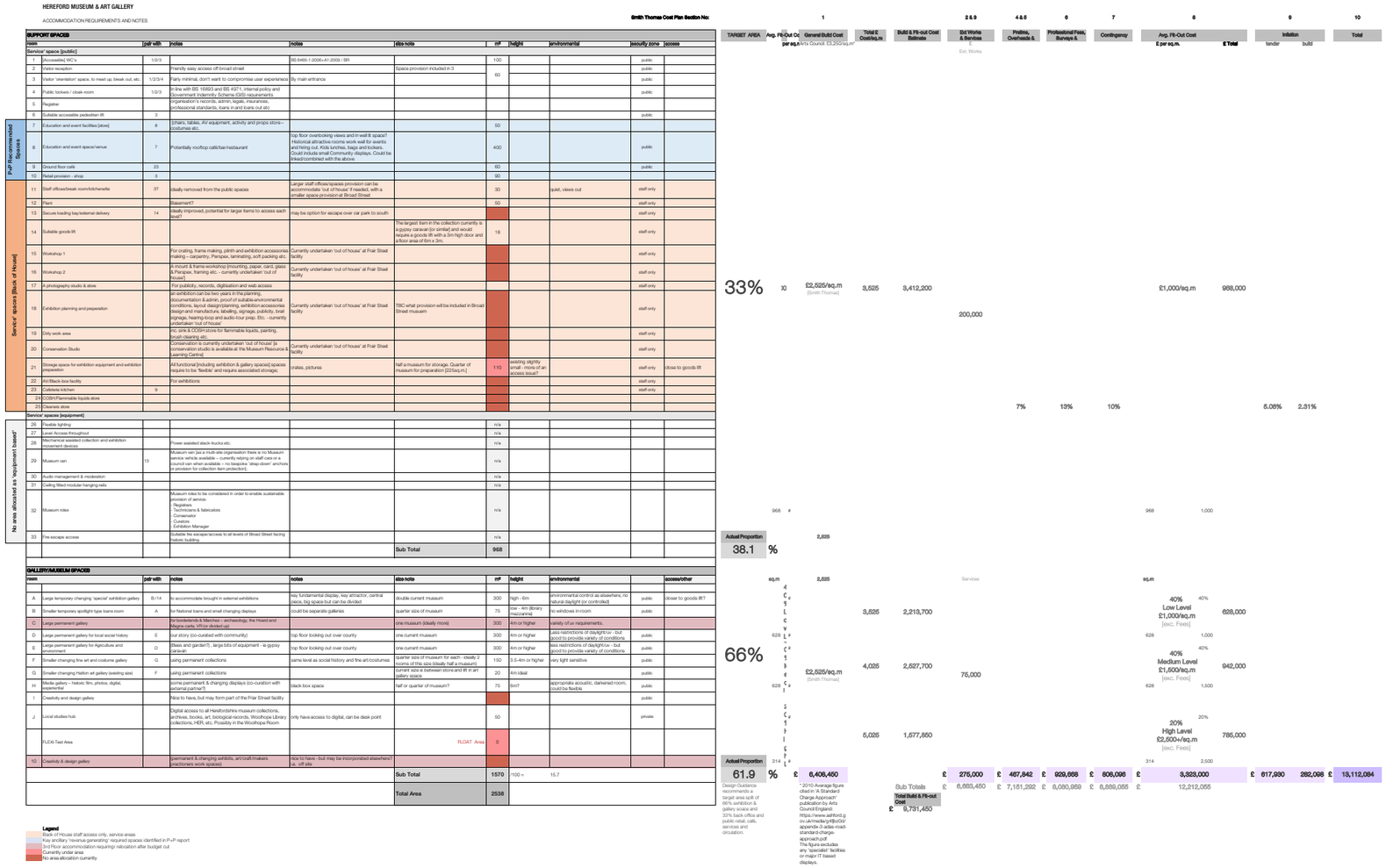


Fig. 71 / Cost Estimate Design Tool by Architype

Cost Benefit Analysis

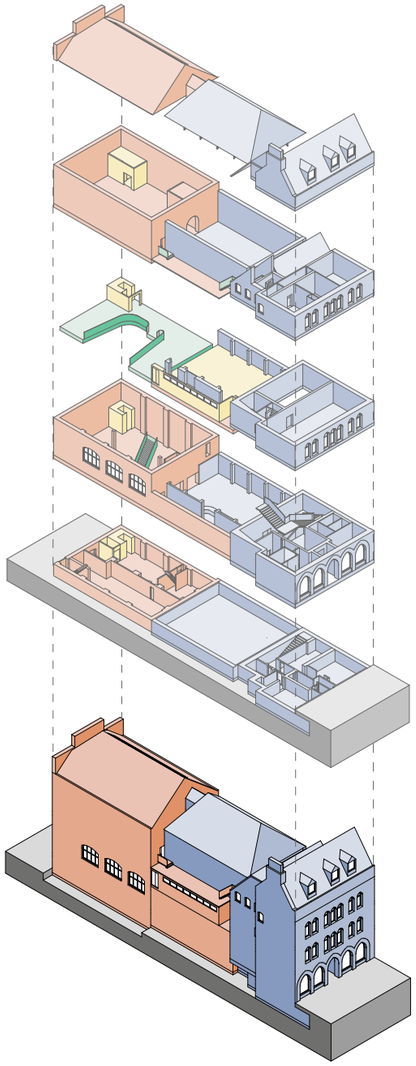
10.3 / Benchmarking Areas

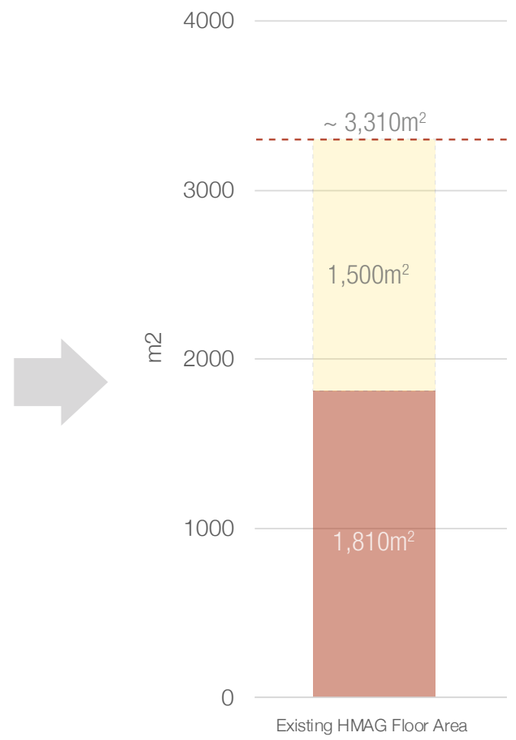
Cost and area are intrinsically linked, and further development and balance of both cost and target areas for the new museum facility will be a critical consideration.

Hereford Museum Service is a multi-site resource. The majority of ‘back of house’ & supporting services required for Hereford Museum [Broad Street] is undertaken at The Museum Resource & Learning Centre at Friar Street.

We are able to calculate high-level areas for purpose of comparison, evaluation and benchmarking so that we can consider cost implications alongside brief development. The additional consideration of high level ‘fit-out costs’ will further enable a desired floor area ratio consideration between ‘service’ and ‘served’, with ‘served’ [exhibition and gallery spaces] being the priority for the new museum. [Please refer to Section 8.6 / Key Facility Requirements for Efficient & Effective Function” on page 53 for definition of ‘service’ and ‘served’ spaces]. We have therefore principally added together the areas of ‘Site 1’ and ‘Site 2’ in order to provide a more representative comparison.

Based on these high level evaluations, the two facilities currently total a floor area of approximately 3,310m².





1 Hereford Museum & Art Gallery
Broad Street, Hereford

1,810m² GIFA

2 Museum Resource & Learning Centre
Friar Street, Hereford

1,500m² GIFA

Fig. 72 / High-level areas consideration for HMAG - the Broad Street and Friar Street facilities.

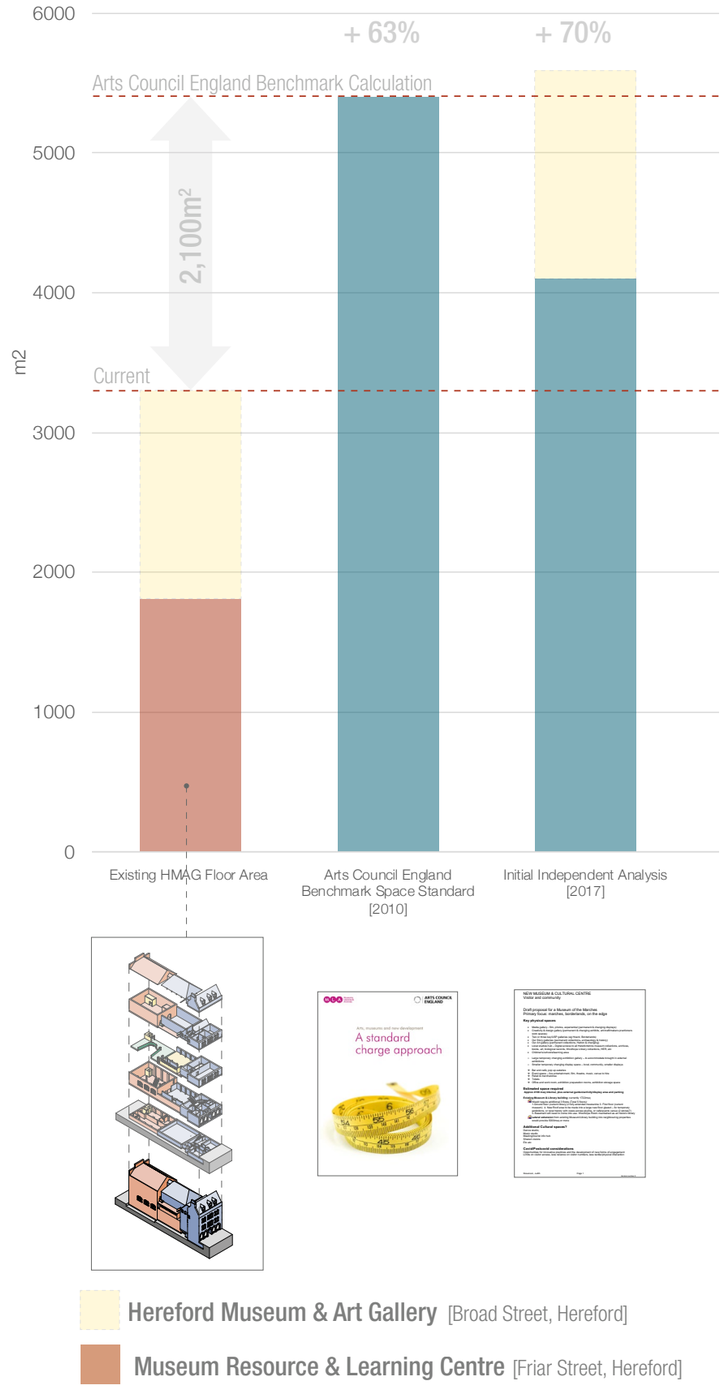
Cost Benefit Analysis

10.4 / Regional Museum Facility Floor Area Assessment

Regional Museum Expected Floor Area
The Arts Council [& MLA] provide a benchmark expected GIFA for a regional museum facility [based on an average] using a ‘macro’ calculation of 28m2 GIFA provision per 1000 of population. If we take Herefordshire population [2020] to be 193,000 [approx.] / 1000 = 193. 193 x 28m2 = 5,404m2.

For purposes of initially defining the project at an early stage the Museum head [Judith Stevenson] compiled a brief accommodation and area schedules for the Broad Street facility, totalling approx. 4,100m2. As has already been mentioned HMAG is a multi-site operation and the back-of-house and collections facility in Friar Street [1,500m2 approx.] needs to be accounted for in the total floor area. This would realise a total service provision of approximately 5,600m2, and relates closely to the Arts Council benchmarked figure.

The current museum area, combined with the Friar Street facility, totals approximately 3,310m^2. As indicated in the table to the right, the current combined museum area falls short of the Arts Council recommendation by circa 2,100m^2 and the initial brief proposal by 2,300m^2.



Floor Area Assessment			
Facilty / Figure		**Area** [approximate]	
Hereford Museum & Art Gallery Combined	Current Area - Hereford Museum & Art Gallery [Broad st.]	1,810m^2	**3,310m^2**
	Museum Learning & Resource Centre [Friar st.]	1,500m^2	
Arts Council [&MLA] benchmark			**5,400m^2**
Initial Independent Analysis [2017]	Initial outline Brief [Judith Stevenson, 2017]	4,100m^2	**5,600m^2**
	Museum Learning & Resource Centre [Friar st.]	1,500m^2	

Fig. 73 / Comparing benchmark figures

Cost Benefit Analysis

10.5 / Areas Benchmarking

Regional Museum Expected Floor Area
The early 'high level' Feasibility Study undertaken by Architype in January 2021 reports a total 2,317m2 for Broad Street [Option 2]. Incorporating the Friar Street facility [Museum Resource & Learning Centre] floor area of 1,500m2 a total service provision of 3,817m2 is realised.

Following costing concerns not representing 'full project costs' [inc. design fees and planning fees etc.] and a requirement for evidenced costings sufficient to support the Stronger Towns bid a redesign was required to enable total costs to total £15m [July, 2021].

Option 2A.1 removed a complete floor level from the rear of the building, leaving 2,182m2 of available accommodation at Broad Street. When added to the Friar Street facility [1,500m2 approx.] we realise a total service GIFA provision of 3,682m2.

Option 2A.2 retained the 3rd floor but with a 1m lower floor to ceiling height with a lower quality fit-out, suitable for storage and plant. This resulted in 2,581m2 of available accommodation at Broad Street. When added to the Friar Street facility [1,500m2 approx.] we realise a total service GIFA provision of 4,081m2.

The 'Fluid Brief'
The 'in development' Schedule of Accommodation records a GIFA of circa. 2,538m^2, which is approximately 416m^2 less that what is currently being achieved, demonstrated in the feasibility design block plans, Section 11.0 / Feasibility Design" on page 65. When added to the Friar Street facility [1,500m2 approx.] we currently realise a total GIFA provision of 3,665m^2, which is 1,735m^2 short of the Arts Council [&MLA] benchmark.

An exploration of available floor area, utilising the cost estimate design tool, demonstrates that a potential total GIFA of 2,896m2 is available for the Broad Street refurbishment. When added to the Friar Street facility the total service provision GIFA is 4,396m^2, 1,004m^2 short of the Arts Council [&MLA] benchmark.

Conclusion
The average service provision for a museum service for Herefordshire, as defined by the Arts Council average definition, is expected to be around 5,400m2. The current cost plan demonstrates that only 3,682m2 is achievable [including 1,500m2 for Friar Street]. The 'fluid brief' demonstrates that with additional detail built into the cost estimate for 'fit-out' costs, a further total service provision GIFA of 4,496m2 is potentially achievable.

The additional potential floor area amounts to an approximate floor of additional accommodation, within the rear block of the building.

Floor Area Assessment			
Facility / Figure		**Area** [approximate]	
Hereford Museum & Art Gallery Combined	Current Area - Hereford Museum & Art Gallery [Broad st.]	1,810m^2	**3,310m^2**
	Museum Learning & Resource Centre [Friar st.]	1,500m^2	
Arts Council [&MLA] benchmark			**5,400m^2**
Initial Independent Analysis [2017]	Initial outline Brief [Judith Stevenson, 2017]	4,100m^2	**5,600m^2**
	Museum Learning & Resource Centre [Friar st.]	1,500m^2	
Initial Feasibility - Option 2 [Jan. 2021]	Initial Feasibility - Option 2	2,317m^2	**3,817m^2**
	Museum Learning & Resource Centre [Friar st.]	1,500m^2	
Feasibility Development - STF Cost Estimate Option 2A.1 [July 2021]	Feasibility Development - STF Cost Estimate Option 2A.1	2,182m^2	**3,682m^2**
	Museum Learning & Resource Centre [Friar st.]	1,500m^2	
Feasibility Development - STF Cost Estimate Option 2A.2 [July 2021]	Feasibility Development - STF Cost Estimate Option 2A.2	2,581m^2	**4,081m^2**
	Museum Learning & Resource Centre [Friar st.]	1,500m^2	
Stage 1 Development - 2A.1 [September 2021] AREA SCHEDULE	Stage 1 Development - 2A.1 AREA SCHEDULE	2,538m^2	**4,038m^2**
	Museum Learning & Resource Centre [Friar st.]	1,500m^2	
Stage 1 Development - 2A.1 [September 2021] ACHIEVED	Stage 1 Development - 2A.1 ACHIEVED	2,165m^2	**3,665m^2**
	Museum Learning & Resource Centre [Friar st.]	1,500m^2	
Stage 1 Development - Cost Estimate Potential 2A.1 [September 2021] POTENTIAL	Stage 1 Development - Cost Estimate Potential 2A.1 POTENTIAL	2,896m^2	**4,396m^2**
	Museum Learning & Resource Centre [Friar st.]	1,500m^2	

Benchmark TARGET

Fig. 74 / Areas Benchmarking

Cost Benefit Analysis

Areas Benchmarking

The below table is a visual representation of the tabularised data and commentary, on the previous page.

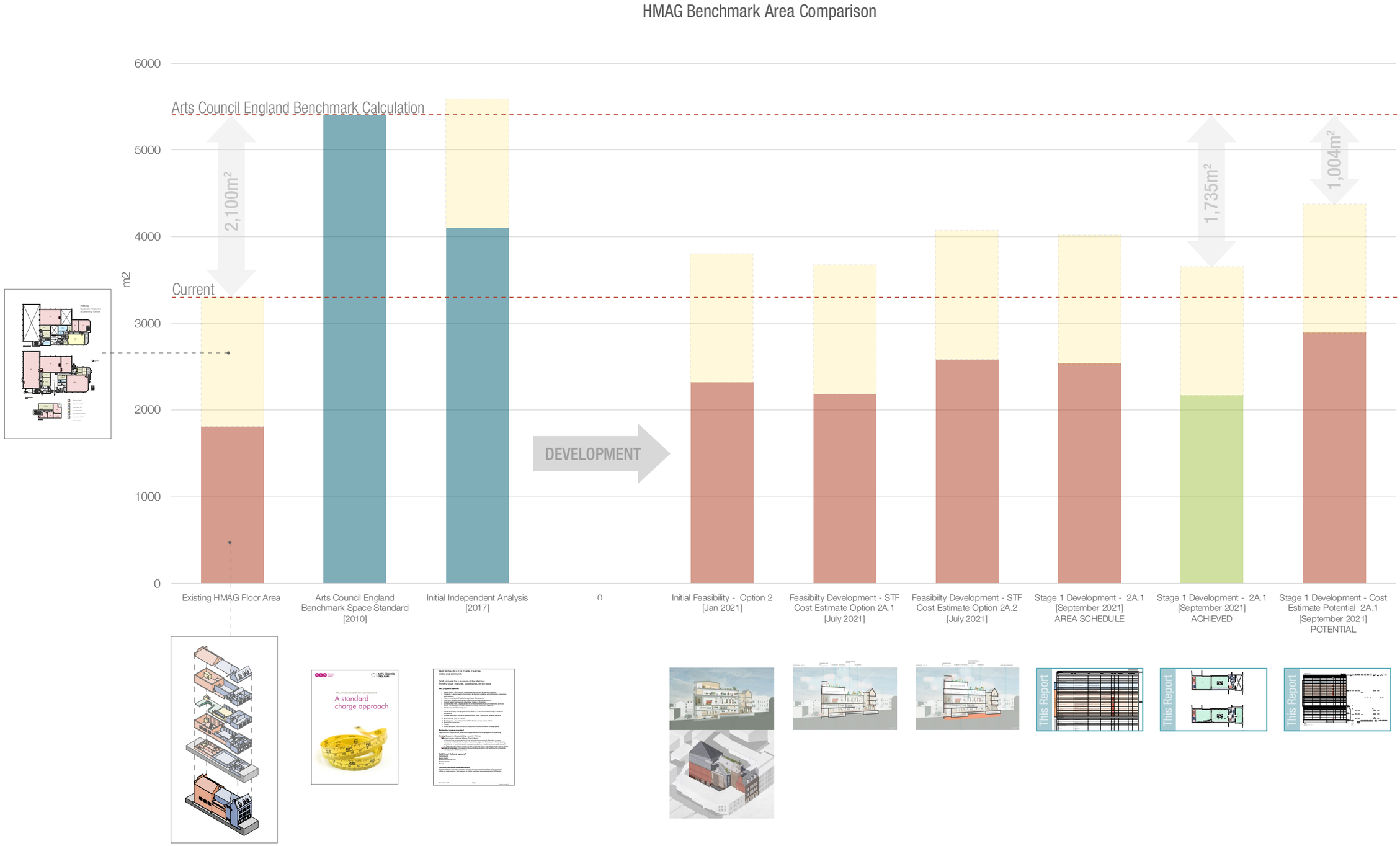


Fig. 75 / HMAG Benchmark Area Comparion

11.0 / Feasibility Design

Feasibility Design

11.1 / Design Block Plans

Feasibility Study Introduction

Architype have undertaken a feasibility study to expand on the initial design explorations presented earlier in this document. This study tests how the explorations could work in more detail, and how they relate the spatial requirements for the museum. Key areas which have been developed beyond the initial design explorations, are the staircase, storage, flexibility and potential for an additional floor.

The block plans illustrated over the next 3 pages serve to indicate a ‘strategic layout’ only and does not include details, however, vertical circulation has been 3D modelled and tested for viability. Both vertical circulation cores, at either end of the facility, are intended as fire escape as well as providing accessible entry to all floor levels.

A covered access to the goods lift, from Aubrey Street, is envisaged in replacement of a dedicated loading bay.

It is also envisaged that the goods lift will be shared as a group access to the roof top cafe, education space and garden terrace.

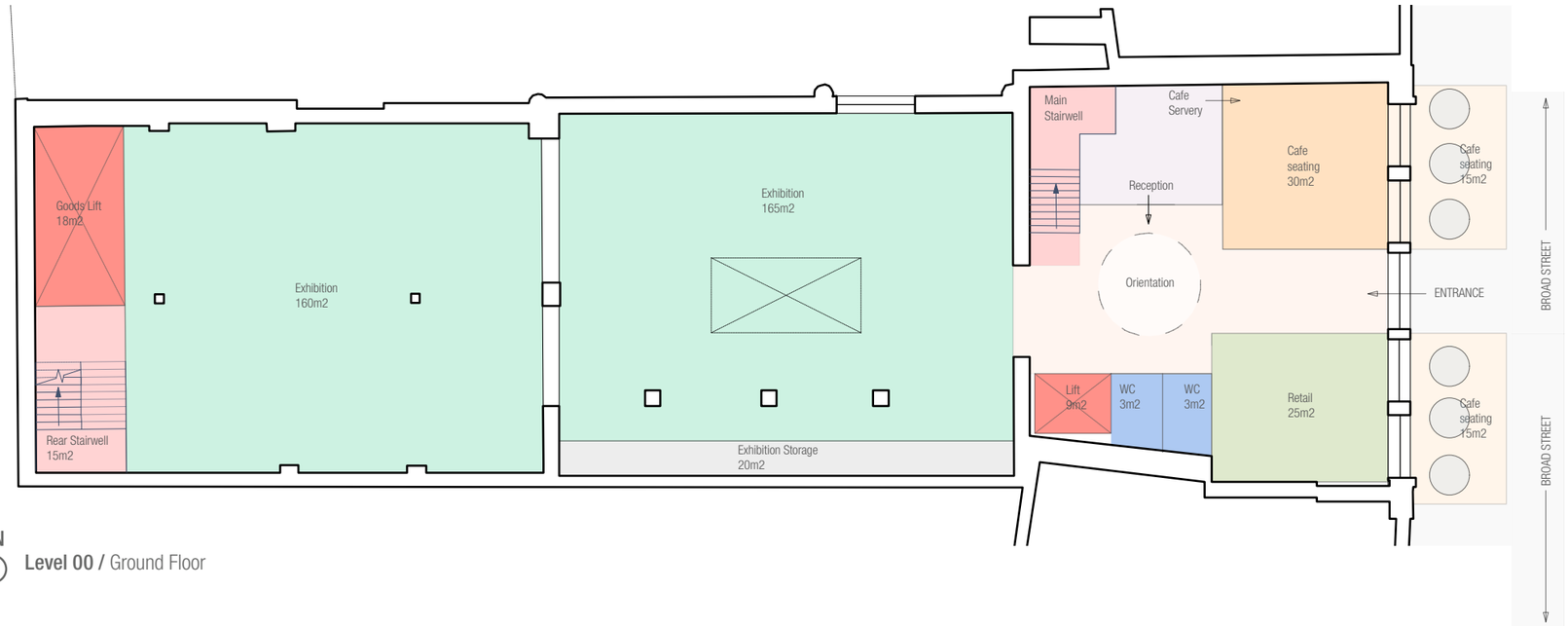
It should be noted that locating any catering kitchen provision in the front basement area will require a good deal of remedial work, including a lowering of the floor level to accommodate an inhabited space to building regulation standards.

This area is subject to further design exploration & development at RIBA Stage 2. Recent discussions have explored the advantages of relocating the catering kitchen element to the roof-top cafe [as the main draw & attraction - the only roof-top cafe in Hereford] and down-scaling the ground floor provision to a ‘re-heat’ and casual drop-in/footfall draw, spilling out on to the pavement on ‘good weather’ days. The ‘freed-up’ ground floor area would be utilised for greater retail provision and Museum ‘showcasing’ of up and coming exhibitions and events, some cabinet controlled [or encased frame controlled - if on walls] strategic exhibits.

In place of the basement catering kitchen, additional storage or plant could be accommodated with minimal intervention.

The roof-top cafe, as a primary draw & destination in its own right, would also facilitate the ‘trickle-down’ movement pattern of visitors throughout the Museum on arrival and departure.

Stage 2 design development will also explore opportunities for lit, glass-topped oubliette, public display below the pavement at the front of the facility [on Broad Street] - utilising and developing the existing coal cellars.



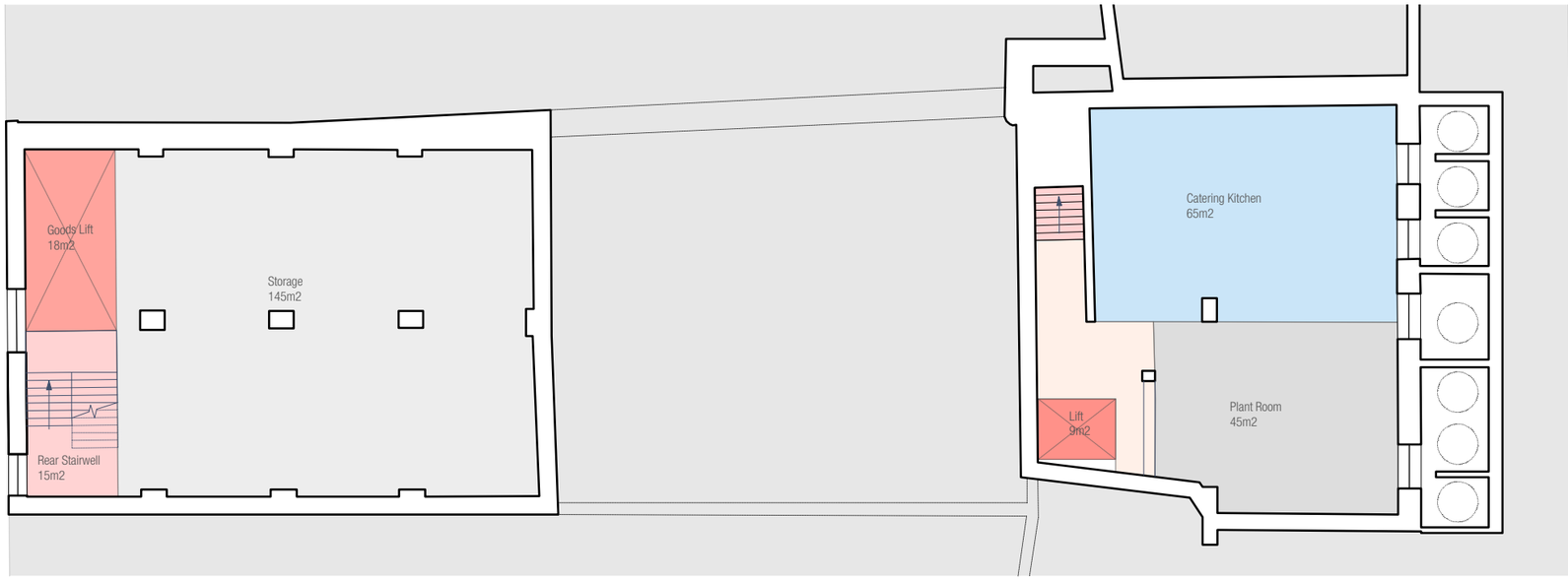


Fig. 76 / HMAG Stage 1 Feasibility Strategic Block-Plans

Feasibility Design

Design Block Plans

Storage

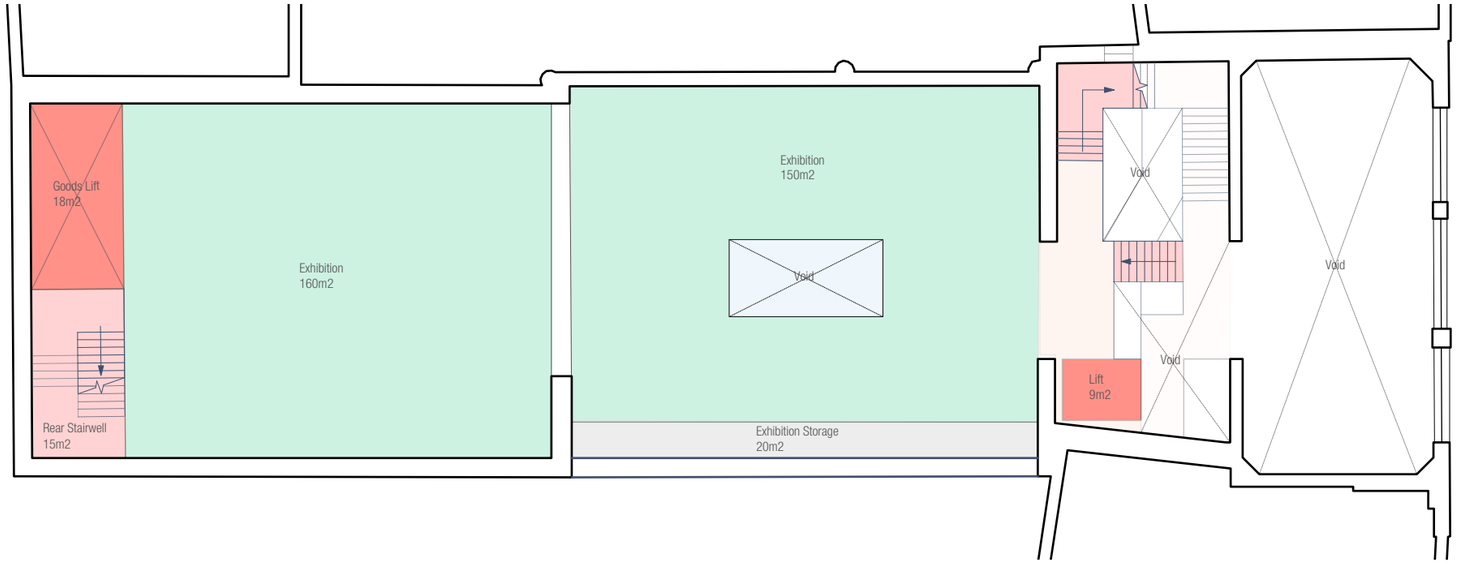
Built-in storage could be included along the side walls of the exhibition spaces. This increases the storage capacity of the building, and could allow exhibition panels, walls, props, cleaning equipment, etc. to be more easily accessible.

Flexibility

Flexibility is key to ensuring the museum can adapt to changing future user needs, as well as allowing spaces in the building to be multifunctional e.g., to exhibit a range of objects, hold small or large events and have adjustable levels of privacy and security. This flexibility can be achieved by opening up the exiting distinct rooms, into larger spaces which can be temporarily enclosed using foldable partitions.

Further design work is required to explore how and where ‘pop-up’ black-box pods’ can be erected, demounted, serviced and located.

The spaces are intentionally devoid of ‘circulation space’ enabling maximum reconfiguration of the spaces to suit individual exhibition requirements.



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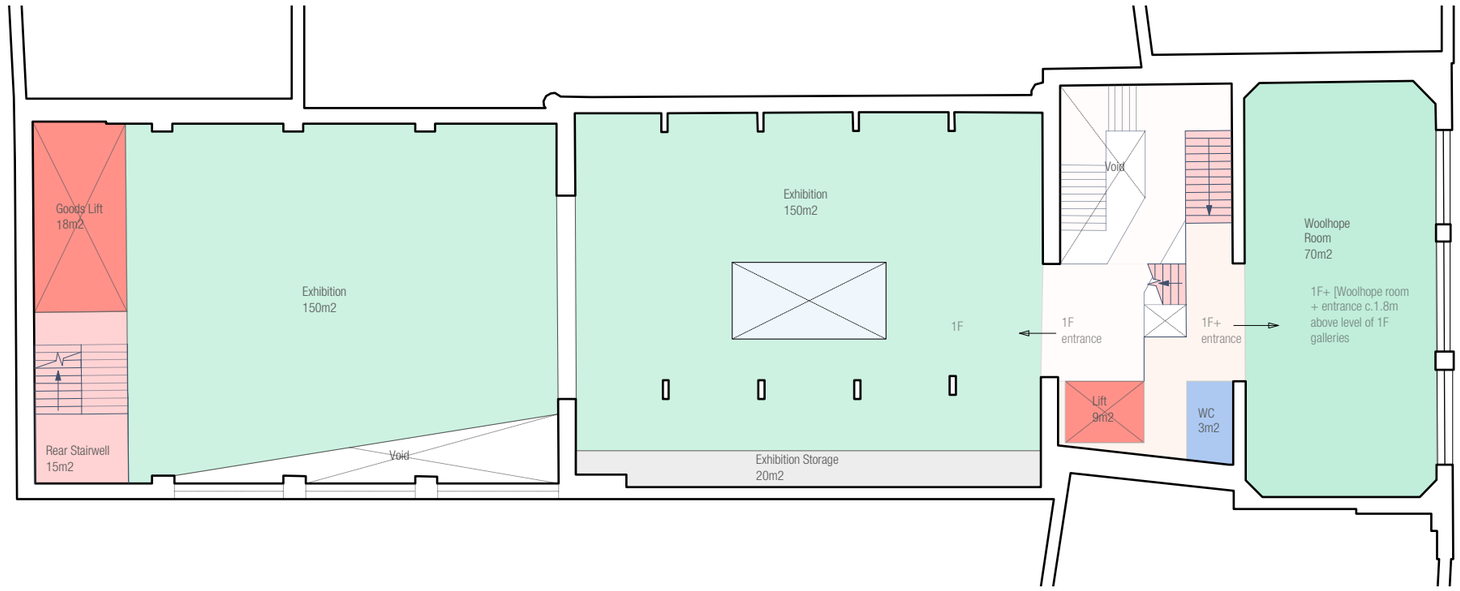
Level 02 / Second Floor



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Level 01 / First Floor and First Floor + [Woolhope Room is on a 1.8m higher level than the adjacent gallery accommodation. Both are shown on the plan diagram above]

Feasibility Design

Design Block Plans

Staircase

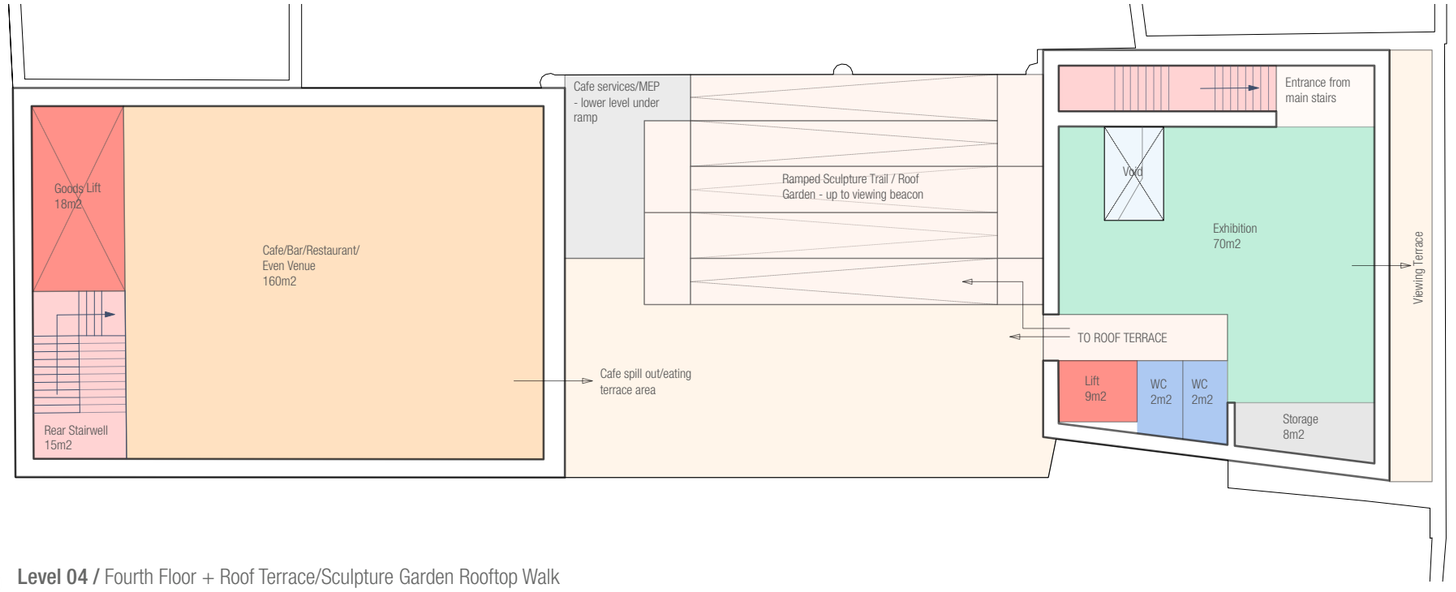
The existing staircase, although a part of the historic fabric of the building, is arguably unfit for modern and future use. As part of the renovation works to the museum, a welcoming and functional central staircase will be invaluable to improve the useability of the building and encourage visitors to explore. Some key issues identified with the existing stair:

- Comfort - The risers are very shallow, which makes using them uncomfortable. To increase footfall in the museum and improve staff wellbeing, the main staircase needs to be comfortable to use.
- Navigation - With the complexities of the building and numerous extensions it has undergone, the staircase does not serve all spaces. Two smaller staircases lead to the mezzanine and upper accommodation, which makes navigating the building more difficult.
- Attraction – The main staircases in world-class museums are often light, spacious and sculptural to attract visitors up through the building. Currently the staircase at Hereford Museum and Art Gallery, is dark and dated, and by addressing this could vastly improve the attractiveness of the museum for potential visitors.

As part of this feasibility study, Architype have tested the design of a more sculptural staircase, which is fit for modern and future use, provides access to all spaces, and is architecturally engaging.

This has been tested alongside the need for more WCs in the building, which could be located next to a new larger passenger lift, to create a vertical service core to simplify the servicing arrangements and to help people with orientation with the WCs in the same location on each floor.

A new large 6 x 3m Goods lift, which can be used for larger groups of people, has been included in the feasibility study at the rear of the building, with access directly from Aubrey Street and to all levels of the building. Following the same strategy as the main staircase, this goods lift forms a vertical core being the width of the building, sitting alongside a new rear stairwell which serves as a secondary fire escape route.



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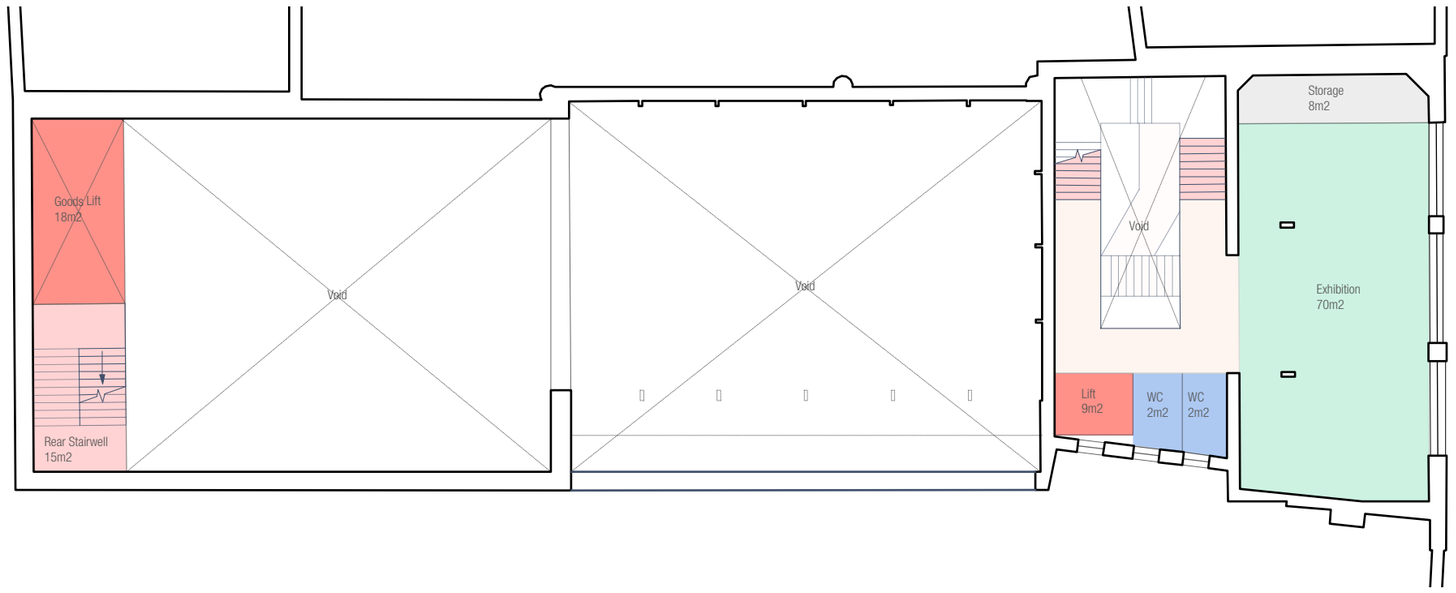
Level 04 / Fourth Floor + Roof Terrace/Sculpture Garden Rooftop Walk

3rd Floor Potential

Potential for additional 3rd floor to be accomodated at this point



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Level 03 / Third Floor

Feasibility Design

11.2 / A Potential Third Level

Additional Floor

The option of adding an additional floor has been tested and would be feasible, should it be progressed in the next stage of design work. The two new staircases can be altered to provide access to a new top floor, increasing the museum's overall area by roughly 350m2. This corresponds with Architype's cost estimate tool, which shows an increase in area of 350m2 could potentially be achieved within budget.

The potential additional floor has been illustrated indicatively in a 3D diagram, as this option depends on further reviewing of the budget, so more detail can follow once this has been confirmed. The 3D diagram shows how the massing at the front of the building would not be increased, and therefore the increase in floor area would not have adverse effects on the main elevation.

Feasibility of General Arrangement Conclusion

In summary, the feasibility of the initial design proposals for Hereford Museum and Art Gallery have been tested and key areas have been developed beyond the initial design explorations; the staircase, storage, flexibility and potential for an additional floor. These options can be further developed in the next stage of design.

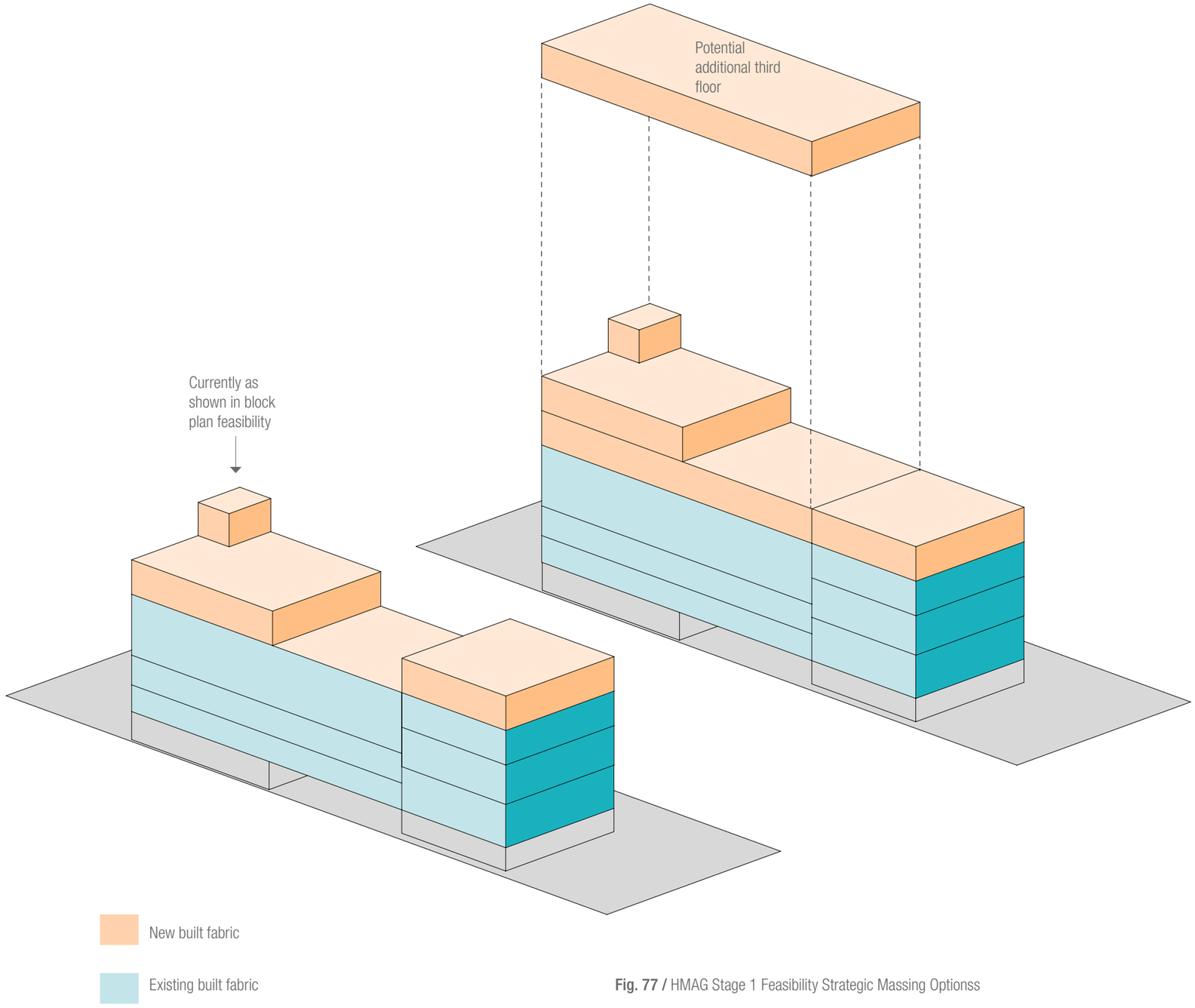


Fig. 77 / HMAG Stage 1 Feasibility Strategic Massing Optionss

12.0 / Environmental Performance

Environmental Performance

12.1 / EnerPHit

Energy, Quality and Comfort

When buildings don't work as required it can jeopardise their future and impact on users. To enable Hereford Museum and Art Gallery to be future-proofed, Architype can consider how users want to experience the building, the facilities in place and the potential for future flexibility; and also the building's environmental performance.

Often older buildings, such as Hereford Museum and Art Gallery, have significant issues with heating, cooling, mould, condensation. Any refurbishment must allow the building to perform for modern and future climates. To do this, we need to honestly account for the energy the building will use. All the energy. Most buildings in the UK don't perform as designed; The 'performance gap' between the theoretical design standard required by developers for compliance, and how much energy a building actually uses for electricity and heating is, on average, a difference of 40 percent.

Passivhaus is the only standard that performs as promised.

EnerPHit is the Passivhaus certified equivalent for retrofit projects. The Passivhaus criteria for EnerPHit is slightly adjusted to make certification more attainable in existing buildings. Nevertheless, achieving the standard requires detailed understanding of existing building typologies and historical buildings and a high level of skill in solving thermal bridge issues that can not be designed out.

Architype can asses the suitability of EnerPHit as a solution, taking into account the following factors:

- Structural condition / The main limit on condition is the soundness of the primary structure and it's capacity to take varied loads.
- Structural format / The next limit is the format and type of structure in the building. To be effectively retrofit to make new useful space, the structure needs to not impose limits on layouts - for example structural walls in positions not conducive to future use.
- Form / When retrofitting a building for performance, the form of the building is particularly important. The smaller it is, the greater the intervention required relative to the building size.
- Other / Another aspect that affects the retrofit strategy is the presence of harmful or toxic materials such as asbestos. Where materials like asbestos are present, it is safer for all involved to remove the infected materials wholesale.

A recent Archityp EnerPHit project - The Entopia Building, University of Cambridge

Architype were appointed by the University of Cambridge to create an exemplar retrofit office for their international Cambridge Institute for Sustainability Leadership. The new office will be based in a 1930s former telephone exchange, at 1 Regent Street, Cambridge. Taking the uninsulated building and inefficient services, Architype's team are targeting the Passivhaus retrofit standard, EnerPHit, as well as BREEAM Outstanding and WELL Gold - the first building in the world to achieve all three. Architype has been assessing ways to transform the building's environmental performance, usability and flexibility to create high quality, healthy and inspiring work spaces within a standard cost profile for refurbishment. The investment in building fabric is expected to increase the long-term value of the building, with an Energy Performance Certificate of 'E' expected to become an 'A', lower utility bills, and an 80% saving in whole life carbon emissions.

Fig. 79 / The Entopia Building (Existing)

Fig. 78 / Passivhaus Principles

Fig. 80 / The Entopia Building (Proposed)

Environmental Performance

12.2 / Carbon

80% of the buildings that exist in 2050 have already been built. This means that retrofit, specifically the Passivhaus standard EnerPHit will be essential in reducing the UK's carbon emissions.

Reducing demand

The most efficient and guaranteed solution to reducing operational carbon is to simply reduce the energy demand of your building. A poorly insulated, low-performing building offset with renewable technologies may reduce carbon emissions in the short term, but over the building's life, these technologies will need to be maintained and replaced. All the while, users will be residing in uncomfortable, unhealthy and low-quality buildings. Architype has championed Passivhaus for more than a decade, and applies passive principles to even those buildings not aiming for certification. For instance, St Michael's hospice in Hereford, with 20 en-suite units, was built with this in mind, using high quality materials, well insulated and high performing design for long-term sustainability, low operational carbon and significantly reduced running costs.

Once you have reduced the building's demand as much as possible, zero carbon technologies such as air source heat pumps and PVs can be used to offset any additional energy requirements.

Architype can use ECCOlab to assess the investment required to bring renewable energy onto the site. ECCOlab can help us to optimise the right number of solar panels that are effective for the building, without waste or excess.

Carbon Scopes

Museums can account for their carbon emissions in terms of Scopes in line with the Greenhouse Gas Protocol (GHG Protocol). These are:

Scope 1 carbon / the direct emissions an organisation is responsible for under their direct control, eg. gas for heating boilers, or combustion from university vehicles

Scope 2 carbon / the indirect carbon an organisation is directly responsible for, eg. purchasing electricity. Emissions are created during the production of electricity, which the organisation eventually uses.

Scope 3 carbon / all other indirect emissions an organisation is indirectly responsible for upstream or downstream, eg. staff travelling to the museum, the lifecycle carbon of products used by the museum, and the impact of waste produced by the museum after they leave the building.

Scope 1 and 2, is the museum's direct responsibility. Reporting on Scope 3 remains optional, but can be a significant proportion of a building's overall emissions. However they are not entirely within the museum's control.

There is a general misconception that a newbuild will always achieve lower emissions than a retrofit project. Scope 1 and 2 emissions only consider the operational energy use of buildings, but a significant amount of carbon is involved in demolition and construction. This is referred to as Scope 3 or embodied carbon, and is assessed using Life Cycle Analysis methods.

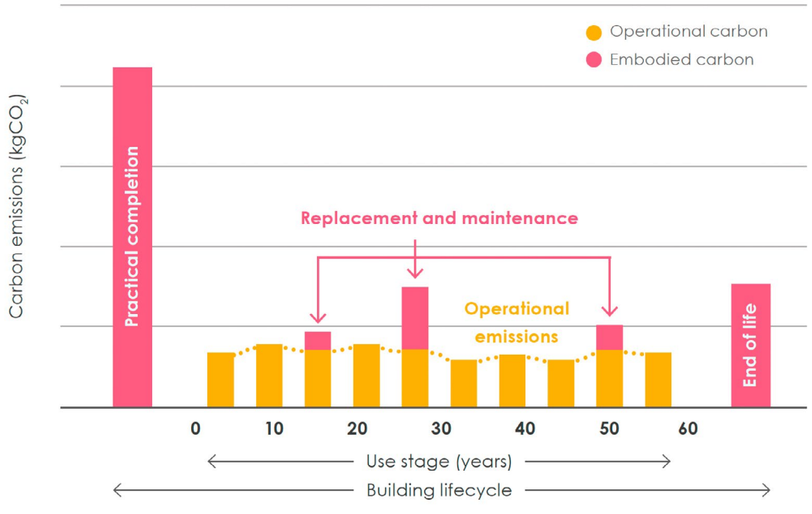


Fig. 81 / The ongoing impact of both embodied and operational carbon through a building's lifecycle, from the LETI Climate Emergency Design Guide.

Despite accounting for between **20 and 50 percent** of a building's whole-life carbon cost, embodied or construction carbon costs are frequently ignored in net zero calculations.

Transparency in this area is **essential** if organisations are to follow through on their net zero promises.

Fig. 82 / The Importance of Embodied Carbon.

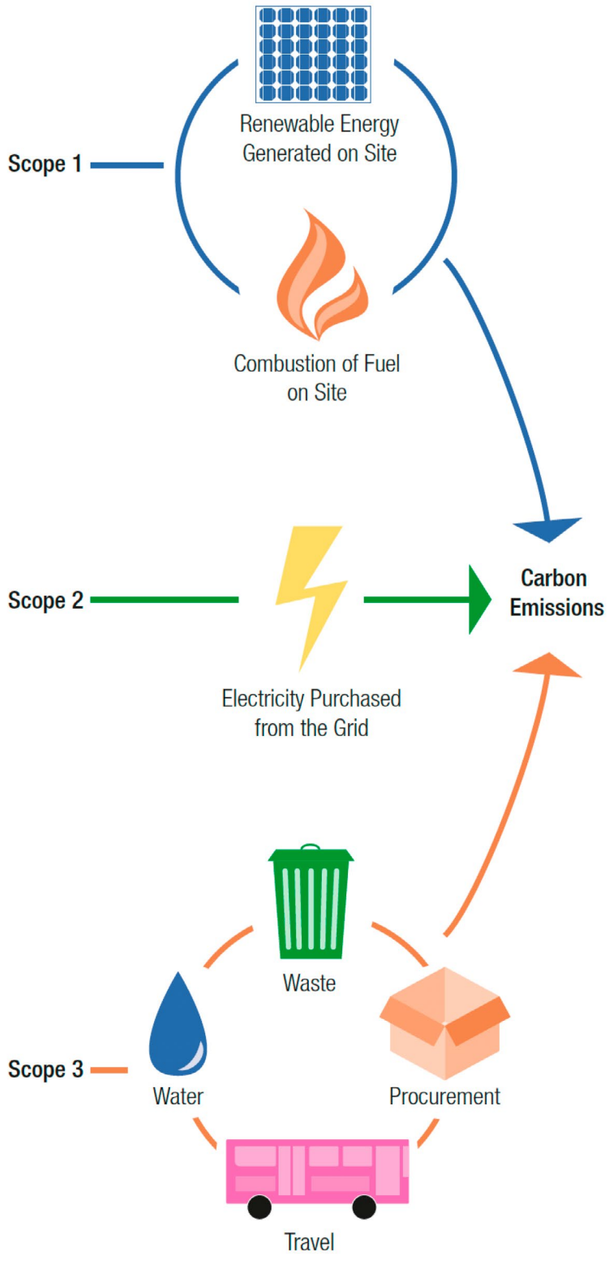


Fig. 83 / Carbon Scopes

Environmental Performance

12.3 / Invest to Save

Passivhaus has the potential to cost between 5-8% more than traditional build. However, we focus on simplifying design and production information collaboratively with the contractor, in order to reduce risk and minimise the perception of risk. Getting Passivhaus/EnerPHit right at the early stages helps to lower cost and risks. We have demonstrated award-winning Passivhaus buildings that achieve the standard at standard, or lower than standard building costs, such as the Enterprise Centre at The University of East Anglia, and the innovative Herefordshire Archives and Records Centre.

Investing to save in optimised, high performance buildings provides healthy returns on investments and avoids the need for expensive adaptions or upgrades that would add to the retrofit burden.

Architype believe that sustainability is about longterm benefits, as well as fulfilling immediate responsibilities. By creating high-quality, longlasting buildings, we can reduce the need for costly rebuild and maintenance. keep energy bills ultra-low, as well as providing health and wellbeing benefits with natural light, fresh air, non-toxic materials and no mould or condensation.

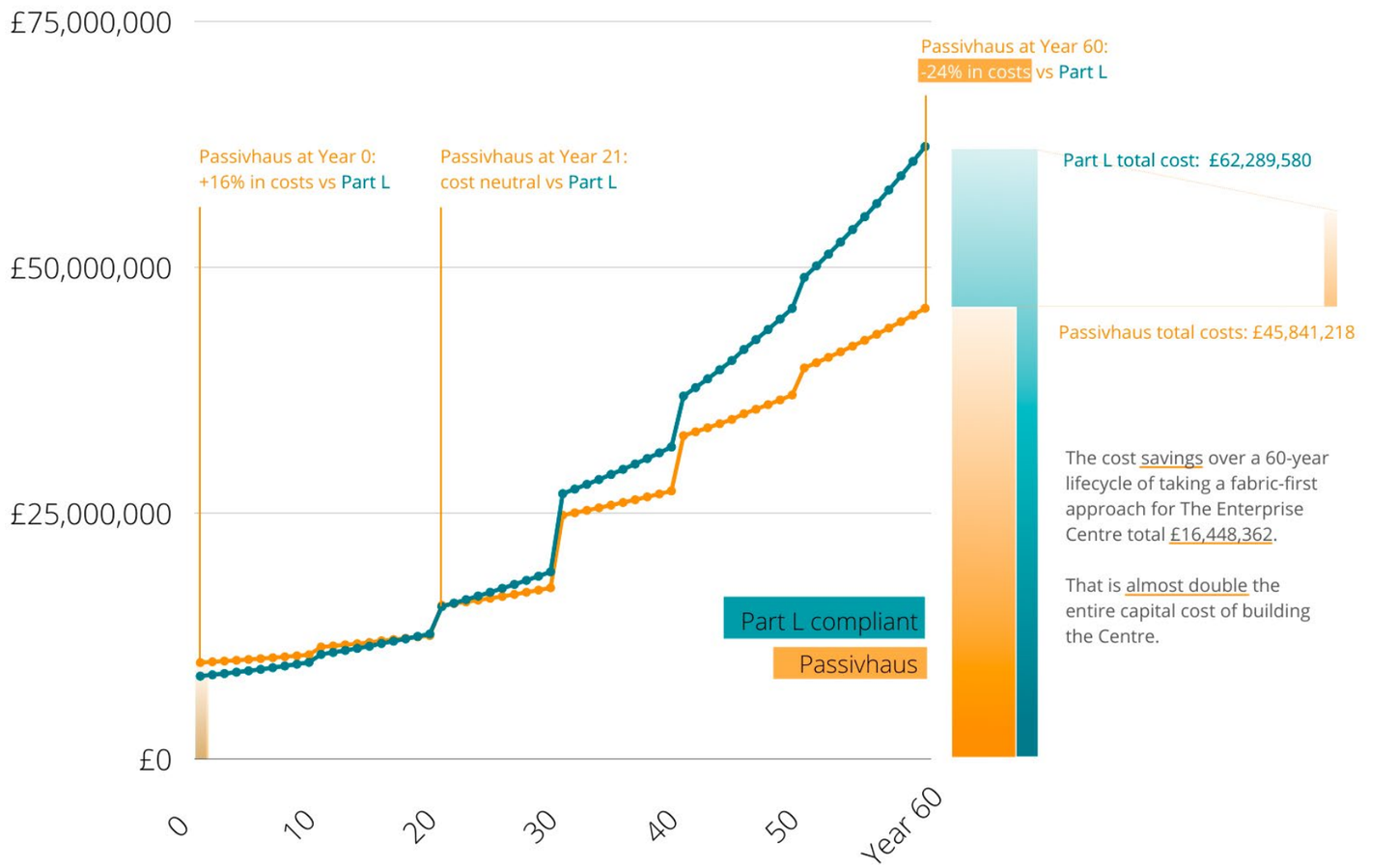


Fig. 84 / Independent BSRIA lifecycle costing for The Enterprise Centre

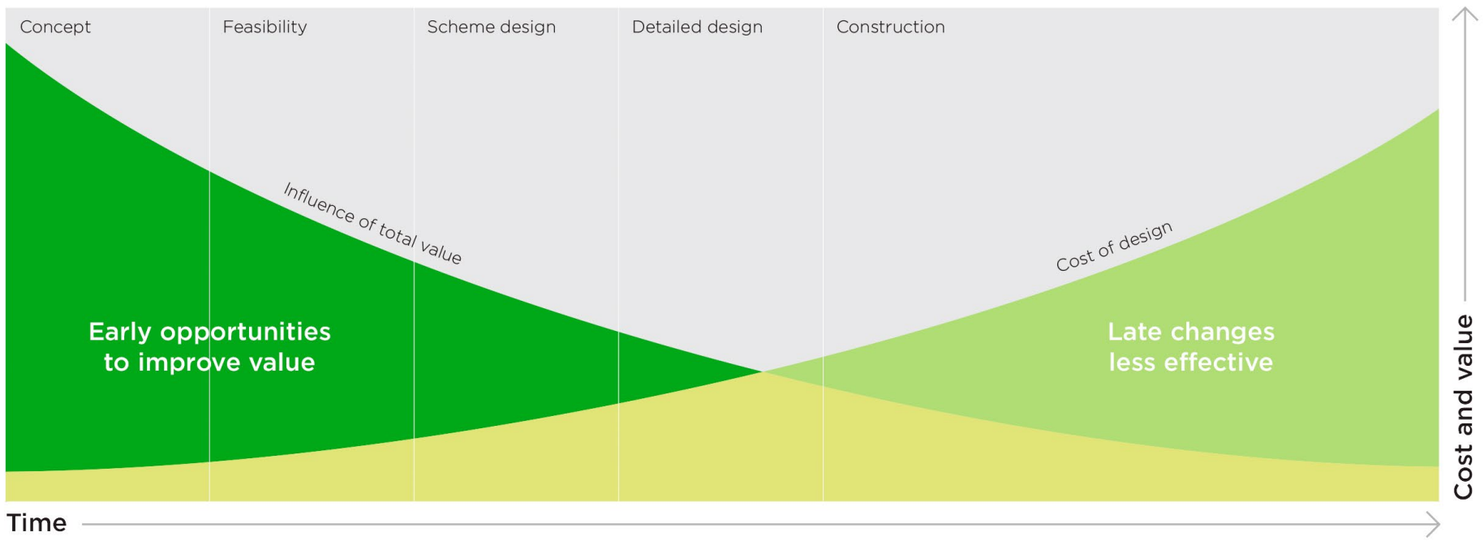


Fig. 85 / Earlier stage changes improves value and saves cost.

13.0 / Risks, Recommendations & Next Steps

Risks, Recommendations & Next Steps

13.1 / Reference Table

Recorded Project Risks & Recommendations					
Brief Development					
Identified Risk		**Commentary**	**Risk Level**	**Action**	**Impact**
Schedule of Accommodation / Area Schedule	Current area capacity is not meeting the initial SoA requirements. In the absence of a third floor, we are Xm² off the indicated areas.	› The current areas / schedule of accommodation are based on initial consultation with stakeholders back in December 2020. › Updated area requirements from the Museum staff are pending. › The current indicated required areas in SoA are not fully accommodated within feasibility plans [in the absence of a third floor].	LOW	› This is recorded as part of the Stage 1. › Architype anticipate more updated area requirements from the Museum as a result of further ongoing staff consultations in the immediate early stages of RIBA Stage 2.	› Further brief refinement and updated area requirements asap will enable the Museum staff to understand capacity of proposed build works. › Information will be essential to guide an efficient design process in RIBA Stage 2
Best Practice / Sustainability Standards	Key brief targets, best practice standards and sustainability targets require clarification & refinement	Key clarification aspects include: › Enerphit Energy Standard [Passivhaus refurbishment target] › BS 16893:2018 and BS 4971:2017 › CO2 Net Zero Carbon target › Government Indemnity Standards	LOW	› This is recorded as part of the Stage 1. › Next early Stage 2 discussions will need to clearly define targets which will impact brief refinement and design development.	› Early stage appraisals of performance targets will need to be undertaken to understand design implications.
Strategic Decision Making		› In order to implement the P+P business model and enable a revenue generating and cost sustainable model a large number of additional staff will be required. Further evaluation and strategic decision making will need to be undertaken at the next stage of design and brief development [RIBA Stage 2].	HIGH	› Client to commit to an agreed staffing level required to enable delivery of all HMAG services, including newly developed revenue generating services. Review staffing numbers recommended by P+P report and available service provision.	› An under-resourced facility will not be self-sustaining.
Insurance Requirements		› In order to satisfy insurance requirements [for both council and lenders to the Museum] a full GIS / BS 16893 & BS 4971 audit should be undertaken at the next stage of design and brief development [RIBA Stage 2].	MODERATE	› Audit proposed facility proposals for compliance with all GIS and professional standards.	› Lending organisations will not lend if standards are deemed to be insufficient or non-compliant. › The Government Indemnity Scheme will require minimum standards to ensure full cover is maintained.
Site visits		› It was agreed that as the staff were not experts on various 'systems' or options available to them for the betterment of delivering their service, that a couple of Precedent visits to recently completed, similar scale, projects would be extremely useful and lessons learned by others incorporated where practicable. [Action] Judy and Catherine will forward recommendations/suggestions for visits and contact the organisation representatives to confirm suitable dates.	MODERATE	› Organise precedent site visits and interviews with staff of similar facilities where recent construction projects have been recently completed. Learn lessons from recent experience, good practice and what not to do.	› Opportunity to ensure current experience and lessons learned are brought on-board from an early stage in the project to help mitigate against costly risks further down the line.
Legal		› A covenant on the building exists requiring its use as a 'Library'. This is owned by Hereford Cathedral!! Lawyers are currently examining the implications.	LOW	› Legal advice required. Client to advise.	› The existing covenant requires the building to house a Library. It could be argued that the Woolhope Room represents a Library? Other issues to be advised by Client.
Survey Information					
Identified Risk		**Commentary**	**Risk Level**	**Action**	**Impact**
Historic England Building Inspector	› Formal appointment of Historic England and arrange of initial meeting to discuss Broad Street Opportunities	› Architype have made contact with Sarah Lewis at Historic England, currently arranging a site visit for sometime in mid/late September. Sarah has a copy of the Outline Feasibility Report issued in January of this year. › › Roger/Jon are arranging co-ordinated meeting between ourselves, HE, Conservation, Planning and the Museum staff stakeholder group	LOW	› Information regarding the sensitivity of the historic building fabric, aesthetic and longevity have been forwarded to relevant parties in advance of a formal meeting and site visit.	› Historic England will guide the local Conservation and Planning authority teams.

Fig. 86 / Risks Register Reference Table.

Risks, Recommendations & Next Steps

Reference Table cont...

Ecological Survey	› Survey yet to be commissioned	› A Phase 1 Habitat Survey has yet to be commissioned by HC to satisfy statutory obligations for Ecological investigation of the site. The likelihood of bats may raise the risk of delayed construction timescales due to sensitive nesting/migrating times.	MODERATE	› Appoint a suitably qualified Ecologist to undertake the Phase 1 Habitat Survey and produce a report.	› Ecology surveys can be very time sensitive depending upon species, migration and nesting times of the year. Delays can be mitigated if sufficient planning enables recommended 'enabling' measures to be undertaken prior to construction.
Structural Survey Report	› Report yet to be received	› The structural engineer has been ill and has not delivered the structural survey report and findings.	HIGH	› Architype to chase appointed Structural Engineer for final survey report.	› Key project & design constraints and risks cannot be identified sufficiently without clear structural evaluation and guidance from a professional structural engineer. The project is at risk of significant delay.
Utilities and services / Context Topo [.dwg] file	› .dwg file has been received but non functional	› An issue with the .dwg file from Laser surveys has delayed input of data into the base drawings and model.	LOW	› A re-issue of the files should resolve any issues.	› Currently there is incomplete 'CAD' data.
Project Management					
Identified Risk		**Commentary**	**Risk Level**	**Action**	**Impact**
Appointment of a Project Manager	Appointment of Project Manager with experience of specialist nature & requirements of this sector	› A project manager with specialist experience of Museum & Gallery 'construction & fit-out' projects should be appointed to ensure the specialist nature of the project is sufficiently represented. › › Broader 'project' strategic implications, decisions are potentially being under-represented without a PM to flag and report back to Client body. Broader 'client' strategic implications, decisions are potentially being under-represented without a PM to flag and report to design team/ architect. › › HC PM team appointed September 2021	HIGH	› Appoint a sector experienced project manager to undertake rolls and duties to facilitate smooth delivery of a project of 'specialist' considerations and requirements. › Discuss opportunities at the next 'Procurement & Delivery' workshop meeting.	› Insufficient management of the project will lead to poor sequencing of work streams and slow decision making leading to delays at best and poor decision making and cost at worst. › A sufficiently experienced PM will bring a level of concise decision making, confidence in the process, the representation of all stakeholders and alacrity.
Design Programme	› Limited staff time / resource	› Programme [and the recent holiday season, unavailability of project stakeholders throughout and general unavailability of Museum staff as Grayson Perry exhibition is set up] deliverables are more 'fluid' as a result and will need to be developed throughout Stage 2.	HIGH	› Manage resource sufficient that Museum staff have available resource/time to engage with the design process – HC / Museum action.	› Without sufficient time/resource to undertake full evaluation and feedback at each stage of the project from Museum staff, the project is at risk of under representing Museum needs and/or delay the program.
Business Case proposal		› Suggested target date of next June! It is felt that the business plan could be delivered by June 2022 (along with the other essential studies) providing that swift appointments are made and a greater degree of clarity is sought around the procurement route and identification critical path items made.	MODERATE	› Completion of project to Stage 4. A workshop should be convened as soon as practicably possible to explore the various options and impacts likely expected over the next three stages of the project.	› A very ambitious programmatic target! Procurement route options require evaluation for cost, delivery and program. The impact of 'compressed' design stages will increase the risk of lessor considered information available for tender and construction. Client to advise on 'what the impact of not meeting June '22 deadline for Stage 4 completion is.
HLF Funding Application		› Time/expertise? › Next steps for HC are: Await official response from Town Fund Board [TFB] before drafting an application to HLF funding.	MODERATE	› A review of the expected time allowance for a full HLF funding bid should be undertaken and the sequential programmatic impact upon the project evaluated.	› HLF funding bids are notoriously long and protracted affairs. The program may be at risk of serious delay if HLF funding process is not correctly sequenced and impacts monitored and risks not identified.
Order of Magnitude Costing					
Identified Risk		**Commentary**	**Risk Level**	**Action**	**Impact**
Cost Estimate		› Further cost plan developments should incorporate an informed breakdown of fit-out costs.	LOW	› Refine architectural design at the next stage and review detail make-up of cost plan elements – Architype & QS action	› No discernible impact is likely if adherence to standard practice and process.

Risks, Recommendations & Next Steps

Reference Table cont...

Cost Estimate		› Double accounting for fit out costs ?? - Unclear breakdown from source	LOW	› The exact source and detailed breakdown of the current cost-plan indicated figures for exhibition fit-out costs are not clearly defined. A clear definition of fit-out costs and make-up should be sought, agreed and incorporated.	› A possible inflation of project costs.
Environmental Performance Targets					
Identified Risk		**Commentary**	**Risk Level**	**Action**	**Impact**
Carbon Emissions Target		› Zero carbon target to be defined and agreed – include recent 'Net Zero' discussion document in appendix of Feasibility Report 2.	MODERATE	› Review and agree an acreditable Net Carbon Emissions target for the project.	› The delivered project may not comply with local policy requirements or match current expectations.
		› Energy target set & accredited by Enerphit to be established and agreed.	MODERATE	› Review and agree an accreditable Energy target for the project.	› The delivered project may not comply with local policy requirements or match current expectations and incur larger running costs.

Conclusions

Herefordshire Council [HC] have aspirations for the Museum Service to conform to the highest industry standards to ensure growth in frequency of national collection exhibitions coming to Hereford , HC also aspire to strengthen the ongoing collection care and management duties and services required to ensure longevity of the collections. HC have appointed a museum & gallery specialist to formulate a business model that demonstrates viability for the Museum to be economically self sustaining. HC also requested that a preliminary 'brief' be drawn up for a Museum Service appropriate to Herefordshire by the head of Hereford Museum, Judith Stevenson, in 2017, which now forms the basis for accommodation considerations. During the preliminary stages of brief development by HC and HMAG a specialist 'Museums & Gallery' consultant [Hale & Sharpe] was approached to help evaluate costs around exhibition space design & fit out.

This document has set out to identify and clearly define the goals, targets and aspirations for Hereford Museum & Art Gallery [HMAG] service provision at the facility at Broad Street, Hereford and the parameters by which the HMAG project is constrained in order to best represent the Museum Services' needs. This document also records preliminary and contributing guidance that has informed strategic decision making and development of the brief.

It is important to highlight the key factors that are required to ensure that the aspirations for HMAG are achieved:

› sufficient revenue generating services are required to be provided [as per the P+P report] to support economic sustainability

› sufficient staff are resourced to provide and manage all the services a high-level Museum is required to deliver

› a fully developed brief that represents

- museum service delivery and staff needs
- architectural and spatial requirements
- environmental and professional standards requirements

› sufficient capacity of floor area [GIFA] is demonstrably able to be developed/provided

› respect for the historic significance of the existing building and the sensitivities highlighted in the Conservation Management Plan

› a clear and simple, strategic approach to refurbish and redevelopment of the existing building

› explore opportunity for a sensitive and contemporary development representative 'of its time'

› a robust cost plan that demonstrates viability

› sufficient project management expertise to steer a 'specialist' project of this magnitude

› clearly defined targets and goals

› sufficient resource and capacity for all stakeholders to review and feedback at each stage of the project

› learned lessons from similar recently completed projects

› ensure collaborative and transparent dialogue between statutory stakeholders

› dialogue with Hereford City Improvement design team to ensure suitable developments are incorporated for Broad Street

› the legal matters surrounding the covenant owned by the Cathedral are satisfactorily resolved

This document has recorded and documented the key success factors, commenting on pros and cons where appropriate and reporting variables and options when available.

At present, the available floor area [costed by Smith Thomas Consult QS – HMAG: OoM Cost Estimate Rev. 4] for the developed brief at Broad Street, falls short of expected average provision [see section 10 'Cost Benefit Analysis]. However, with further detailed costing analysis and design development there is potential for redressing some of the current area shortfall.

The cost benefit analysis section demonstrates that there is little additional floor area yield when 'reverse-engineering' the OoM Cost Estimate from a £15m project budget given an average urban site and building new. However, further detailed breakdown exploration of the cost for 'fit-out' does yield a potential uplift in available floor area. This serves to demonstrate that continued exploration and developed design during Stage 2 will clarify further the limits and delimits of the project.

This document does not in any way propose any one solution for the development of the Museum Services at Broad Street but instead aims to identify opportunities and variables defined by sensitive design responses around identified key constraints informed by the Conservation management Plan [sic.] and demonstrate simple overarching strategies for distribution of accommodations and accessibility for both collections and visitors. A number of key consultations and strategic decisions are required in order to progress the design development further.

Risks, Recommendations & Next Steps

13.2 / Risks, Recs & Next Steps

Risks

Key risks identified are:
- delay in receipt of structural survey leading to delay in program – particularly if survey finds any serious problems
- HC unable to commit to recommended staffing levels required to run the facility adequately, leading to a failure of delivery of service[s]
- inexperienced or non-sector specialist Project Manager appointed may risk oversight of subtleties and complexities of delivery for a specialist project such as this
- Business Case completion by June 2022, requiring RIBA stage 4 completion and procurement route defined, risk of overshoot
- inflexible constraints of using a historic building

Other risks identified include a number of brief development and refinement issues, programmatic timing and sequencing considerations and inability to define clear targets for accredited energy standards and accredited Net Carbon `emissions targets. See Section 12 for further details and discussion.

Recommendations

In order to progress the design development of the project to the next stage a period of review and evaluation will be required for key stakeholders to feedback and for key strategic decisions to be made, further honing the brief for Stage 2. Further consultation with Museum staff will also be required to identify where specific accommodation would best be located to serve the day-to-day service delivery.

Further recommendations include:
- Adopt EnerPHit as the accredited energy standard for the project
- Adopt RIBA or LETI Zero Carbon standard for the project
- commit to a staffing level that is sufficient to support the desired facility
- consider appointing a sector specialist PM
- consult with the wider stakeholder groups – including the public
- continue to develop the design and cost plan to a greater level of detail
- arrange workshop to bottom out risks around program, sequencing and program delivery expectations
- appoint Architype to pull the agreed strands from Stage 1 and define a fully robust brief demonstrated architecturally at Stage 2
- appoint P+P to continue reviewing and contributing to Architype's design development and help develop the final business case
- ensure a dialogue is established between Hereford City Masterplanning design team and the Museum design team to ensure the Museum's needs are fully represented
- review structural engineer appointment

Next Steps

This document is intended as a repository of baseline information underpinning the design development process for the Hereford Museum & Gallery. The information collated is intended to provide a basis for continued design development and the broader project development. Although there are no definitive 'solutions' forwarded there are a number of 'modular' opportunities which are designed to be brought together in any number of ways to formulate a 'complete arrangement', further design development is required to cohere. Next steps, to be undertaken at RIBA Stage 2, to aid the design development process include:
- Arrange a workshop to explore potential pinch-points and bottlenecks in the program is critical.
- Undertake a thorough interrogation of the 'Fit-out' costs section of the cost plan is key to realising a potential floor area yield.
- Arrange precedent visits to recently completed regional museum sites to learn from others experiences.
- Consult with a broader cross section of the listed stakeholder groups.
- Review recent Industry conference literature and seminars to appreciate current trend and direction of developments.
- Undertake a site visit and exploratory dialogue with Historic England, Conservation and Planning to agree on mutually beneficial design options.
- Collate mutually beneficial design elements into a cohesive arrangement and develop a concept design.
- Refine OoM Cost Plan.

Fig. 87 / Grayson Perry - Agony in the Park /
Touring Exhibition appearing at Hereford Museum & Gallery 2021

Fig. 88 / Brian Hatton personal artists materials /
Exhibition at Hereford Museum & Gallery

Risks, Recommendations & Next Steps

13.3 / Outline Project Program

Initial Project Program

The initial outline project program illustrated opposite provides a high level, strategic overview of both HMAG and the Maylords project as co-dependencies of each other.

The combined program starts to highlight critical path timings and likely programmatic risks and is intended as a basis for further discussion at the 'Procurement & Delivery' workshop meeting at the start of RIBA Stage 2.

Hereford Museum & Art Gallery / Maylords Centre

Combined Indicative Project Programme

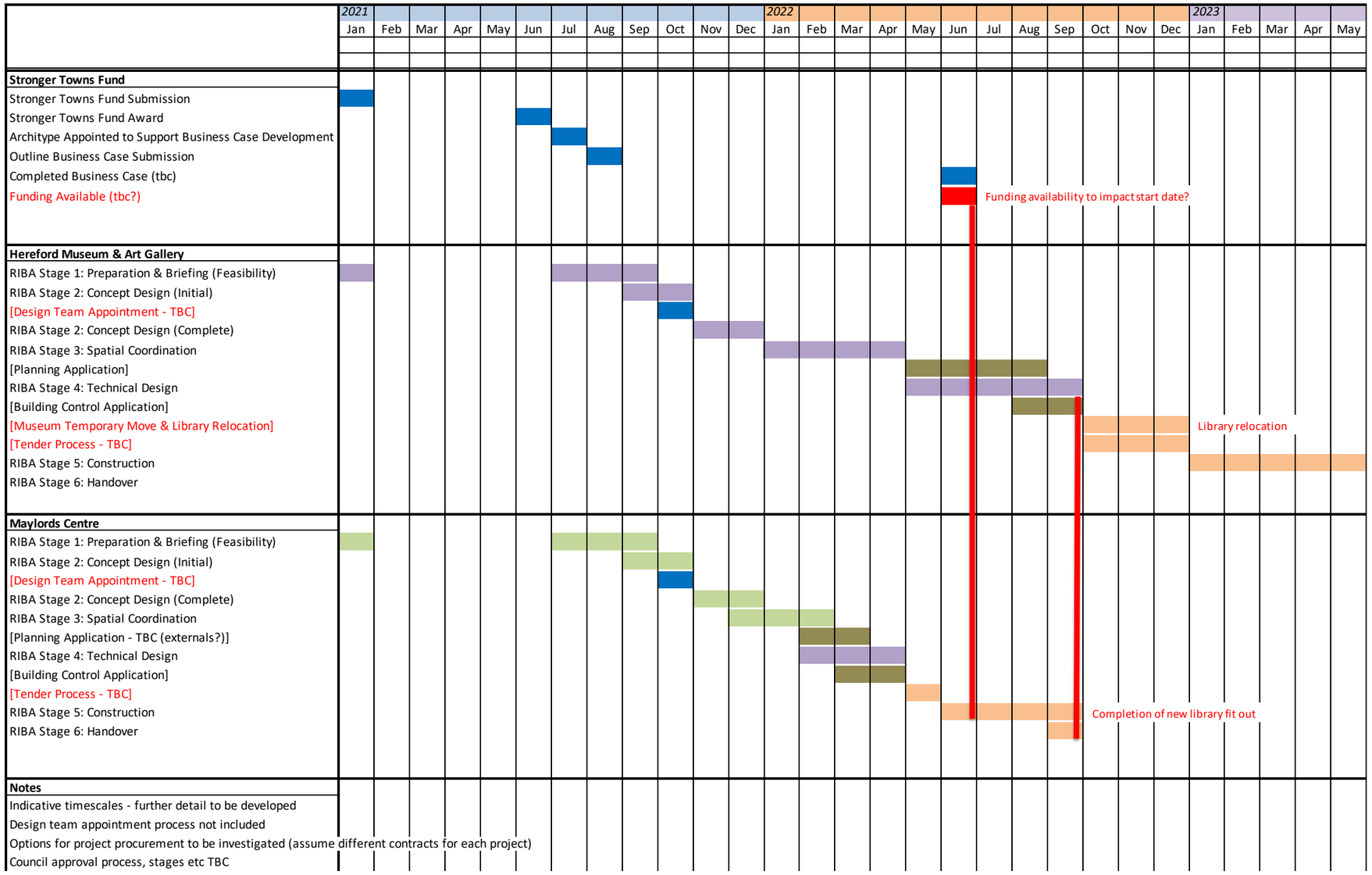


Fig. 89 / Initial Outline Project Program [by Architype].

14.0 / Appendices

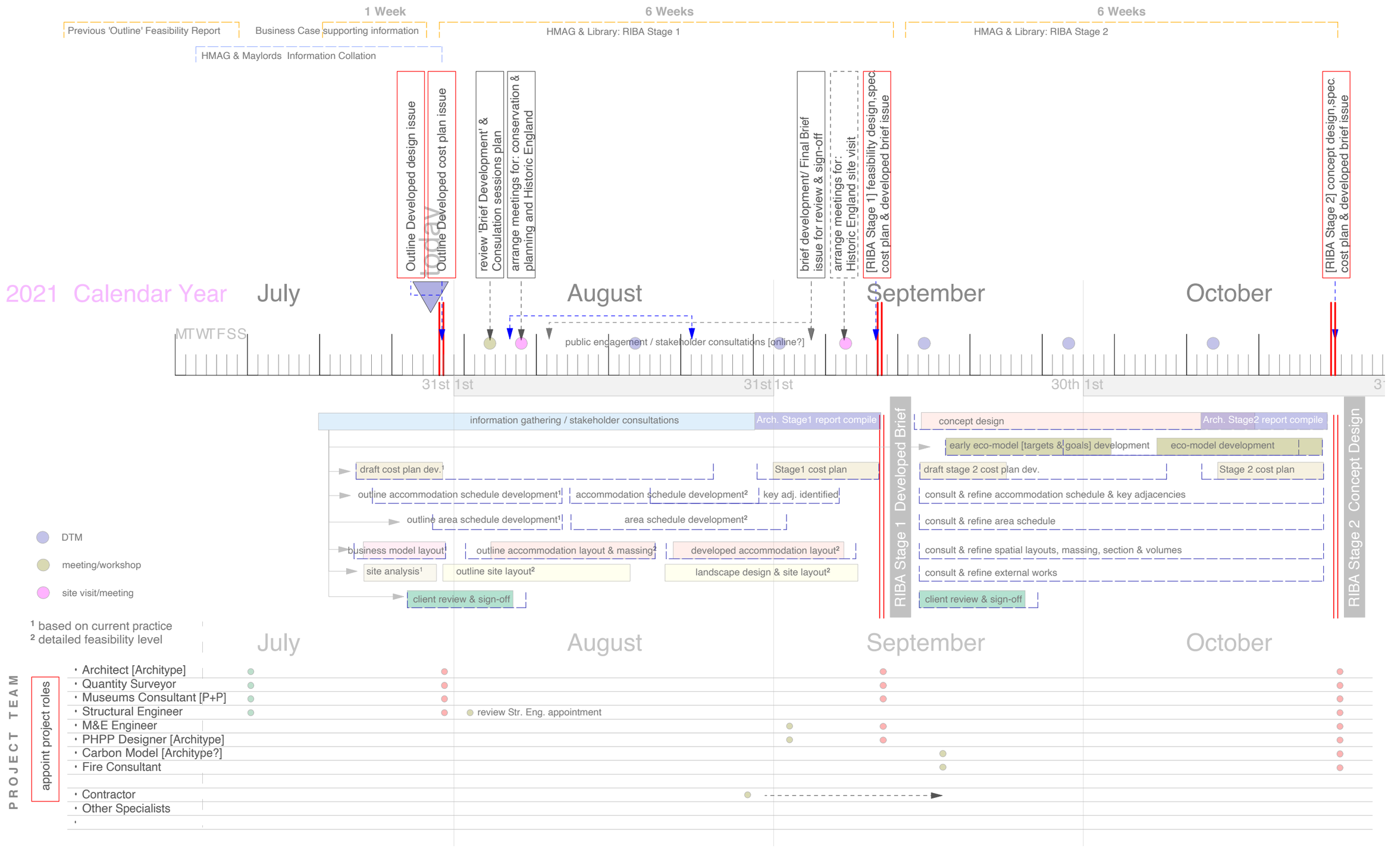
Appendices

14.1 / Appendix A - Design Programme

Hereford Museum & Art Gallery
Outline Program
• RIBA Stage 1

ARCHITYPE

AS/Architype 20Jul2021



Appendices

14.2 / Appendix B - Client Consultations

Client Consultations - Meeting Minutes 11.08.2021

10265 HMAG Consultation – Minutes 11.08.21

Minutes of the HMAG Consultation held in person at the Museum Resource & Learning Centre on the 11th August 2021
Present:
Architype (AT): Adrian (Ade) Schofield (AS), Katharine (Katie) de Silva (KdS)
Hereford Council: Museum Team Leader (MT): Judith (Judy) Stevenson (JS)
Hereford Council: School Groups (SG): Carolyn
Hereford Museum: Collections Officer/Curator (CO): Catherine, Sally
Hereford Council: Archives Manager (AM): Jonathan (Jon) Chedgzoy (JC)
Hereford Museum: Non-museum Staff/Shop etc. (NM): Julia
Prince & Pearce (PP): Simon Pearce (SP)
Apologies: n/a
Start time: 13:30
End time: 16:00

Item **Action**

A. Architect Update (AS)

1. Purpose of meeting to start to set baseline/brief
2. £5m Stronger Towns - Funding packages rely on achieving Stronger Towns - Couple of weeks find out about that.
3. Not final proposal. 2 areas – top down, bottom. Strategic decisions to be made, how the facility works.

B. Prince & Pearce Update (SP)

1. Prevailing successful models [income generation]:
   i. Not charging for general entrance at all (get as many people in to the museum at first and then get them to spend)
   ii. Café & retail
   iii. Special exhibitions
   iv. Temporary exhibitions
   v. Letting space out
2) Could attract visitors with ground floor café
3) Think about opening hours – more populated after 5pm & weekends.
4) Not a ratio [for optimal income vs. non-income generating areas]; there is an optimum though (law of diminishing returns) roughly 90m^2 for café and 60m^2 for retail. Cafes take more space, however these functions can overlap/integrate.
5) Need for people to be orientated in the building – entrance to be opened up more with relaxed coffee/cake & retail area, e.g. café W at Waterstones.
6) Café staff: Library staff could sell coffee, or could involve the community
7) Heritage Lottery Fund – if we want another £5 that's the max they'll give, and we need to tick boxes.

8) Flexibility is key so that change can happen – daylight control, floor outlets.
9) Needs to serve good coffee/cake but also needs to communicate that it is a museum e.g. by introducing people to the collections within the café.
10) Masterplanning Broad Street – wider conversation to be had to discuss street presence.

C. Discussion

Masterplan:

1. **JC** – Who's involved with that? [Masterplanning Broad Street]
2. **AS** – Roger as designers / stakeholders
3. **SP** – City centre improvements
4. **JC** – There was plan to possibly pedestrianise Broad Street, traffic calming etc. Green Dragon / Christian will have interest in this.
5. **SP** – Make visitors aware of the museum from the cathedral and make access easier. Schedule deliveries outside of the museum opening times etc. Facilitate spontaneous cultural activity.

Street Presence:

6. **AS** – The museum is not enticing enough at the moment.
7. **JS** – Visitors currently deliberate – want people to wander in more frequently.
8. **SP** – Needs to be attractive
9. **Catherine** – Objects on display shouldn't be an afterthought. Lots of traffic through the library currently as it's on ground floor – Café could be at the top so people are encouraged to go through the museum. A major concern is that the café is not a huge benefit in terms of income generation.
10. **JC** – The council could manage it [café].
11. **SP** – Branding issues, e.g costa signs etc could have negative impact on façade.

Income Generation:

12. **Catherine** – Event hire is lucrative
13. **JS** – There's a shortage in Hereford [Event hire]
14. **JC** – There's a precedent in Derby where longer time is spent in museum therefore more income – due indirectly to the café as it attracts visitors, but the income is actually from longer time spent so more donations given.
15. **Catherine** – Lectures currently in Resource centre could take place in the musueum.
16. **JS** – Could have self service for the terrace café
17. **Julia** – Won't sustain 2 cafes if we have one on the ground floor too.

18. **Catherine** – Terrace cafes are popular
19. **SP** – Could have escalator to take you straight up to the café
20. **Julia** - Almost could be a restaurant
21. **JS** – Could be mainly retail on G floor.
22. **SP** – Probably would only have chairs outside in summer.
23. **Catherine** – We've thought about commissioning sculpture in centre of hallway.

Entrance/Access:

24. **AS** – We could argue changing the staircase.
25. **Catherine** – Dark and dire at the moment.
26. **JS** – Staircase doesn't currently lead to the mezzanine
27. **AS** – Secondary access important for moving collections in and out
28. **JS** – This [collections access] is a big issue, need more floorspace to house collections.
29. **AS** – Set up online consultation resource to allow further dialogue on these issues.
30. **SP** – A case of tail wagging dog – how to sustain the museum.

Space Distribution (other council owned sites):

31. **Julie** – No other art gallery in Herefordshire is climate controlled & houses historic art.
32. **JS** – Looked into pop-up museum when the museum was closed for 2 years for asbestos removal. Too difficult - Not enough money to do that.
33. **AS** – Options gone to cabinet – removal of the 3rd floor preferred. Is there any capacity in other council venues?
34. **JC** – Not feasible as we only have Broad Street building, Black and White building, Plough Lane offices, Resource Centre, and Town Hall which is in the process of off-loading.
35. **AS** – What about HARC?
36. **JC** – Space that was there is now taken by other teams.
37. **Catherine** – Archaeology repository is here [Resource Centre]. Team is Tim and Liam. Can't do anything with Shire Hall. Possibly the Market Place Debenhams?
38. **JC** – Debenhams is ear-marked as retail so couldn't be the new library.

More Radical Option - Cost/Benefit Analysis

39. **Carolyn** – I think option 3 is best [more radical, rebuild]
40. **SP** – Could there be a £15m version of Option 3?
41. **JC** – If we get more funding don't want message to go out that £15 is maximum, ideally increase that.
42. **SP** – Need for cost/benefit analysis. AT
43. **JS** – Thinking more long-term is preferable [providing more radical improvement which will last longer]
44. **SP** – Museum needs to provide desired areas. Then see what you've got left for income generation.

Appendices

Appendix B - Client Consultations

Client Consultations - Meeting Minutes

45. **AS** – Key targets – EnerPHit?
46. **JS** – Interested in Zero Carbon
47. **AS** – What are we signing up to re the climate emergency.
48. **JC** – If there are energy reductions, can these savings offset other costs? Political consideration…
49. **JS** – Also ongoing maintenance – future millions of pounds worth of maintenance could be saved. Balance this saving with immediate cost.
50. **SP** – Anything come out of planners meeting?
51. **AS** – They are led by Historic England advice, which we won't get until end of Aug / early Sept. We could provide exploratory options in terms of conservation. There are concerns around flat roofs. Aubrey Street have larger mass buildings. AT
52. **Carolyn** – Is there an architectural benefit to moving the circulation to the back?
53. **AS** – Architectural no, Historic yes. Steel I beams very unusual. Architecturally the mezzanine coming out would be great to open up the space and allow large windows to provide more natural daylight.
54. **Catherine** – Could reflect that in a modern building.. What do we know about underground?

Structure:

55. **JS** – Structure key to seeing what is possible.
56. **SP** – Looking at ground conditions? Loading and potential archaeology.
57. **JS** – Paleo channel. Broad Street roman, but archaeology cost is vast.
58. **SP** – even if no objects found still valuable information e.g. old stonework from previous buildings.
59. **JC** – Floor at basement.
60. **Catherine** –
    i. Currently load exhibit at the front of the building and have to arrange for parking. Lobby at Aubrey Street is really important.
    ii. Have had fairly respectable exhibits. Haven't always attracted lots of people but e.g. exhibitional quilts draw crowds. Big lift would be useful – wider almost better than deep.
61. **AS** – Climate is an issue, want to know where packaging is to be stored.
62. **Catherine** – Had floor loading issues before (iron scrap).

Brief Development:

63. **SP** – Brief development – What ideally like to have first? In parallel, a 3rd scheme over the £15 to get a cost/benefit. Need to do that before we go much further.
64. **AS** - Need to get to end of Stage 1.
65. **JC** – HLF Ann Jenkins (Regional Director) is happy to visit, but is on leave first half of August. Expression of interest is going in next week. Starting point for visit. MP may want to appear. JC
66. **JS** – Don't have sufficient space currently for our own collections, also need space for temporary exhibits.
67. **AS** – Need to quantify what the brief is.

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68. **JS** – What planning/conservation restrictions are.
69. **SP** – Top floor – height restricted. Could have temporary exhibition space and have garden on top.
70. **Julie** - Birmingham Library – made space for school visits but it is not used as school groups often walk around rather than staying in one space.
71. **Carolyn** –
    i. Would be great to have lecture & café combined. Museum would be great pit stop for lunch (schools) and we could charge for that.
    ii. Could attic spaces be used for educational? – great views
72. **Julie** – could also have weddings
73. **JC** – could use Woolhope room for other purposes when it's not being used for the society meetings.
74. Carolyn – Where the museum story begins [Woolhope Room]
75. **Julie** –
    i. Separate Bid?
    ii. Mosaic
76. **Catherine** – Facade is a worry
77. **Carolyn** – not a clear solution to all this.
78. **AS** – Requirement of brief to be developed over a few months. Feasibility table, accommodation schedule.
79. **JS** – Did a back of envelope m^2 schedule before – 150m^2 total. Will check and get back to AT. JS
80. **AS** – would be good to go through adjacencies in next consultation.
81. **JS** – 2016 / 2017 original. Include café / WCs?
82. **AS** – Include everything initially.
83. Catherine – Visualising the volumes of the exhibit objects is difficult.
84. **SP** – roughly 2/3 museum, 1/3 supporting spaces in the feasibility. Normally 1/4 to 1/3 for support.
85. **AS** – Back of house?
86. **JS** –
    i. Don't have back of house currently.
    ii. Need more storage.
    iii. Need space for staff to relax / have tea.
    iv. Need space for caretaker.
    v. Need space for exhibition preparation.
    vi. SP – 15 full time staff equivalent?
87. **JC** – Not specific number – any additional staff need to offset with income generation.
88. **JS** – We have money to build, but not to fill will staff. Permanent galleries require less staff.
89. **JC** – People could be employed with the job role to generate income, to secure money for them. Income generated will need to cover staffing cost. Capital loan repay. What are the roles?
90. **Julie** – Building Manager, Collections..
91. **AS** – Another consultation?
92. **SP** – Got this resource centre. Could house e.g. graphic designer for the Museum.
93. **JS** –

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    i. Need to make income for this [Museum Resource Centre] so leasing office space.
    ii. Only need manager office and place for cups of tea in the Museum. Other office space can be located in the resource centre.
94. **Julie** – Tourist info better placed in the new library.
95. **AS** – Possible to view holistically as 3 sites? Are there scale drawings of the other buildings which you could provide? JS
96. **Carolyn** – There are drawings.
97. **JS** - All collections are housed here.
98. **Carolyn** – This is stage 4 of a previous HLF bid (Upgrading Broad Street), with stage 3 being the resource centre.

Further Consultations:

99. **JC** – Consultations?
100. **AS** - Stakeholder consultations, wider and partnering, general public.
101. **JC** – Good to include museum support group, Woolhope Club…
102. **AS** – would be good to have multiple stakeholders for dialogue.
103. **JC** – At what stage will we have enough givens to discuss?
104. **Julie** – Need warning for Black and White Museum staff to attend as the building will need to close. Museum and art gallery, ~40 volunteers.
105. **JS** –
    i. Online evaluation with wider public. British Museum, V&A, West Midlands, Viking Hoard (6 pieces).
    ii. 1st week of September for next consultation. And collection store tour next week.

Appendices

14.3 / Appendix C - Initial Briefing Document [Jan 2021]

Judith Stevenson - 09.09.2021

NEW MUSEUM & CULTURAL CENTRE
Visitor and community

Draft proposal for a Museum of the Marches
Primary focus: marches, borderlands, on the edge

Key physical spaces

- Media gallery - film, photos, experiential (permanent & changing displays)
- Creativity & design gallery (permanent & changing exhibits, art/craft/makers practioners work spaces)
- Two or three key/USP galleries (eg Hoard, Borderlands)
- Our Story galleries (permanent collections- archaeology & history)
- Our Art gallery (permanent collections, Hatton & changing)
- Local studies hub – Digital access to all Herefordshire museum collections, archives, books, art, biological records, Woolhope Library collections, HER, etc
- Children's/schools/learning area

  - Large temporary changing exhibition gallery – to accommodate brought in external exhibitions
  - Smaller temporary changing display space – local, community, smaller displays

- Bar and café, pop up eateries
- Event space – live entertainment, film, theatre, music, venue to hire
- Retail & merchandise
- Toilets
- Office and work room, exhibition preparation rooms, exhibition storage space

Estimated space required

Approx 4100 msq internal, plus external garden/activity/display area and parking

Existing Museum & Library building: currently 1722msq

- Would require additional 3 floors (Total 5 floors):
  1.Ground floor (current library) 2.fully extended mezzanine 3. First floor (current museum) 4. New Roof area to be made into a large new floor glazed – for temporary exhibitions, or local history with views across skyline, or café/events venue (2 stories?)
  5. Basement will need to come into use. Woolhope Room maintained as an historic library
- **Lateral extension** from existing Museum/Library building into neighbouring properties would provide 5000msq or more

Additional Cultural spaces?

Dance studio,
Music studio
Meeting/tourist info hub
Shared visions
Etc etc

Covid/Postcovid considerations

Opportunities for innovative practices and the development of new forms of engagement
Limits on visitor access, less reliance on visitor numbers, less tactile/physical interaction

Appendices

14.4 / Appendix D - Building Performance: Thermal Upgrade Potential & Strategy

By Nick Grant, Elemental Solutions - Jan 2021

This chapter outlines very initial ideas relating a possible strategy for energy and environmental conditions as part of proposals to upgrade the Hereford Museum and Art Gallery.

Observations

This report is based on a one day site survey and initial modelling using the Passivhaus energy balance spreadsheet, PHPP 9. These results include many assumptions both about the existing building and the potential improvements which cannot be known at this early stage.

The building is in solid brick with two basements, one with a good ceiling height and the other more limited and currently used for plant. The two basements are connected by a low crawl space.

The external walls are mostly to outside with a small area of party wall.

A number of options are being considered but this short chapter will focus on a minimum intervention scenario that retains the existing building form as this is potentially the most challenging from an energy perspective. Whilst more invasive options such as façade retention and major rebuild allow theoretically improved levels of energy performance this will be partly offset by the high up-front embodied impacts including, but not only, carbon emissions. The main driver for a major rebuild would be to allow efficiency improvements in space planning.

Initial modelling

The building has been modelled in PHPP with a number of reasonable simplifications. Correct modelling of fenestration and shading can be very important for smaller or highly glazed buildings but here the glazing is modest and so the impact in terms of summer overheating and winter heat loss is quite modest and we don't need to consider the detail at this early stage.

As the results for energy use are expressed per m2 of net usable internal floor area, adding in additional floor area will have the greatest impact on efficiency. The current model includes the west basement floor area as heated space.

The building is a compact form which means that heating demand can be quite low with modest levels on insulation combined with good airtightness and ventilation.

Assumptions

Although the front façade is of great historic and visual value, the windows are actually single large panes and could be upgraded to high performance inward opening windows with little or no change to the external appearance. The large south windows in the current library and the blocked up windows to the west have stone mullions and so a lower thermal performance secondary glazing solution has been assumed. As stated above the details will need to be determined but the impact on the overall model will be small because the areas involved are small in relation to the building size.

Whilst the north and south walls could well benefit from some form of external cladding we have assumed all insulation is internal. The initial model assumes 80mm of insulation with a conductivity of 0.04 W/mK which allows a wide range of non-petrochemical options without considering exotics such as aerogel.

Roof insulation is assumed to average 200mm of 0.04W/mK conductivity. In some areas this can be thicker and in other areas a higher performance insulation might be used but the initial model can safely ignore such detail as long as assumptions are reasonable.

The graph to the right (Figure 41) shows the initial energy balance in graphical form and suggests that the Passivhaus Enerphit standard should be achievable with modest levels of internal insulation.

Wall losses dominate as we might expect. On the gains side we have assumed the standard value for an office or admin building of 3.5W/m2 but this may be lower.

The PHPP shows a peak heating load of under 30kW for the whole building and this could be met with a ground or air source heat pump.

We have assumed an average internal winter temperature of 19°C. Lower temperature are beneficial in museums if comfort can be maintained and there will be a small drop in temperature allowed when the building is not occupied. This has not been modelled at this very early stage but initial explorations (not reported here) highlight the significant savings in energy use that can be achieved by quite small reductions in average temperature but without any compromise on staff comfort.

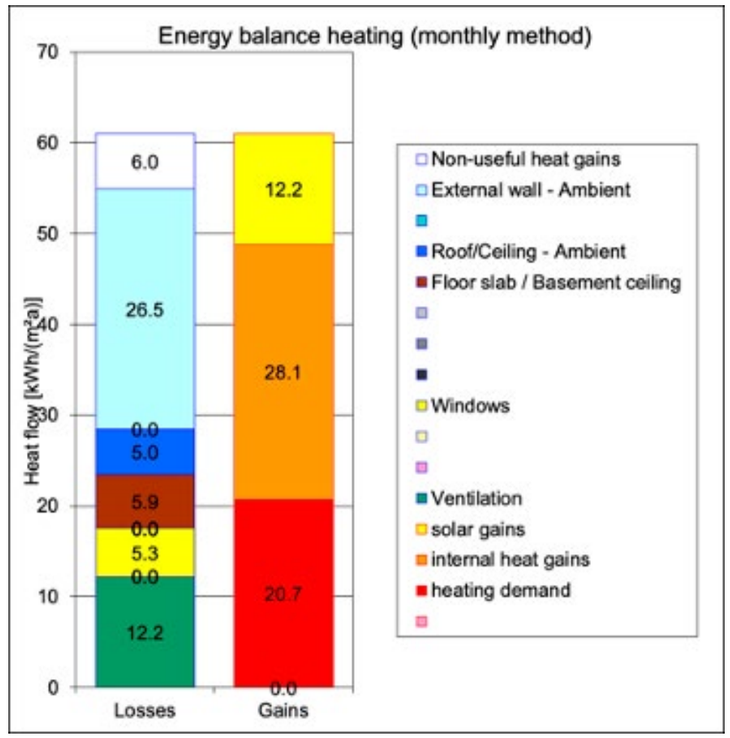

Fig. 90 / Energy Balance from Initial PHPP Model

Appendices

Appendix D: Building Performance - Thermal Upgrade Potential & Strategy

Summer

Assuming no roof lights, fenestration does not dominate the winter or summer energy balance. The PHPP model suggests that the summer temperatures is likely to exceed 22°C. As a design is developed the PHPP model would be updated to inform the process. It is likely that the design (and actual) internal heat gains will be lower than the default for an office building. This will reduce summer temperatures but will increase the heating demand. We know from other historic museum buildings we have worked on that solar gain from original roof lights is very significant and would need to be designed out.

The proposed developed options have not been reviewed in context to this chapter, but the general observations regarding solar gains will apply.

Detailed discussion of required environmental conditions would inform the strategy for conditioning of the building. We would expect to avoid air conditioning or active cooling but the use of supply air cooling for summer dehumidification would provide a small amount of cooling without recirculation.

In accordance with British Standards publications, guidelines for the storage of traditional mixed archive collections state the overall permitted range of 13-23°C, with RH to be between 35-60%. An average internal winter temperature of 19°C would sit within this range, however this is subject to detailed discussion to inform next steps.

Ventilation and Humidity Control

Ventilation would include heat recovery using enthalpy heat exchangers to recover moisture in winter and to dry incoming air in summer with the drier extracted air.

Excellent airtightness will improve stability of environmental conditions in the gallery spaces. We would envisage a modified passive approach with dehumidification of the fresh air in summer in preference to more typical close control air conditioning with recirculation. As there are very few sources of internal moisture in a museum and gallery, it makes sense to trim the fresh air rather than conditioning the air already in the building. Any particularly sensitive objects will need to be displayed in a sealed museum case.

Fig. 91 / Forensic Investigation / Thermography camera highlights original roof lights in Museum space. Source: Architype, 2021.

Herefordshire Council

Income Generation for a Redeveloped Hereford Museum

Report of Findings and Recommendations

P+P

July 2021

Income Generation for a Redeveloped Hereford Museum

Report of Findings and Recommendations

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Acknowledgements

Prince+Pearce acknowledges with thanks the staff of Herefordshire Council, who gave freely of their time, experience and expertise to assist the study process. We would like particularly to thank Roger Allonby, Jonathan Chedgzoy, Judy Stevenson and Louise Devlin for their contributions.

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1 The brief

As part of the funding it has received from the UK Government through its *Stronger Towns initiative*, Herefordshire County Council is planning to move the library out of its current location in Broad Street to a new location and to develop the existing building to provide a world class museum facility.

Funding has been allocated through the Stronger Towns project[1] to rehouse the library and £5m has also been awarded by it towards the transformation of the museum. Additional funding is to be sought through Herefordshire Council's capital programme, from the Heritage Lottery Fund and from other sources with a view to a final development programme budget of some £15m.

The library and museum projects are two of a number of projects being taken forward by the Hereford Stronger Towns Board as part of Hereford's *Town Improvement Plan*[2] (TIP). The TIP contains three projects led by Herefordshire Council and a further dozen other community-based initiatives. Each project currently has until late June 2022 to develop full business cases which will be signed off and funded at that point once they have received Government approval.

As part of this process, on 12 July 2021 Herefordshire County Council engaged ***P+P*** to provide an independent appraisal of the proposals to create a new museum in Broad Street, as well as a new library in the Maylord Shopping Centre.

The brief covered two main areas:

- The design brief for the museum project including liaison with Architype, the project's architect, to help inform the wider project development and service review of how the building will operate
- The potential for income generation in a new library and learning centre which should include – but not be limited to – income through provision of a café, room hire, events and activities, partnering with other agencies and any other means.

In essence, the brief required a business appraisal that provided an independent, professional opinion on the way in which the proposed museum and, separately, the library, could operate in their new locations with a view to maximising their income potential whilst, of course, preserving their essential functions as social institutions for the benefit of Herefordshire, its people and the wider community.

In so-doing, there was an emphasis on income-generation through the main categories of exhibitions, retail, catering, and corporate use/sponsorship as well as off-site income through online retail. As part of this work, ***P+P*** was asked to assess various options including in-house delivery, the potential for third-party, commercial engagement (particularly in terms of retail and catering) by way of commercial leases. This report describes our response to this brief. In producing these reports we are conscious that further, more detailed work will be required over a number of months and across all aspects of the project before a fully-funded and agreed way forward can be achieved.

[1] https://strongerhereford.co.uk/
[2] https://yourherefordshire.co.uk/all/featured-articles/revealed-the-full-multi-million-pound-plan-to-put-hereford-back-on-the-map/

1.1 Project aspirations

In December 2020, Herefordshire Council stated its aspirations for the redevelopment of the museum and library in Broad Street in a paper entitled *Hereford Museum and Art Gallery Redevelopment: Outline Business Case*. The key elements are reproduced below since they set the background against which both Architype's and ***P+P***'s work was rooted.

The project aim is to completely repurpose the building into a contemporary new museum, exhibition and visitor centre. The library will relocate to another venue and the current building will be redesigned, using EnerPHit principles. The aim will be to deliver a modern museum experience making use of the latest technology to provide opportunities for visitors to interact with the county's museum service's collections and to enable wider community engagement engendering a sense of place, attracting visitors and tourists into the City and wider county and signposting the wider heritage of the county

The project will provide a permanent home for the *Herefordshire Hoard* and will offer opportunities for working with other partners such as the National Museums and regional and local heritage attractions including Hereford Cathedral. It will support employment and skills opportunities through the creation of jobs and volunteering opportunities as well as attracting visitors to the city and county, providing a major boost to the local economy. The project will also facilitate work with schools, colleges, NMiTE and other educational establishments in the county as well as connecting local residents to the heritage of the county. The objectives are to:

- Establish a modern visitor attraction at the heart of Hereford city centre
- Engage residents of Herefordshire in formal and informal ways of learning about the history of their county, thereby strengthening their sense of place
- Support the growth of the tourism, cultural business and wider hospitality sectors through increased visitor numbers
- Deliver a museum of national renown, incorporating EnerPHit principles in its design standards where possible to limit the building's carbon footprint
- Showcase the county's extensive heritage collections, including potential new exhibitions of national and international importance such as the *Herefordshire Hoard*, making extensive use of technology and interactive displays
- Engage the Art College, NMiTE and other educational establishments
- Encourage the development of skills and job creation through new roles in the museum and also in shop and café franchises
- Support community engagement and service sustainability through volunteering opportunities and by working with the Herefordshire Museum Service Support Group, local history groups, HVOSS and other interested organisations
- Act as a focal point for heritage and creative cultural activity in the city and the county, attracting additional funding to the area. The project would act as the centre of a hub and spoke model, supporting the cultural and heritage offer in the market towns to provide countywide benefits
- Develop new income generation schemes to support the ongoing revenue funding of the building's operation. These include potential shop and café franchises, venue hire, philanthropic giving, sponsorship and donations/admission for visiting the museum.

Appendices

Appendix E - P+P Report

2 Context

The leisure sector, and heritage tourism in particular, witnessed an unpresented growth in the decade leading up to 2020 fuelled by a gradual rise in disposable income, the emergence of new markets[3], and relatively cheap travel and package holidays. In 2019 heritage-tourism generated around 50% of the world's 3 trillion US$ worth of international tourism, which itself contributed over 10% of global trade[4]. In the same year English Heritage[5] reported to government that 'heritage' was responsible, in England, for £31 billion of income, thus directly sustaining around 500,000 jobs, generating 220 million visits and encouraging in-country spend of over £17 billion.

On 20 January 2020 UNTWO's Secretary-General Zurab Pololikashvili[6] issued a press release stating that "*in these times of uncertainty and volatility, tourism remains a reliable economic sector*". He went on to say that "*our sector keeps outpacing the world economy and [it calls] upon us to not only grow but to grow better*"[7].

Just six weeks after he made these remarks the worldwide, exponential growth of international tourism was brought to a standstill by Covid-19, declared a pandemic by the WHO on 11 March 2020[8].

No country has been spared its effects. To try to mitigate them nearly every country put in place highly restrictive measures. Borders were closed, airlines grounded, in-country travel was restricted and quarantines imposed, supported by curfews in some places[9]. For the first time in its history much of the world's economy was placed in a state of government-engineered recession.

Heritage and cultural organisations, as part of the tourism industry, were one of the hardest hit since they are: (a) one of the most difficult to maintain social distancing, and hence public safety, coupled with the fact that (b) they fundamentally need the presence and throughput of a large number of people to underpin and sustain their business models.

Over the last few months it is clear that the vaccines are performing well[10]. Markets factor-in the effects of technological and scientific developments, political decisions and economic trends months in advance. They look beyond the immediate and bet on sectors and companies that will prosper at some anticipated date as and when their algorithms become real. The fact that the current round of market betting is looking towards business-as-usual once the vaccines suppress Covid-19 suggests that they are anticipating a return to a pre-Corvid 'normal' at some point either in the autumn of

[3] Particularly from China
[4] https://www.forbes.com/sites/danielreed/2019/03/08/booming-global-travel-tourism-is-driving-economies-and-job-growth-despite-u-s-china-trade-strains/?sh=46f7cd962b85
[5] https://historicengland.org.uk/content/heritage-counts/pub/2019/heritage-and-the-economy-2019/
[6] As he spoke on behalf of the United Nations World Tourism O, Covid-19 was spreading in China, having first been recognised in Wuhan in December 2019. It was reported to the WHO later that same month and was declared a public health emergency of international concern (PHEIC).
[7] https://www.unwto.org/international-tourism-growth-continues-to-outpace-the-economy
[8] The World Health Organisation declared the outbreak as a Public Health Emergency of International Concern on 30 January 2020, and a pandemic on 11 March 2020. On 11 February 2020, WHO announced a name for the new coronavirus disease: Covid-19 (severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).
[9] https://www.independent.co.uk/news/at-a-glance-europes-coronavirus-curfews-and-lockdowns-curfew-curfews-countries-coronavirus-patchwork-b1787264.html
[10] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1000512/Vaccine_surveillance_report_week_27.pdf

2021 or in spring 2022. Whether this vaccine-led recovery will be world-wide[11] is less important to the markets so long as the world's biggest economies have the confidence to bounce back quickly from a Covid-supressed world[12].

This is currently the case in England. On 12 July 2021, the Prime Minister[13] announced that nearly all Covid-19 restrictions would be lifted on 19 July so that '*we can reopen our society in the next few weeks*', in effect, stating that people would from then on need to live with the disease and manage their lives and interactions accordingly.

How economies will recover from Covid-19 is a matter of debate, but it is likely to be patchy and depend on the efficacy of vaccines against emerging variants[14]. Assuming all goes well – and it is a big assumption – England could be looking at a 'new normal' by autumn 2021, and certainly by spring 2022, providing that the winter doesn't bring any major surprises.

Such context is vital in terms of business planning for the new museum in Broad Street *and* the new library in the Maylord Shopping Centre since a judgement has to be made on the impact of Covid-19 on the general trends of visitor arrivals and use against the new proposals for both sites over the long-term.

Usually in business planning for heritage sites one of the key inputs is historic trends. If that history is curtailed or interrupted, as was/is the case with Covid-19, new base-lines need to be established.

In a simplified context: will post-Covid markets behave in the same way as pre-Covid markets, and does it matter?[15]

In one regard all this can be seen as being positive for Hereford. The opportunities presented by the new museum and library projects in the context of Covid-19 could not be better-timed: the museum is effectively closed and the library is planning a new location.

Thus, a new plan, a new vision for 2022/23+ linked to a revitalised Broad Street and a fast-expanding post-Covid local economy[16] backed by significant capital investment *could* offer significant advantages, not just in terms of physical development, but in the way it is promoted as an aspirational flagship for a new cultural settlement in Hereford and its county.

[11] https://www.theguardian.com/world/2021/may/30/vaccine-inequality-exposed-by-dire-situation-in-worlds-poorest-nations
[12] https://www.theguardian.com/business/2021/mar/15/uks-economic-recovery-may-be-quicker-than-forecast-bank-of-england
[13] https://www.gov.uk/government/speeches/pm-statement-at-coronavirus-press-conference-12-july-2021
[14] https://www.mckinsey.com/industries/healthcare-systems-and-services/our-insights/when-will-the-covid-19-pandemic-end
[15] It is likely that there will be significant changes for a least a few years. For example, many firms are now looking towards hybrid working as a potential way forward, whilst city centre shops may continue to suffer from the growth of online retailing.
[16] The UK's is set to be the fastest growing economy among the large rich countries. Source: OECD, May, 2021). https://www.bbc.co.uk/news/business-57306596.

3 The preferred option – summary

In January 2021 Architype issued its feasibility study for Hereford Museum and Art Gallery[17] which offered three options:

- Option 1: minimum intervention
- Option 2: maximising the existing fabric
- Option 3: maximum intervention.

Of these, the second (Option 2) was preferred by the client and is thus the agreed focus of P+P's work. Option 2 calls for:

- The introduction of a new lift core to the space adjacent to main stair to provide lift access to all levels
- The removal of the low quality infill extension to the south and build new circulation element linking all museum and gallery spaces
- The introduction of a new stair and goods lift to Aubrey Street to make full building usable and provide adequate fire escape from all areas
- Undertaking improvements to insulation throughout, in combination with improved airtightness and new heating and MVHR systems with intention of targeting Passivhaus Enerphit standards (subject to detailed development)
- Undertaking a full museum fit out
- Extending upwards to provide an additional level above the existing building, this will also add the benefit of siting an appropriately insulated top storey to the existing building, as well as providing a café and a garden terrace offering views towards the cathedral and the surrounding landscape of the Marches
- Lift, stair and circulation elements extended up for the additional level.

In total, Option 2 (shown in Figure 2, overpage, as a section perspective, courtesy of Architype) offers a total Gross Internal Area (GIA) of 2,376 m^2:

Areas	m^2	%
Support spaces		
Reception, café/shop, storage, event/education, offices, plant etc	806	34%
Gallery/museum spaces		
Permanent and temporary galleries, media gallery, local studies hub	1570	66%
Total GIA	2376	100%

Figure 1: Museum areas – Option 2 (Source: Architype)

In summary, Option 2 suggests that the museum has an entrance and frontage on Broad Street together with support-space/servicing access via Aubrey Street. Galleries and other spaces are set out over four main floors plus a basement and, significantly, a new development at roof level to include a café, garden terrace and viewing platforms. As the business planning and design development processes proceed hand-in-hand over the next few months, variations on these plans can be anticipated. However, for immediate business planning purposes Option 2 has been used as the base model.

[17] Architype Limited (2021) Hereford Museum and Art Gallery Feasibility Study; REF / 10265; Revision Number / 01; January 2021

Figure 2: Section perspective (Source: Architype)

The wider museum service in Herefordshire includes The Black & White House Museum in High Town and the Resource Centre in Friar Street. However, there is no doubt that the service's flagship will be the proposed redeveloped museum on Broad Street.

At a capital cost of some £15 million it is clear that the new museum must strive to maximise its earning potential whilst keeping a constant watch on operating costs. This implies that as much space as possible should be set aside for its income-generating potential, be that via exhibitions, retail, catering, events and other sources.

It also implies that the spaces designed for these purposes must be easily accessible, welcoming to visitors in all weathers, flexible in terms of use and help to encourage increased dwell time.

An additional issue to consider is maximising the museum's street presence on Broad Street and the architectural proposal to reinstate the entrance arcade at street level, albeit at the expense of internal space, could reinforce this.

In addition to new signage, possibly in the form of vertical banners on the building itself, thought should also be given to some form of changing public art, a model for which is the *4th Plinth* in Trafalgar Square. In Hereford the 'plinth' could encompass both professional artists and community projects on a rolling basis, thereby encouraging the widest possible ownership of the space and underlining the museum's commitment to the people of the city and its county.

A complementary issue is whether a temporary, fair-weather, day-time coffee-and-sandwich offer could be made at the front of the building in a suitably-modified streetscape. This space, immediately opposite the cathedral precinct could enable spontaneous cultural activity and encourage footfall between the cathedral and museum bolstering the drop-in market to the museum by providing a lively, welcoming space at street level.

Any such offer would have a direct operational relationship with the proposed, combined café and retail area on the ground floor (see 5.2). Such a proposal also accords with a policy currently under active discussion by the UK government[18].

[18] *The Times* 16 July 2021. (# 73525). Head article, front page: 'Permanent move to café culture in Britain's town centres'.

4 The role of the modern museum

Historically, museums defined themselves in terms of the process of acquiring and displaying objects:[19]

> *A museum is a non-profit, permanent institution in the service of society and its development, open to the public, which acquires, conserves, researches, communicates and exhibits the tangible and intangible heritage of humanity and its environment for the purposes of education, study and enjoyment.*

Museums were defined very broadly and included art galleries, collections of material objects, even zoos[20]. The emphasis was on 'the real thing' be it a painting or sculpture, a hand axe, a Roman gravestone or a cider press. The biggest (not necessarily the best) were major academic institutions of international significance. Others were eclectic assemblages of local ephemera, some associated with the rise of 'social history museums' from the Sixties onwards. At one point a new museum was said to open in the UK every fortnight[21].

Many museums have been extremely hard-hit by Covid-19. Whilst the government's furlough scheme has helped preserve jobs in some areas, getting back to pre-Covid levels will remain a very tough task, including local authority museums whose parent bodies have themselves been stretched financially. In March 2021 the UK Parliament's Local Government Committee[22] stated that:

> *Local authority finances are under significant pressure in the context of the Covid-19 pandemic, with central government asking local authorities to deliver many additional services on top of the cost of many existing services increasing, opportunities to implement savings programmes being disrupted, and various locally generated income streams have fallen.*
>
> *These challenges follow a decade in which local authority funding has reduced while demand for key services has risen. As a result, the ability of authorities to maintain financial and service sustainability this year and over the medium-term is being tested.*

Against this background it is clear that museums cannot simply go back to their old models on the assumption that things will return to 'normal' at some point.

In fact, for many museums in England the recent 'normal' has been one of lack of capital investment, falling revenue support and declining visitor numbers. Added to this are the significant challenges provided the world-wide growth of on-line leisure activities, particularly computer gaming, which is now worth more on the world market than film and television revenues combined[23].

The opportunity now exists, particularly with the development at Broad Street, to re-evaluate, reconsider and reposition the museum for a new role in the 2020s and beyond. This must be the case, particularly bearing in mind the significant capital sums to be devoted to its redevelopment and its aspiration to be world class.

[19] https://icom.museum/en/resources/standards-guidelines/museum-definition/ ICOM Statutes, adopted by the 22nd General Assembly in Vienna, Austria, on 24 August 2007, the current definition is as follows:
[20] *The Manual of Curatorship: A Guide to Museum Practice* (Thompson, JMA, Prince, DR et al) 1984 (with later editions) Butterworths Scientific Press, London
[21] Prince, DR., Higgins-McLoughlin, BA., 1987. *Museums UK: The Findings of the Museums Data-Base Project.* The Museums Association/Office of Arts and Libraries: London.
[22] https://committees.parliament.uk/work/1030/covid19-local-government-finance/
[23] https://www.marketwatch.com/story/videogames-are-a-bigger-industry-than-sports-and-movies

Appendices

Appendix E - P+P Report

4.1 Relevance

To be relevant, and to make significant contributions to the communities they serve, the roles that modern local authority museums must perform need to go beyond the traditional aspects of local history, local industry and local traditions and venture into some of the most important issues facing people today[24]. These include, in no significant order, climate change, mental health and wellbeing, ecological collapse and loss of species, overpopulation and pandemics.

This is not so say that the museum should step away from its roots. It is more that these roots can be used as a springboard for wider discussions. For example, the domestication of the apple could be used to highlight issues of controlled evolution by genetic modification, human migration and trade, climate change and hybridisation – all major issues of concern today[25].

Museums are uniquely placed to become involved in such a discourse because they can provide an insight into the broad history of humankind, certainly locally and by inference globally. This is probably even more relevant in times of turbulence, such as that created by Covid-19 and, in England at least, issues of race, class, gender and environmental activism. When such issues become polarised (as they appear to be at present) an authoritative voice is needed.

4.2 Community

Local museums (such as that in Hereford) also have a role to play in maintaining a sense of community and place by showcasing a common heritage. This is likely to be more important, or attractive, to visitors to Hereford and the Marches rather than local people who already have an intimate relationship with the city and its county, not just in terms of history, but in terms of day-to-day reality. To them, Hereford as presented in a museum may well be a different Hereford to that which they experience.

Museums, as public spaces, can also bring people together in a more literal way, through public events, workshops, lectures and the like. To be effective across the full audience, these need to be as wide-ranging as possible, sometimes associated with an exhibition, sometimes not.

4.3 Communication

The key challenge to museums over the next few years at least will come from ever more sophisticated digital platforms using CGI and virtual cinematography techniques, coupled with 3-D [26] to create worlds that can go, in some cases, beyond the laws of physics to create a truly 'new world'.

Of course, museums could use the same technology for their own benefit. The issues are the cost of deploying such technologies and the marketing cost involved in delivering acceptable returns, both of which are usually out of reach[27]. In addition, for a public brought up on the very latest digital offerings via their 'phones and other media, to be less-than-expected-from-Hollywood would not be acceptable.

[24] Base source: Rebecca Carlsson https://www.museumnext.com/article/why-we-need-museums-now-more-than-ever/
[25] https://www.sciencedaily.com/releases/2019/05/190527094118.htm. Robert Spengler. The Max Plank Institute. 2019.
[26] *What Dreams May Come - IMDb, retrieved 2020-04-02*
[27] For example, in 2018 *Game of Thrones* cost US$ 80K for a single CGI shot of 10-15 seconds, meaning an average episode cost of around US$ 1 million for CGI alone. https://moneyinc.com/much-costs-make-single-episode-game-thrones/. The majority (75%) of the cost for CGI arises from employing digital artists.

However, lower-level technologies such as QR codes, click-on-an-object-recognition accompanied by detailed descriptions can be used, as can pop-ups, additional commentaries, translations and the like to engage the visitor further and to encourage a longer dwell-time.

4.4 Off-site potential

Off-site digital presence is another matter. Modern museums are far more than buildings and collections. They are also repositories of expertise and expert opinion which can be communicated world-wide. The new museum in Broad Street must therefore have a significant web presence not just stating opening hours and the like, but in acting as a conduit for broadcasting opinion on all issues, be they local, national or worldwide.

They must also seek out younger audiences for two main reasons. First, the messages they have to tell are manifestly and significantly important to younger people. Second, young people carry their experience of museums throughout their lives.

Hence, the museum needs to re-invent itself along four primary lines as far as communication is concerned:

Media	Content	Primary market	Paid admission?	Sponsorship?
Permanent exhibition	Historical and social introduction to Herefordshire	Visitors to Hereford	No	Possibly
Temporary exhibition	Local responses to international challenges	Local/Regional	Possibly	Possibly
Special exhibition	Bought-in GIA exhibitions on various subjects	Local/Regional	Yes	Yes
Web presence	Defined by the museum's staff; includes sales space	Open access to all	No *	Possibly

* Web purchases of retail and other items sold at profit

Figure 3: Channels of communication

However, lower-level technologies such as QR codes, click-on-an-object-recognition accompanied by detailed descriptions can be used, as can pop-ups, additional commentaries, translations and the like to engage the visitor further and to encourage a longer dwell-time.

5 Commercial opportunities

Museums have available to them at least eight ways of generating income either from their activities or from the spaces they occupy or can control:

- Admission charges for all or part of the institution
- The sale of retail items either related to the collections or more generally
- The sale of food and beverages through cafés, restaurants, vending machines
- Off-site sales via the museum website (which should also handle pre-bookings for special exhibitions and events)
- Offering advertising links on the museum's website to others, such as local companies, hotels
- The charged-for letting of space for events, receptions, conferences and seminars
- Educational resources
- Corporate sponsorship
- Philanthropy.

Each of these is, in theory at least, available to Hereford. The prime areas for modelling purposes are:

- Admission charges
- Retail and catering income
- Educational resources
- Space letting
- Off-site (web) sales. Taking each of these in turn.

5.1 Admission charges

The museum needs to strike a balance between what it can earn from admission charges against what it can earn from its other activities that depend on footfall, particularly retail and catering[28].

To be successful over the long term the underpinning business principle must be to encourage as much use of the building as possible, thereby reducing barriers to entry whilst simultaneously encouraging other on-site spend. This also underscores the community aspect of the museum by making it free to enter for access to its permanent exhibitions (it is, after all, a local authority institution), as well as coincidentally reducing the need for staff to administer and collect day-to-day entrance fees.

[28] There are no hard and fast rules here, but evidence from the leisure market in general suggests strongly that visitors to attractions (including museums) have in their mind an amount of money they are prepared to spend on a day trip. Evidence also suggests that if a pay barrier is introduced the likelihood of paying to make a visit falls significantly, particularly for casual, drop-in visitors.

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Temporary and Special exhibitions are another matter. The former can be defined as those produced in-house by the museum service drawing on the main collections on a regular basis to focus on relevant themes such as the history and culture of the city and its county, its agricultural heritage and its role as a central player in the history of the Marches.

The latter van be defined as those which are bought-in from other museums, such as the Nationals, on various themes for which charged access would be expected by most visitors.

Between 2018 and 2019, more than 10.5 million people had the chance to see objects from the British Museum's collection outside London – a number split across 2,800 objects loaned to 147 venues[29]. The British Museum is committed to sharing the collection with as many people as possible and works with partner museums, galleries and communities across the UK, through touring exhibitions, spotlight loans, partnership galleries and long-term loans.

The V&A has been touring its exhibitions since 1987 and has one of the largest touring programmes in the world. It offers an incredible range of exhibitions for hire combine world renowned curatorial expertise with exceptional objects drawn from its own collections and from its unique access to private and institutional lenders worldwide. Receiving museums and galleries must have suitable exhibition and display facilities to Government Indemnity standards in order to participate, as well as adequate facilities for the visitor numbers such exhibitions attract.

The recommendation is thus that access to the museum per se is free of all charges, but that admission fees should be charged for Temporary and Special exhibitions. This principle has been taken forward to the financial models.

5.2 Retail and catering – ground floor

Visitors to museums expect access to refreshments and the opportunity to buy something, perhaps just as a reminder of their visit.

However, due to the location of the museum on Broad Street immediately opposite the cathedral in the historic core of the city, the venue offers the potential of much more than the standard museum shop and museum café. The opportunity for casual, passing trade must be exploited irrespective of whether the buyer actually enters the exhibitions or takes part in any other museum-related activity.

Visitors and passers-by therefore need to be welcomed into the museum at a staffed reception point offering orientation to the museum, the city and the county as well as describing what's on offer, how to explore the museum, where to find comfort facilities and so on.

This demands that the retail and catering offers on the ground floor have an immediate and clearly visible street presence, perhaps with the opportunity to spill out onto Broad Street itself during clement weather. Moreover, the strict demarcation of 'retail' and 'catering' should be blurred.

The ground floor presents the opportunity of creating a combined facility whereby people can wander in for a coffee and, if they choose, buy a gift from the shop. This model has been used successfully by, for example, Waterstones with their bookshop/*Café W* offer, which lead to a 30% increase across all sales in 2019[30].

According to Waterstones *Café W* "is a haven from the high street where you can relax and read a book, meet friends, or catch up on emails using our Free Wi-Fi, all while enjoying top quality food sourced from local producers and great coffee served by our bookseller-baristas"[31]

But the combined retail and catering space on the ground floor can do more. By the deployment of museum cases objects can be exhibited on a revolving basis in the café-retail space to expose casual visitors to the collections on offer and hence encourage museum visits. On a simple level, the reverse side of the menu could describe the objects on display, or QR codes could be used for in-depth coverage. The aim is to make the space inviting, comfortable to be in and relaxed, thus encouraging additional dwell time. As envisaged, a space (of approximately 150 m^2 for visitor occupancy and thus excluding back-of-house service space) could include a mix of some of the following features:

- A range of comfortable seating with low tables complemented by stools with high tables
- A (licensed) bar/counter dispensing coffee and cakes, drinks, local produce, information and acting as the till-point for merchandise
- Individual showcases containing artefacts supported by graphics which change on a regular basis, perhaps seasonally and possibly branded as *The Curator's Choice*
- Freestanding (cased) or wall-mounted objects from the museum's collections
- Original art on the walls, perhaps a changing exhibition of examples from local artists
- Specially commissioned, sound-free programmes on flat screens showing scenes from Herefordshire, 'Hereford Then-and-Now', 'What's on in August' etc, looping every (say) 20-30 minutes and made by local suppliers such as Rural Media
- Books and other items such as gifts and stationery for sale on shelves and tables (cf Waterstones)
- Flexible lighting
- Free WiFi.

The recommendation is thus that this form of open-access, retail and catering space should be explored as part of the development of the design of the ground floor. This principle has been taken forward to the financial models.

5.3 The roof level

The development of the roof space in Broad Street could create a unique offer in Hereford.

As currently described, the roof-level catering facility, which is closely-associated with the proposed garden roof terrace, viewing beacon and viewing platform, offers a very different space and hence commercial prospect to that of the ground floor.

This space offers the single greatest opportunity for generating income in the development and could, indeed should, be reconfigured to take advantage.

Whilst this roof-top space will normally operate throughout the day by welcoming visitors to engage with, and have interpreted, the spectacular views across the city and the surrounding landscape of the Marches, the opportunity exists to create a destination venue for many other uses.

For example, school groups could access the space at the start of their visit via a rear entrance in Aubrey Street, have a place to lodge their coats, bags and other ephemera, and orientate themselves with views across the city before they engage with the exhibits on the lower floors. This entrance could also be used for community and other groups seeking access to the roof garden.

If the roof-level space is designed as a multi-purpose facility with flexible lighting, sound system and the ability to cover parts of the roof space when required, the offer is immediately broadened from catering (which may well be performed on a day-to-day basis) into events such as lectures, musical performances, weddings, wine tastings, local food evenings, corporate receptions, graduation parties, book readings and the like.

The space could also be used to support the special and temporary exhibitions programme through the deployment of, say, pop-up restaurants exploring the culture(s) on display in a Special exhibition.

Providing this space is designed to be as flexible as possible within a fully-serviced, licensed environment available on an out-of-hours basis, what can be offered is limited only by the imagination of those responsible for its programming and management. The opportunity to let the space for third-party use, subject to programming requirements, is obvious.

The recommendation is thus that the roof-top space is looked at as being the most significant income-generating aspect of the whole development. Flexibility is key, both in terms of design and programming. Opportunities abound but they need to be reconciled with the way in which the building as a whole will work, not least in terms of facilitating access to the roof from the main entrance without compromising the security of the rest of the museum. This principle has been taken forward to the financial models.

5.4 Off-site sales and e-commerce

The museum needs to have a significant web presence that can (a) describe what's on offer, (b) what's coming, (c) what's being developed, (d) offer a booking service for Special and Temporary exhibitions as well as (e) explaining how people can become involved in shaping its future and (f) offering advertising links on the museum's website to others, such as local companies, hotels and the like.

The website must also be a platform for the sale of merchandise offered by the museum whether sourced from its own collections or from third parties. Specialist advice should be sought on this aspect at the appropriate time, since it is possible that advertising income could also be generated.

The site would also offer the opportunity for the museum to comment on affairs, local, national and international through, say, a monthly statement or blog by the curator.

The recommendation is that this aspect is researched further using suitably-qualified commentators. This principle has therefore NOT been taken forward to the financial models.

[29] British museum.org

30 https://uk.finance.yahoo.com/news/waterstones-2019-profits-sales-elliot-advisors-131230371.html. Book shop Waterstones saw revenue and profits rise last year, as stationary, gifts, food, and coffee sales boosted the business. Newly released accounts show Waterstones's sales rose 1.8% to £392.8m ($510m) in the 12 months to 27 April 2019. Pre-tax profit rose by 33% to £26.5m.

[31] https://www.waterstones.com/book/cafe-bars/9781842710760

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5.5 Space letting

The museum offers a number of spaces, both gallery and others, that can be offered for hire for events, receptions, conferences, seminars and the like. Such spaces could include the roof-top catering and associated facilities if the demand is there or can be created.

Such letting can take two broad forms: (a) corporate hire at commercial levels and (b) community-based groups at less-than-commercial rates. The first may be a local firm celebrating a good year and charged at a profit, the latter a local history society with an invited speaker charged at cost.

The key here is to make sure that the facilities are used out-of-hours on a regular basis so that, as it builds its profile, the museum becomes, eventually, the principle facilitator for cultural activities in the city and its county. This is one of the key roles it can perform as is aspires to world class status and as it serves, and in a very real way, supports the local community.

The recommendation is thus that this form of mixed space letting is further explored as the business plan develops. This principle has been taken forward to the financial models.

5.6 Corporate sponsorship and philanthropy

Museums are places and institutions with which corporations large and small have traditionally wished to be associated. Museums are generally seen by them as being politically safe, academically-rooted and even-handed in their treatment of issues.

Over the last few years, corporations involved in the extraction of fossil fuels in particular (BP, Shell, ExxonMobil) have come under scrutiny because of the way in which they derive their revenue, but with such companies at least publicly adjusting to the need for global responsibility many are still heavily involved in museum programmes, including BP at the BM[32].

Corporate responsibility has changed over the last few years with many now stressing their concern for the environment, climate change and what they can do to make things better. For example, firms like Heineken (a major employer in Hereford and a world brand) recently produced environmental policies looking to minimise their global impact[33].

With every major corporation now looking to make sure that it does not become the target of environmental activists and boycotts, it is possible that the time is now ripe to look to firms like Heineken to become corporate sponsors (perhaps styled as 'patrons') for the new museum for at least the next few years.

The recommendation is that corporate sponsorship from a core group of firms should be explored as the business plan develops. This principle has been taken forward to the financial models.

Philanthropy is a different issue and relies on the largesse of an individual or firm to provide finance with no expectation of return other than the feel-good factor.

It may well be that as the project develops a philanthropist may emerge but such an eventuality has NOT been included in the financial models.

[32] https://www.britishmuseum.org/support-us/corporate-support/corporate-sponsorship
[33] https://www.theheinekencompany.com/sites/theheinekencompany/files/Downloads/PDF/our-sustainability-story/heinekens-environmental-policy

6 The business model

All business models are speculative.

They set out to make projections for future behaviour (financial, economic, social) based on, in many cases, scant, ill-defined or sometimes unknown information. They are required to model, to project, this information over a number of years. They must also, out of necessity, take a view on global economic trends with reference to local and national fluctuations and, in this case, the overall and assumed desire for people to visit Hereford and Herefordshire and the (as yet unknown) exhibitions and other attractions they will be invited to attend.

This business planning appraisal for the new museum in Broad Street is made from the viewpoint of modelling the likely workings of the site, as expressed as Option 2 by Architype, in producing a deliverable, achievable, manageable, realistic and sustainable museum for the benefit of the people that live and work in Hereford and that visit the city. In this, the business plan is conscious that the proposals by Architype are themselves not agreed designs but are themselves subject to further work and inputs from others before a settled way forward can be achieved.

Assumptions have therefore been made on all income-generating aspects as well as all cost elements. These are described in this section.

The business model in this document covers five years of operation. No start date has been assumed and all costs and incomes are at Q3-2021 projected levels. No account of inflation, VAT or capital costs have been made, neither has a view been taken on any loan or other agreements to be made by the County Council as it funds the overall project.

The model assumes that the museum will be owned and operated by the local authority. Whilst there may well be the potential to offer management agreements for the operation of certain elements, particularly retail and catering, an in-house model is described.

The model also assumes that the new museum will be a well-managed, well-marketed and well-received development that aspires, as per the brief, to be a world class museum facility for the benefit of the people of Herefordshire and those that choose to visit. This implies that the new venture represents a sea-change from the old venue across all aspects.

Whilst the creation of the new museum will inevitably offer considerable, unquantifiable benefits to the people of Hereford and its County these have not been modelled in this report as they are best left for the Council to evaluate and describe.

The base model is shown as Figure 4, overpage.

- Rows 1 through 6 describe potential visitor numbers
- Rows 8 through 15 estimate income
- Rows 17 to 23 summarise all costs
- Rows 25 to 27 summarises the outturn, including the cost of the capital loan repayment.

Each row, or group of rows, has a sub-routine associated with it and these are described later in this section.

	Year	1	2	3	4	5	Average	%
2	General visitors, free entry	39,600	45,540	50,094	52,599	52,599	48,086	46%
3	Annual uplift factor	1.000	1.150	1.100	1.050	1.000		
4	Special exhibition visitors	46,200	53,130	58,443	61,365	61,365	56,101	54%
5	Annual uplift factor	1.000	1.150	1.100	1.050	1.000		
6	Total number of visitors	85,800	98,670	108,537	113,964	113,964	104,187	100%
7								
8	Special exhibitions income	219,450	252,368	277,604	291,484	291,484	266,478	34%
9	Gift Aid at 25% of special exhibition income @ 50%	27,431	31,546	34,701	36,436	36,436	33,310	4%
10	Space hire, corporate hospitality etc	59,400	59,400	59,400	59,400	59,400	59,400	7%
11	Corporate sponsorship for special exhibitions	31,500	31,500	31,500	31,500	31,500	31,500	4%
12	Retail income at £1.30 per visitor (ex VAT)	111,540	128,271	141,098	148,153	148,153	135,443	17%
13	Catering income at £1.80 per visitor (ex VAT)	154,440	177,606	195,367	205,135	205,135	187,536	24%
14	Hereford museum net revenue budget 2020-2021	80,000	80,000	80,000	80,000	80,000	80,000	
15	**Projected annual income (£)**	**683,761**	**760,690**	**819,669**	**852,108**	**852,108**	**793,667**	**100%**
16								
17	Staff (12.5 ftes at £22,000 x 1.25)	343,750	343,750	343,750	343,750	343,750	343,750	65%
18	Direct advertising and promotion	17,094	19,017	20,492	21,303	21,303	19,842	4%
19	Cost of retail and catering (excluding staff)	88,651	91,763	100,939	105,986	105,986	98,665	19%
20	Hired-in exhibition costs	63,000	63,000	63,000	63,000	63,000	63,000	12%
21	FM costs at £30 per m2 measured over GIA	71,280	71,280	71,280	71,280	71,280	71,280	14%
22	FM costs discounted by 100%	-71,280	-71,280	-71,280	-71,280	-71,280	-71,280	-14%
23	**Projected annual costs (£)**	**512,495**	**517,530**	**528,181**	**534,039**	**534,039**	**525,257**	**100%**
24								
25	**Operational outturn (£)**	**171,266**	**243,160**	**291,488**	**318,069**	**318,069**	**268,410**	
26	Cost of capital loan repayment	240,000	240,000	240,000	240,000	240,000	240,000	
27	**Annual outturn including cost of capital loan repayment**	**-68,734**	**3,160**	**51,488**	**78,069**	**78,069**	**28,410**	

Figure 4: The base financial model

6.1 Visitor numbers (rows 2 through 6)

A recognised way of assessing potential visitor numbers to museums and other leisure attractions is the way in which they will penetrate their markets, both resident and visitor, the aim being to cement and elevate market share within the sector *and* the geographical area (in this case heritage and cultural leisure in Herefordshire) within which they operate.

Factors directly affecting penetration rates include competitor behaviour, pricing strategies, brand promotion, recognition and acceptance, whether the product is innovative or derivative, whether it is stand-alone or partners with others for mutual benefit and how, for a new product, it is launched.

Market penetration rates (mprs) in the museum sector are very low, right across the board. For example, the most visited museum in England, The British Museum with 6 million visits a year on average pre-Covid-19, penetrated its total market (residents and visitors to the London) at just under 5%, slightly higher when on-line activity is included. By way of (perhaps an unfair) comparison, Apple's iOS mobile market mpr averaged 55% across the entire UK's population between 2010 and 2020[34].

As a general rule, a local authority museum penetrating its market at around 1% would be doing well. Anything over 1.2% would be a major success and, bearing in mind Hereford's aspiration for its new museum, this should be its long-term target. However, it takes time to build to these numbers

[34] https://www.statista.com/statistics/271195/apple-ios-market-share-in-the-united-kingdom-uk/

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and hence a prudent way forward has been adopted in Figure 5 (overpage) which sets out the initial mpr analysis for the new museum.

1	Site	Market	Market penetration rates (mpr)				
2		000s	0.60%	0.70%	0.80%	0.90%	1.00%
3	**Free entry visitors**						
4	Visitors	5,000	0.030	0.035	0.040	0.045	0.050
5	Residents	1,600	0.010	0.026	0.013	0.014	0.016
6	Total	6,600	0.040	0.061	0.053	0.059	0.066
7	**Special Exhibitions**						
8	Visitors	5,000	0.030	0.035	0.040	0.045	0.050
9	Residents	1,600	0.010	0.026	0.013	0.014	0.016
10	Total	6,600	0.040	0.061	0.053	0.059	0.066
11	**Projected numbers**						
12	Free entry		**39,600**				
13	Special exhibition			**46,200**			

Figure 5: Initial market penetration assessment

Professional judgements are required on these numbers, particularly in terms of what the new museum is trying to achieve and with the resources it has to hand. The above assessment (Figure 5) suggests that in Year 1 the museum will attract some 39,600 visitors by way of free entry (row 12) and some 46,200 by being attracted to a special exhibition (row 13). These base figures are then increased by an uplift factor to a ceiling as the new museum becomes better known and embedded in the community, and are shown in Figure 4, rows 2 through 6.

The judgement is that visitors to Hereford will be more likely to engage with the free-entry aspects of the museum (bearing in mind that it is expected that they will deal with the history, geography culture etc of the county) whereas the majority of special exhibition visitors will come from the local market, unless such a major exhibition is mounted that will draw visitors to the city simply because it is on. However, the space allocated for special and temporary exhibitions in the designs mitigates against this scenario.

1	Year	1	2	3	4	5	Average	%
2	General visitors, free entry	39,600	45,540	50,094	52,599	52,599	48,086	46%
3	Annual uplift (facror)	1.000	1.150	1.100	1.050	1.000		
4	Special exhibition visitors	46,200	53,130	58,443	61,365	61,365	56,101	54%
5	Annual uplift (facror)	1.000	1.150	1.100	1.050	1.000		
6	Total visitors (number)	85,800	98,670	108,537	113,964	113,964	104,187	100%

Figure 6: Summary of visitor numbers

6.2 Income generation from exhibitions (rows 8 and 9)

Income from special exhibitions (row 8) is generated by the following sub-routine:

1	A	B	C	D	E	F
2	**Year 1**	**£**	**£ less VAT**	**%**	**Numbers**	**£ less VAT**
3	Adult	7.0	5.8	60.0	27,720	161,700
4	Child	3.5	2.9	30.0	13,860	40,425
5	Concessions	4.5	3.8	10.0	4,620	17,325
6	Total (transfer to main model)					219,450
7	**Average**				**46,200**	**4.75**

Figure 7: Income generation from special exhibitions

Income from special exhibitions is both price-sensitive and needs to reference local expectation. As a general approach, an adult ticket for an exhibition (including VAT) can be base-pointed against the cost per minute of an average 2-D cinema ticket[35], since people have a view on what they can afford to spend to occupy their time. In Hereford this would imply an adult charge of £7 (including VAT), as shown above. Discounts for children and concessions are seen as a percentage of this with the arithmetic conclusion that the average charge per visitor emerges as £4.75 (excluding VAT).

An additional element is the use of the government's Gift Aid scheme to generate, effectively, free income. In the model (row Figure 4, row 9) this has been assumed to be taken up by half the visitors to paid-for exhibitions at the standard rebate rate for the museum of 25%.

6.3 Space hire and corporate sponsorship (rows 10 and 11)

Both these are very difficult to estimate when the designs and other management arrangements remain uncertain.

However, if it is assumed that all available lettable space (including out-of-hours exhibition space) and the roof space is marketed aggressively (staff have been allocated for this purpose, see below) then it should be possible to realise a return, devoid of additional costs, of:

1	Space hire, corporate hospitality etc				
2	1.5 corporate/other event per week	1,200	per month	£200 each event	
3	3 major corporate/other event per month	3,750	per month	£1250 per event	
4	Per month	4,950			
5	Annual potential	59,400			

Figure 8: Space hire

Corporate sponsorship is a very different matter and depends to a great extent on the high-level relationships that can be established and maintained between the County and national and global firms. In the previous section of this report the issues of becoming involved with some firms were highlighted. Whereas a decade or so ago corporate sponsorship was seen as being a 'good thing' it is now being questioned at grass-roots level due to the ethics of the firms involved, be that in terms of environmental degradation, products being produced by super-cheap labour or because they do not support healthy lifestyles.

Despite this, income has been modelled by way of event income (Figure 8, Row 3) and Figure 4 row 11 by way of exhibition sponsorship. It will be up to the people managing the site to make sure that any exhibition sponsorship is ethically sound and accepted by all concerned. This is an important consideration as it is expected to generate around £31,000 a year to offset the cost of staging Special exhibitions.

In all this it is assumed that the Council maintains a list of 'responsible' companies with which it is prepared to do business.

[35] The average cost of an adult ticket to a cinema in Hereford is around £12, or some £7 an hour. Source: Local press, 20 July 2021.

6.4 Retail and catering income (rows 12 and 13)

Figure 4 assumes that both the retail and catering activities are undertaken in-house by the museum service. Other options are obviously available, but a base-line has to be established. The retail and catering sub-routines are approached from two angles simultaneously:

- What can be expected to be provided by visitors to the museum and its special and temporary exhibitions and
- What could be expected to be achieved if these were stand-alone retail and catering spaces operating in Broad Street.

Figure 4 projects an income (minus VAT) for each visitor to the museum of £1.30 for retail and £1.80 for catering; essentially utilising the proposed ground floor offer (rows 12 and 13). Both aspects combined are projected to turnover around £322,000 a year. This includes casual visitors who simply drop in for a coffee or to buy a souvenir. Assuming that a stand-alone, serviced facility of some 150 m^2 of sales space on the ground floor with direct access to the street and with a prospect over the cathedral such a space could well deliver the following sales per m^2 outturn:

1	Retail and catering turnover	£
2	Retail (8 hours a day, full year)	
3	Turnover (average)	135,443
4	Selling area m2	60
5	Turnover £ per m2	2,257
6	Catering (8 hours a day, full year)	
7	Turnover (average)	187,536
8	Selling area m2	90
9	Turnover £ per m2	2,084
10	Total turnover, both aspects (Figure 4 rows 12+13)	322,980

Figure 9: Retail and catering m2 model

6.5 Hereford museum net revenue budget 2020-2021 (row 14)

The current annual net budget for Hereford museum (£109,490) has been included as a net income row to balance the additional costs that have been set out in rows 17 through 20, thus making sure that costs in these last rows have not been over-projected.

6.6 Staff (row 17)

Staff costs are estimated to be around £343,750 a year, including on-costs at 25% (figure 4, row 17):

1	Fte staff	Number	%
2	Site and business manager	1.0	8%
3	Collections officer	1.5	12%
4	Exhibition officer	1.0	8%
5	Exhibition assistant	0.5	4%
6	Events, education and outreach	1.5	12%
7	Front of house and visitor engagement	3.0	24%
8	Café and retail	4.0	32%
9	**Total fte**	**12.5**	100%
10	Professional staff fte (rows 2 through 6)	5.5	44%
11	Support staff (rows 7 and 8)	7.0	56%

Figure 10: Staff costs

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Some 56% of staff deployment in terms of numbers (if not actual cost) is devoted to front-of-house, café and retail activities (rows 12 ad 13, Figure 11) which is entirely appropriate for an outward-looking exhibition, educational community-use space supported by other facilities in the museum service (such as that at Friar Street) together with central local authority support[36]. Average staff costs have been estimated at £22,000 a year across-the-board with 25% on-costs per fte.

6.7 Direct advertising and promotion (row 18)

Museums have traditionally underplayed the role of PR, marketing and the like. They are usually the first budgets to be cut.

The business model presented here (Figure 4, row 18) calls for a continued investment, year on year, to maintain relevance, profile and recognition that things are happening at the museum. The model (Figure 4, row 18) suggests that around 2.5% of the income generated in any one year should be invested in maintaining and developing the market for the following year.

If the museum is to perform to its potential it needs such support.

6.8 Cost of retail and catering (excluding staff) (row 19)

This row simply suggests the cost of bought-in items for sale in both the shop and café and has been estimated to be 33% of turnover. On this basis, the retail and catering elements on the ground floor operate as:

1	Retail and catering sub-routine (ground floor)	£	%
2	Turnover (minus VAT)	322,980	100%
3	Cost of goods	107,660	33%
4	Staff costs	110,000	34%
5	Proportion of adversising and promotion	6,038	2%
6	Gross profit	105,320	33%

Figure 11: retail and catering sub-routine (ground floor)

6.9 Hired-in exhibition costs (row 20)

There is a need to refresh the home-grown, temporary, exhibitions at the museum on a regular basis to underscore that the museum is working on behalf of its community as well as hiring-in exhibitions to attract Special exhibition visitors. It is anticipated that this budget will be around £63,000 a year drawn from the following sub-routine:

1	**Bought-in and renewed exhibitions**	
2	3 large a year	45,000
3	6 small a year	18,000
4	**Total**	**63,000**

Figure 12: Bought-in and renewed exhibitions

[36] By way of observation, the new situation at Broad Street creates the opportunity reconfigure the entire museum service. This report makes no comment on this issue.

6.10 Premises (FM) costs (rows 21 and 22)

Facilities management costs (covering essentials such as cleaning, physical security, day-to-day maintenance, gas, electricity and services costs, row 20) have been estimated at £30 per m2 measured over a gross internal area of 2,376 m2 per year. However, they have been re-set at zero (row 22) due, we understand, to the Council's policy of central purchasing for such services. Rates have been assumed to be a nominal £1 based on the judgement in Exeter[37].

6.11 Headline outturn and sensitivities

The prospects of the new museum in Broad Street generating a cash surplus are real since the basic business/turnover model has suggested a positive operational outturn.

However, the headline result is dependent on things going to plan. If, for whatever reason, the model as described cannot be delivered, variations can be described:

	Scenario	Year 1	Year 2	Year 3	Year 4	Year 5	Average
1	Operational outurn (Figure 4 row 25)	171,266	243,160	291,488	318,069	318,069	268,410
2	Income minus 10%, same exenditure	102,890	167,091	209,521	232,858	232,858	189,044
3	Income minus 15%, same expenditure	68,702	129,057	168,538	190,253	190,253	149,360
4	Income plus 10%, same expenditure	188,393	267,476	320,637	349,876	349,876	295,251
5	Income plus 15%, same expenditure	196,956	279,634	335,212	365,779	365,779	308,672
6	Expenditure plus 10%, same income	120,017	191,407	238,670	264,665	264,665	215,885
7	Expenditure plus 15%, same income	94,392	165,531	212,261	237,963	237,963	189,622

Figure 13: Sensitivity assessments

It is likely, given the operating circumstances described above, that the museum will generate an annual operational surplus of approximately £318,000 a year (Figure 13, row 1) from year 4 onwards from a surplus of £291,500 in year 3. This will be sufficient to repay the cost of a capital loan repayment of £240,000 a year for they estimated forty years of the loan.

However, Figure 13 (rows 2 through 7) indicates where the potential vulnerability of the model lies to variations in visitor numbers and the creative use of space to generate income.

All museums, as leisure attractions in a highly competitive market, need sound programming, engagement with all potential markets, sound product and, above all, good leadership. Such attributes have been assumed by this business planning exercise.

6.12 Implications for investment

As currently understood the investment model to support the capital expenditure on the project comprises three elements at an investment rate of £6,300 per m^2, GIA.

	Capital funding scenario	£ million
1	Stronger Towns fund by way of a grant	5.00
2	The Heritage Lottery Fund by way of a grant	5.00
3	Herefordshire County Council by way of a loan	5.00
4	**Total**	**15.00**

Figure 14: Proposed capital investment

[37] https://www.bbc.co.uk/news/uk-england-devon-53083116

At present, and as it is understood, the only funder committed in-principle is the Stronger Towns Fund (row 2, Figure 14) at £5 million. Both the Heritage Lottery Fund (row 3) and the Council (row 4) have yet to commit funds as both depend on the outcome of, amongst others, the current architectural and business planning studies and their detailed roll-out over the next few months.

There is therefore the opportunity to review this capital investment strategy before it becomes set in stone as there is the design of the building and its long-term business operation.

The key here is to balance what the museum can do, what it can't do, and how it can perform to best advantage in its market.

Successful, well-appreciated, well-respected and well-visited museums are places that offer attractive, perhaps unusual, even quirky, spaces underpinned by a lively, energetic and engaging programme of exhibitions, events, activities and experiences across their entire market.

This potential is on offer in Hereford and this business plan has set out the fundamental scaffolding as to how way it can be achieved.

But when all is modelled, the designs are complete, the funding is in place and the museum opens, its success will depend ultimately on the people employed and their skills and enthusiasm to make it a success.

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7 Observations

£15 million of capital funding, irrespective of its source, for a project in a single building is a considerable investment in the museum and cultural infrastructure of Hereford and its county, particularly in times of financial uncertainty.

These funds would undoubtedly enable the museum service to be revitalised to meet the needs of local residents, communities and visitors as well as underlining the city's commitment to both its heritage and its future. To justify this level of investment the museum in Broad Street needs a Renaissance: new ideas, new income streams, new and active programming with engagement as its watchword – to new markets whilst not alienating the old, to new sources of income whilst not becoming overtly-commercial. In essence, a sea change.

The museum project on Broad Street is at a very early stage of development in terms of at least the following elements:

- The building's design and associated structural, fit-out and other works, together with their cost. The resolution of these critical factors is likely to take many months to achieve and could be complicated by later discussions with the relevant Planning authorities
- The role of the new museum within the wider provision of the cultural fabric of Herefordshire has yet to be defined, with the result that best-value assessments for each of the Council's existing museum properties have not been made opening up the possibility of the duplication of resources, space, activities and staff
- The content of the permanent exhibition(s) and the programing of special and temporary exhibitions have yet to be decided, as have their associated methods of presentation and interpretation, all of which could have major impacts on both the capital cost of the project by way of fit-out and the level of revenue support required on an annual basis
- The use of the museum's spaces by anticipated users such as formal education groups, casual visitors, corporate hire, retail and catering, visitors to special and temporary exhibitions and the like has not been defined to a level of detail that could determine future programming with the result that these activities have had to be presumed from elsewhere using comparator models
- The way in which the new museum will operate has been assumed to be a wholly-owned and operated Council project. Opportunities to move away from this model are indicated by the financial appraisal but have been taken no further.

Based on the information available in the context of the above caveats, the business appraisal set out in this draft headline report, which was itself assembled in just a matter of days, indicates that a viable and sustainable project is in prospect for the new museum.

However, there is as yet no settled accord between the three central elements of the project: (a) the design, (b) the business plan and (c) the views of the Council.

Despite this, and given that the business model indicates a viable project is in the offing, ***P+P*** confirms that there is no business planning encumbrance that should hinder progress on the project.

7.1 Addendum

In terms of strategic brief development, consideration should be given to recording and communicating the historical development of the museum building given its proximity to the cathedral and, perhaps more significantly, to the medieval town ditch.

An archaeological investigation could produce important material that could become the subject of, perhaps, the first special exhibition, for which there are highly successful precedents, and would be looked upon favourably by funding agencies such as the Heritage Lottery Fund.

The relationship between a redeveloped Hereford Museum and the existing Museum Resource and Learning Centre in Friar Street will need to be reviewed to align curatorial and revenue generating services.

This raises the important question as to how the wider cultural offer of Herefordshire is to be co-ordinated such that both capital expenditure and revenue income are distributed to those sites best able to accommodate them.

Therefore, a multi-site cultural network strategy for the county would be of significant benefit to future decision making.

IS YOUR BUILDING *REALLY* ZERO CARBON?

ARCHITYPE

Net zero commitments made by countries, local authorities and cities across the UK have made zero carbon construction more than an ethical consideration – it is now a commercial imperative.

But the speed with which Net Zero has become a new baseline for the industry has left the term itself wide open to interpretation. There now are dozens of different definitions of what qualifies as Zero Carbon building. Some are great. Some fail to account for elements of the process as significant and straightforward as calculating the energy used during the building's construction.

When those definitions fall short of true net zero, buildings do too – and it's the clients, who are then acquiring a building that will require adaption and further upgrade to meet the targets later on, and the building's users, that are left to deal with the impact.

This document will outline what achieving true net zero carbon looks like, and detail some of the common pitfalls and mistakes - often unintentionally - made by developers and local authorities which commonly lead to buildings being set up to fail.

Appendices

Appendix F - Zero Carbon

What is a Net Zero Carbon building?

True Net Zero carbon buildings generate or balance as much carbon as it takes to build and run them across the lifecycle of the building. It's that simple.

Why are they called Net Zero Carbon buildings?

We talk about energy in terms of 'carbon' or 'carbon costs' to make it easier to measure its impact, and to compare it with other factors like emissions that are also harmful to our environment and to our climate. To do this you calculate a building's energy consumption – or the impact of sourcing, manufacturing and transporting building materials to a site – and translate all of that into its 'carbon cost'.

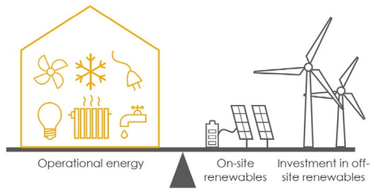
We refer to buildings as 'net zero' when all of those carbon costs are balanced out by the energy the final building will produce, or store, over its lifetime.

What if that's not possible?

Where it's not possible to balance that equation on its own, clients can look to 'offset' the energy needed to run a building by investing in approved initiatives that redress that balance elsewhere in the world.

However this should only be done as a last resort, after every effort has been made to reduce energy consumption and waste in the construction process, and by designing out energy demand in areas like the heating systems through high performance building. It is only used as the final step in reaching net zero because relying heavily on off-setting is expensive, inefficient and it is needed for the harder-to-treat sectors of industry.

Offsetting doesn't get to the root of why we're doing this, which is to ensure the construction of new buildings is truly sustainable, both now and for future generations.



Graphics showing the balance needed between operational energy and renewables (top), and the impact of embodied carbon on a building's lifecycle cost. Both from LETI's Climate Emergency Design Guide.

Construction vs Operation

A building's carbon costs are split in to two categories. A true net zero building takes both into account, balancing them out through the generation of renewable energy throughout the lifecycle of the building.

Construction: Carbon emissions associated with a building's product and construction stages. This is often referred to as a project's Embodied Carbon. All efforts should be made to first minimise embodied carbon through design choices, and to then balance out the remaining upfront carbon costs through the generation of on-site renewable energy, while planning ahead to avoid additional embodied carbon costs during, and at the end of the building's life.

Operational: To reach operational net zero carbon the amount of carbon emissions associated with the building's operational energy on an annual basis is zero or negative. This is often referred to as In-use Carbon, and is frequently used as the sole calculation in claims that a building is 'zero carbon'. To reach operational net zero, energy demand needs to be greatly reduced – fabric-first approaches can reduce demand to as little as 10 – 25% of Part L buildings – in order for it to be balanced out by the energy generated by on-site renewables.

Despite accounting for between **20 and 50 percent** of a building's whole-life carbon cost, embodied or construction carbon costs are frequently ignored in net zero calculations.

Transparency in this area is **essential** if organisations are to follow through on their net zero promises.

Issue #1: Honestly account for the energy a building will use. All the energy.

Most buildings in the UK don't perform as designed. The 'performance gap' between the theoretical design standard required by developers for compliance, and how much energy a building actually uses for electricity and heating is, on average, a difference of 40 percent.

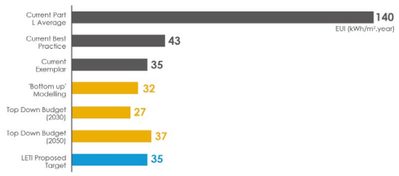
In an £8m UK Government study into building performance, only one of the 49 non-domestic buildings lived up to its design – with the other buildings' carbon emissions 3.8 times higher, on average, than their designs.

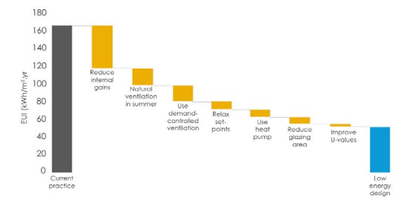
The effect of the performance gap on net zero calculations is huge. If you don't have an accurate idea of how much energy a building will actually need for things like heating and hot water, you will be at risk of massively underestimating its carbon cost – and therefore the renewable energy needed for it to be a net zero building.

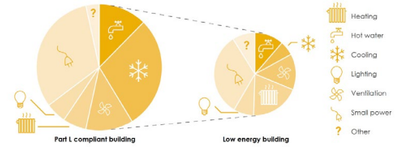
If you want a true net zero building, going beyond the EPC ratings and the requirements of Part L of Building Regulations will be essential. Energy Use Intensity metrics, or building in in-use evaluation tools are more effective ways of delivering an energy-sufficient building, while the performance gap has been proven to be eliminated by using robust, performance-based, 'fabric-first' design approaches.

As well as failing to account for a performance gap in the heating of a building, Part L calculations also do not count any 'unregulated electricity'. Unregulated electrcity covers anything where power comes from a plug, and although it can vary considerably by building type, unregulated energy can form up to 50% of total operational energy.

When you add these two factors together, a 'net zero' building delivered solely to the standards laid out in Building Regulations is likely to fall well short of that as soon as it is being used.







Graphs showing the reality of energy usage in a Part L compliant building vs best practice, from the LETI Climate Emergency Design Guide.

Independent research carried out by the UK Passivhaus Trust found **an average performance gap of 40%** between the overall energy use of a new build house when compared to its EPC modelling.

Other evidence suggests that it can be **up to 500%.**

How to avoid this issue:

1 / Make in-use performance targets part of the contract – you can use standards like RIBA 2030, the Net Zero Public Sector Buildings Standard from the Scottish Futures Trust, the LETI standards outlined in their Climate Emergency Design Guide, and Passivhaus.

2 / Include unregulated energy in calculations. Under UK Building Regulations, energy assessments only cover heating, hot water and lighting. They don't account for any appliances or any electricity that comes out of a plug. This area is the most affected by occupancy habits, and a huge contributor to an inaccurate calculation of a building's energy use.

3 / Adopt a fabric-first, efficiency-first approach. A design that uses the building physics and fabric to help regulate the building not only drastically lowers energy demand, but it eliminates the performance gap due to high quality insulation and streamlined building systems. This approach means you can follow through on your Net Zero Carbon promises - with confidence.

Appendices

Appendix F - Zero Carbon

Issue #2: Account for carbon used in construction, over the building's lifecycle and for its maintenance

Over the last ten years, there has been significant progress in reducing operational carbon in buildings. However between 30 and 50 percent of a building's carbon cost comes before a lightbulb has even been turned on.

Calculating the carbon cost of construction, accurately and with transparency, is essential to a building achieving true Net Zero.

And embodied carbon costs don't end with occupancy.

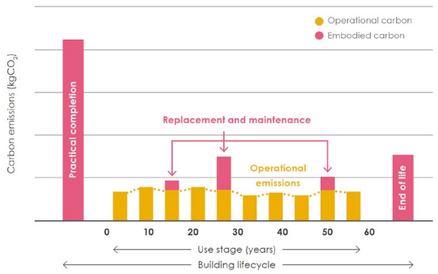
In a RIBA study into embodied carbon, 32 percent of the total carbon cost over the lifetime of a modelled office building came from embodied carbon, due to elements like retrofit or maintenance or replacing solar panels.

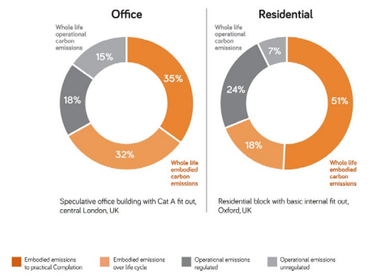
Many 'net zero' buildings only account for operational carbon. This isn't net zero.

Whole life carbon assessments will allow you to calculate the true carbon cost of the building, accounting for all these factors. From there you can make efforts to reduce the embodied carbon cost of your building through, for example, replacing building materials with low carbon, responsibly sourced alternatives. It will also give you a more accurate picture of the hidden commercial costs associated with maintenance that a design projects to require over its lifetime.

The RIBA and the UK Green Building Council are among those pushing the industry to reduce embodied carbon in construction by 40 percent by 2030, in order to then meet net zero embodied carbon goals by 2050.

The Greater London Authority are among those who have already responded, requiring all planning applications to record and reduce embodied carbon emissions.





Top: the ongoing impact of both embodied and operational carbon through a building's lifecycle, from the LETI Climate Emergency Design Guide, and below, operational vs embodied carbon broken down from models included in the RIBA guide to embodied + wholelife carbon

How to avoid this issue:

1 / Insist on Whole Life Carbon assessments as part of your design process. Use the results to shape design decisions in a way that reduces and optimises energy use in the construction process.

2 / Plan for the future. Build in maintenance costs, include the replacement of renewable energy generators like solar panels in carbon and cost calculations, and consider the future of the building from the outset. Can you take steps to avoid additional embodied carbon costs during and at the end of the building's life?

3 / Embed carbon and cost frameworks in design choices. From the outset, optimise the design to reduce the embodied carbon cost of both materials and the construction process. Undertake a Whole Life Carbon assessment at RIBA Stage 2, and monitor it through the design phases to give you an accurate picture of these overall embodied carbon costs.

4 / Minimise embodied carbon costs over the lifetime of the building by simplifying systems and adopting a fabric-first approach to reduce energy demand, reduce maintenance costs and reduce reliance on renewables and offsetting to reach true net zero.

Issue #3: Off-setting isn't a cure-all

Off-setting any residual carbon costs - following the design of an optimised, low energy building - by generating renewable energy on-site is an essential element of achieving a sustainable net zero building. It should be designed in from the outset, but should be the last step in balancing out your carbon costs.

LETI's Climate Emergency Design Guide notes that renewable energy targets need to be realistic. While 100 percent of the energy for a small domestic building can be generated by solar with a fabric first design, taller buildings may struggle. The guide sets targets for offices to generate the annual energy requirement for at least two floors, and for schools to aim to cover 70 percent of their roof area with solar panels.

However being 'realistic' shouldn't be a free pass for irresponsible design.

Designing an inefficient, energy-intensive building, and hoping to balance this with fields of solar panels, or paying for off-site off-setting undermines the principle of sustainability that underpins most local authorities' net zero pledges. This is commonly referred to as 'carbon-washing'.

While solar panels – or photovoltaics – are a key tool to reaching net zero carbon for your building, it should be noted that they bring their own issues, and so best practice is always to reduce your energy demand so as to reduce your reliance on them as much as possible.

They add costs – both carbon and financial – to a project which continue through the lifecycle of the building. They are subject to seasonal fluctuations that run counter to seasonal energy needs, and storage issues affect the efficiency of the energy generated. And, without significant reductions in operational energy demands, the scale at which solar panels are needed to offset anything but a fully-optimised building would heavily impact on the site.

Where renewable energy cannot balance out the carbon costs of construction and operation, off-site off-setting may be required to achieve net zero carbon.

There are many risks associated with off-setting through carbon positive initiatives elsewhere in the world, and so – like with solar panels - the goal is to minimise your reliance on them as much as possible by reducing demand. Those risks include; improper carbon accounting, re-release of stored carbon, and negative unintended impacts on humans or ecosystems.

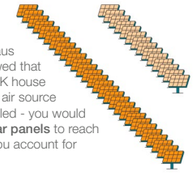
Best practice, as outlined in a 2020 Oxford University Study into carbon off-setting, is to;

- **Prioritise reducing your own emissions** - minimise the need for offsets in the first place, by reducing the embodied carbon costs during construction, and reducing the in-use energy demand for the building.

- **Ensure environmental integrity** - use offsets that are verifiable and correctly accounted for and have a low risk of non-additionality, reversal, and creating negative unintended consequences for people and the environment.

- **Maintain transparency** - disclose current emissions, accounting practices, targets to reach net zero, and the type of offsets you employ. Review these regularly.

Off-setting should be the very last step to balancing the carbon costs of a building – and any strategies used to off-set carbon should be reviewed regularly after occupancy to ensure they are achieving net zero in the best way for the building and for the planet.



A 2019 Passivhaus Trust study showed that for an average UK house (68m2) - with an air source heat pump installed - you would still need **28 solar panels** to reach net zero when you account for storage losses.

However, to reach net zero on a house, the same size, designed to fabric-first, Passivhaus standards - you would need half that total, **14 solar panels**.

How to avoid this issue:

1 / Use Whole Life Carbon assessments to build up an accurate picture of the energy demand for the building. Take measures through the design process to reduce this as much as possible like reusing building fabric to reduce your building's embodied carbon.

2 / Integrate the design of renewable energy systems from the outset and not as an afterthought. Consider ease of use and maintenance to ensure they are as efficient as possible. Appoint a member of the design team to oversee this.

3 / Challenge designers/contractors on the transparency of any off-site off-setting initiatives. Review them post completion and throughout the lifecycle of the building, reducing reliance on them wherever possible.

Appendices

Appendix F - Zero Carbon

Issue #4: Not understanding cost. Invest to save.

Developing a better understanding of issues 1-3 in this document will put you in a better position to make informed decisions for your building.

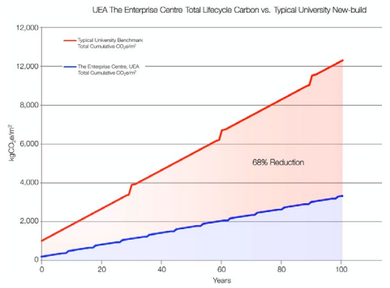
Reducing your carbon cost - as opposed to simply looking to offset it - will have a huge impact, not only for the enviromnent, but financially.

Buildings that take a sustainable, fabric-first approach not only minimise energy bills, but also reduce the need for improvements and maintenance. The savings over the lifetime of a building are significant.

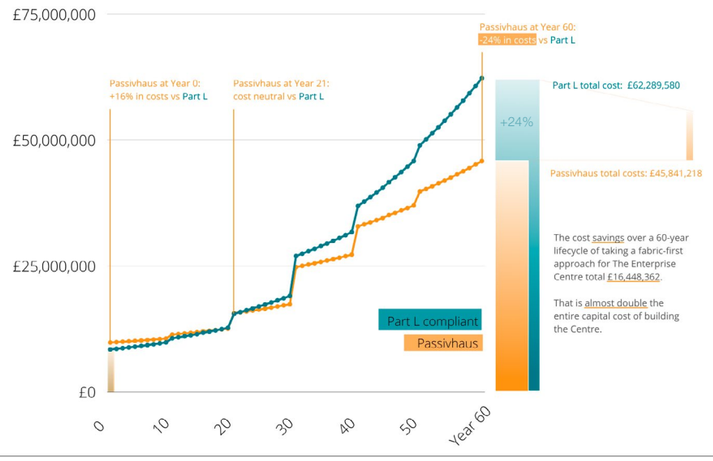
Here is what that looks like in terms of both lifecycle carbon (right) and lifecycle cost (below) for UEA's Enterprise Centre, highlighted by the LETI Climate Emergency Guide as best practice within the industry.

As building standards continue to 'increase' any capital cost 'uplift' to achieve low-energy standards that are proven to perform - like Passivhaus - will reduce.

The independent life cycle costing undertaken by BSRIA on the new-build, educational building in the UK shown below demonstrates that even when there is an uplift in capital expenditure of 16%, the significant reduction in operational costs mitigate that uplift after only 21 years, and then manifests as savings across the buildings' life equating to a lifecycle saving of 24%.



Independent BSRIA lifecycle costing for The Enterprise Centre



"Increasingly, clients in all sectors are commissioning WLC (whole life carbon) assessments as part of the project requirements.

"This is primarily driven by environmental considerations **but also makes economic sense.**

"Important benefits of WLC assessments include;

- a better understanding of the sourcing and processing of materials and products

- an understanding of long term post completion considerations such as maintenance, durability and lifespan

- and making plain the carbon value of retaining existing built fabric."

- RIBA guidance on wholelife carbon and cost

Summary

Conclusions

> Mitigating the impact that new buildings have on the environment is relatively simple to do, especially when compared with the complexities of dealing with existing building stock.

> However, in order to do this in a meaningful way, all emissions must be considered and assessed against True Zero Carbon targets over the design life of the building.

> Optimised, 'efficient-first', building design and delivery is an essential part of achieving True Zero Carbon projects, without relying on off-site, carbon off-setting.

> High performing building standards such as Passivhaus also deliver high levels of comfort and healthy environments by eliminating overheating and maintaining high levels of air quality.

> Investing to save in optimised, high performance buildings provides healthy returns on investments and avoids the need for expensive adaptions or upgrades that would add to the retrofit burden.

This document was created by Architype as a tool to help clients reach their True Net Zero targets. If you have any questions about net zero design, feel free to contact Architype director Mark Barry at mark.barry@architype.co.uk, or call on 01981 542111.

Checklist for your True Net Zero building

1 / Set specific (contractural) energy performance targets for your building - such as RIBA 2030, Passivhaus or LETI - to eliminate the performance gap

2 / Set specific (contractural) embodied carbon targets for your building - such as RIBA 2030, SFT, Passivhaus or LETI - using a recognised method of calculation such as RICS

3 / Set specific (contractural) operation carbon targets to include unregulated energy in line with methodologies - such as RIBA 2030, Passivhaus or LETI

4 / Set specific (contractural) terms to eliminate any overheating in your building

5 / Request an Efficient First/Fabric First approach to minimise servicing and ongoing maintenance costs

6 / Request your building is to be designed to be climate resilient to 2050 or 2080 levels and include costs for any adaptions/modifications that are necessary.

7 / Request the first 5 years of servicing and maintenance to be included within the building contact

8 / Request a full POE programme is provided during the defects period

9 / Request lifecycle costings of the building based on expected design life

10 / Set internal health and comfort levels such as maximum Co2, VOC and particulate levels

Recommended further reading includes;

- The LETI Climate Emergency Design Guide; https://www.leti.london/cedg

- The RIBA Climate Challenge Guide; https://www.architecture.com/-/media/files/Climate-action/RIBA-2030-Climate-Challenge.pdf

- Embodied + wholelife carbon for architects by the RIBA; https://www.architecture.com/-/media/gathercontent/whole-life-carbon-assessment-for-architects/additional-documents/11241wholelifecarbonguidancev7pdf.pdf

- The Oxford Principles for Net Zero aligned carbon offsetting; https://www.smithschool.ox.ac.uk/publications/reports/Oxford-Offsetting-Principles-2020.pdf

- Net Zero Carbon Buildings : A Framework Definition from the UKGBC; https://www.ukgbc.org/ukgbc-work/net-zero-carbon-buildings-a-framework-definition/

- Net Zero Public Sector Buildings Standard from Scottish Futures Trust; https://www.scottishfuturestrust.org.uk/page/net-zero-public-sector-buildings-standard

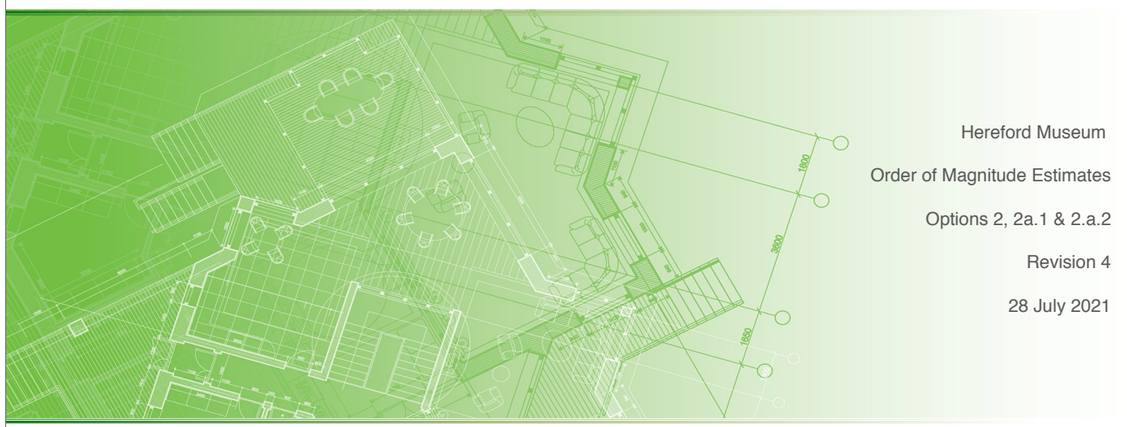
- The Route to Zero Carbon from the Passivhaus Trust; https://www.passivhaustrust.org.uk/UserFiles/File/2019.03.20-Passivhaus%20and%20Zero%20Carbon-Publication%20Version1.2(1).pdf

Appendices

Appendix G - Order of Magnitude Cost Estimate

SmithThomasConsult

QUANTITY SURVEYORS . CONSTRUCTION COST CONSULTANTS



Hereford Museum

Order of Magnitude Estimates

Options 2, 2a.1 & 2.a.2

Revision 4

28 July 2021

St Michaels Cottage, Blaisdon Lane, Blaisdon, Longhope, Gloucestershire, GL17 0AL . Tel 01452 831341

Hereford Museum

Order of Magnitude Cost Estimate 28 July 2021

Content Revision: 4

Content

p.2 Commentary

p.3 Notes, Assumptions & Exclusions

p.4 Estimate: Option 2

p.8 Estimate: Option 2a.1

p.12 Estimate: Option 2a.2

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Appendix G - Order of Magnitude Cost Estimate

Hereford Museum

Order of Magnitude Cost Estimate — 28 July 2021

Commentary — Revision: 4

Ref	Commentary

Commentary

1 Smith Thomas Consult have been requested by Architype Limited to provide initial high level cost advice on the development options for Hereford Museum in Broad Street Hereford.

2 Based on approximate floor areas and preliminary sketch design advice an initial 3nr options were considered in January 2021 (Minimum Intervention / maximise Existing Building fabric and New Purpose Built Facility. We were advised to present the "Maximise Existing Building Fabric" Option as this was more closely aligned to the client budget targets. The Order of Magnitude Estimate for the Option 2. Maximise Existing scheme at January 2021 was £15.53M

3 Following this preliminary high level cost review of the 3nr development options, it was decided by Architype to develop Option 2, i.e. to maximise the building fabric.

4 The original January 2021 Order of Magnitude Estimate did not include professional fees. We have now been advised that the estimate should include design and planning fees. These have been included at total allowance of 13%

5 Since the preparation of the January 2021 Order of Magnitude Estimates there has been increased volatility in material prices with substantial material price increases and labour price pressure as a result of Brexit, the Covid 19 pandemic, and national and international supply chain issues. This is reflected in the increased BCIS forecasts for tender price and building cost inflation. We strongly advise that inflationary forecasts are reviewed at regular intervals as the impact on potential project out turn costs is significant.

6 The preliminary order of cost estimate is based on Architype preliminary space plans current at 26 July 2021 and preliminary structural notes from Andrew Collinson issued January 2021.

7 As a result of the inclusion of the design team fees and the increased inflationary pressure on costs, the January 21 Option 2 figure of £15.53M has now increased to £17.6m.(rounded)

8 As this figure is approximately 12.5% above the client £15m target budget figure, Architype, Smith Thomas Consult and Prince & Pearce have reviewed the design and layout options looking at optimisation of the design from a capital cost and business modeling perspective and with a view on planning issues.

9 As a result of the review undertaken week commencing 19 July 21, 2 further scheme layout options have been considered, 2a.1 (omission of 3rd floor and enhancement of roof / multi use space) and 2a.2 (3rd floor used as storage / plant space and enhancement of roof / multi use space). These are explained in more detail in the Draft Architype Feasibility Stage report issued on 22nd July 2021

Option 2	*As option 2. scheme presented in January 2021: Costs reviewed, design and planning fees added, inflationary forecasts reviewed in light of current market conditions*	*£ 17,600,000*	*(rounded)*
Option 2a.1	*As option 2, 3rd floor gallery space omitted, roof space / garden and multi use space enhanced and observation tower relocated*	*£ 14,900,000*	*(rounded)*
Option 2a.2	*As option 2, 3rd floor gallery space re-designated as storage / plant areas, roof space / garden and multi use space enhanced and observation tower relocated*	*£ 16,900,000*	*(rounded)*

10 Moving forward, subject to client approval, the intention would be to keep the 3nr scheme options under review as the detailed design develops, surveys and reports are produced and consequently more detailed budget costs assessments can be prepared.

Hereford Museum

Order of Magnitude Cost Estimate — 28 July 2021

Notes, Exclusions & Assumptions — Revision: 4

Ref	Notes, Exclusions & Assumptions

Notes, Exclusions & Assumptions

1 Professional design and survey fees are **included**

2 **VAT is excluded**

3 Estimates based on RIBA Stage 1 design information: quantities approximate and all subject to design development and further detailed surveying of the buildings

4 S106 charges / agreements excluded

5 Works to existing highways excluded

6 All costs subject to design development and further survey work on existing buildings

7 Costs associated with Party Wall / boundary disputes are excluded

8 No allowance is included for costs associated with the discovery or removal of asbestos containing materials from the existing building

9 Costs exclude costs arising from archaeological findings associated with any aspect of the proposed development

10 Base costs are current at 3rd quarter 2021 with inflationary uplift to an indicative start on site at 1st quarter 2023.

11 Client operation and management costs excluded

12 All costs subject to ongoing review of current high volatility of cost of input materials and labour (Refer also to item 5 on "Commentary" sheet).

13 Order of Magnitude costs for the 2.a.1 and 2a.2 options are to be treated as solely indicative in the absence of floor plans to confirm areas and layout adjustments.

Appendices

Appendix G - Order of Magnitude Cost Estimate

Hereford Museum

Order of Magnitude Cost Estimate — 28 July 2021

Option 2: Maximise Existing Building Fabric — Revision: 4

Option 2 - Order of Magnitude Estimate

Hereford Museum

Order of Magnitude Cost Estimate — 28 July 2021

Option 2: Maximise Existing Building Fabric — Revision: 4

Ref	Building Element	Notes	Pricing Basis	Quant	Unit	Rate	Total
1	New lift core & main stairs						
1.1	Substructure	*Subject to structural engineering advice / ground conditions / impact on adjoining buildings*	*Underpinning / support to 30m @ £500/m; waterproofing @ say £7,500; slab 65m2 @ £200/m2*	65	m2	£ 550	£ 36,000
1.2	Superstructure	*Subject to design development*	*Based on STC retained cost data on highly insulated high performance superstructures*	260	m2	£ 2,000	£ 520,000
1.3	Extra over for feature stairs	*Subject to design development*	*Allowance*	1	item	£ 250,000	£ 250,000
2	Remove extension and new build circulation elements						
2.1	Demolition / removal works	*Subject to structural advice and support requirements*	*Estimated allowance / m2*	150	m2	£ 300	£ 45,000
2.2	New build circulation shell works	*Lightweight construction: specification / design to be developed*	*Approximate estimate: note fit out costs included in "Museum fit out costs" below*	180	m2	£ 1,750	£ 315,000
3	New stair core and goods lift to create Aubrey St. entrance						
3.1	Substructure	*Subject to structural engineering advice / ground conditions / impact on adjoining buildings*		65	m2	£ 500	£ 33,000
3.2	Superstructure	*Subject to design development*		260	m2	£ 2,100	£ 546,000
3.3	Extra over for stairs	*Subject to design development*	*Allowance*	1	item	£ 150,000	£ 150,000
4	Insulation improvements to retained building elements						
4.1	Generally	*Subject to design development: to include triple glazed windows; insulation to external walls and roof structure to improve thermal efficiency of building*	*Allowance*	1	item	£ 550,000	£ 550,000
5	General building / fabric repairs & refurbishment						
5.1	Structural repairs to existing building	*Subject to detailed structural surveys of existing building*	*Allowance: no specific details available at this stage*	1	item	£ 100,000	£ 100,000
5.2	Building Services replacement / upgrade	*Assumes a full strip out and re-fit of building services throughout existing building: base service distribution; MVHR; low energy lighting*	*STC retained cost data: note rate discounted to take into account potential duplication with Museum fit out costs identified below*	2370	m2	£ 600	£ 1,422,000

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Appendix G - Order of Magnitude Cost Estimate

Ref	Building Element	Notes	Pricing Basis	Quant	Unit	Rate	Total
5.3	Builders work in connection with services replacement	*BWIC*	*Allowance at 5% of services costs*	5	%	£ 1,422,000	£ 71,000
5.4	Infrastructure	*Allowance for infrastructure upgrades / reinforcements to accommodate new works (i.e. drainage, incoming services and BWIC)*	*Allowance*	1	item	£ 200,000	£ 200,000
5.5	New entrance works to retained façade	*Subject to design development*	*Allowance*	1	item	£ 125,000	£ 125,000
6	Additional upper floor levels						
6.1	New 3rd and 4th floor shell works	*Lightweight construction: specification / design to be developed: high quality external finishes*	*Approximate estimate: note fit out costs included in "Museum fit out costs" below*	600	m2	£ 2,500	£ 1,500,000
6.2	External roof areas	*External roof terrace area*	*Allowance*	130	m2	£ 950	£ 124,000
7	Extension of key circulation areas to serve additional levels	*Design to be developed*	*Allowance*	1	item	£ 250,000	£ 250,000
8	External Works	*External pavings and streetworks*	*Allowance*	1	item	£ 80,000	£ 80,000
						Sub Total	£ 6,317,000
9	Main contractor preliminaries	*Robust preliminaries allowance to factor in restricted city centre location and proximity to existing buildings. Potential off site storage and material double handling. Significant craneage costs*	*Refer to notes*	17.0	%	£ 6,317,000	£ 1,074,000
10	Main contractor overheads and profit	*Anticipated OH&P recovery for mid to large sized contractor in the 6% - 8% range*	*Refer to notes*	7.0	%	£ 7,391,000	£ 517,000
						Sub Total	£ 7,908,000
11	Surveys, planning, professional design fees	*Assumes full design team and traditional procurement route i.e. full design.*	*Subject to fee quotations / negotiations*	13.0	%	£ 7,908,000	£ 1,028,040
						Sub Total	£ 8,936,040
12	Contingency	*As the project is at RIBA Stage 1 / 2, there is a significant level of design development and investigative work into the condition of the existing building to be undertaken.*	*Based on notes and early stage of design development 10% contingency recommended*	10.0	%	£ 8,936,040	£ 894,000
						Sub Total	£ 9,830,040
13	Museum fit out costs						

Ref	Building Element	Notes	Pricing Basis	Quant	Unit	Rate	Total
13.1	Museum spaces	*Area allocation based on preliminary Architype Ltd design and categorisation of spaces*	*Costing based on Preliminary exhibition and public area fit out costs (including fees) circulated by Herefordshire Museum Service based on preliminary advice from Haley Sharpe Design*	1570	m2	£ 3,500	£ 5,495,000
13.2	Non display / commercial / activity / public spaces	*Ditto*	*Ditto*	806	m2	£ 1,200	£ 967,000
						Sub Total	£ 16,292,040
14	Inflation						
14.1	Tender price inflation	*Tender price inflation from 3q 2021 to potential earliest start on site in 1q2023*	*BCIS tender price index current at 26 Jul 2021 (353 - 334 i.e. 5.68% increase)*	5.68	%	£ 16,292,040	£ 925,000
14.2	Build cost inflation	*Build cost inflation taken from notional start on site Feb 2023 to mid point of 18 month build contract i.e. November 2023*	*BCIS build cost index current at 26 Jul 2021 (404.3 - 395.1 i.e. 2.33% increase)*	2.33	%	£ 17,217,040	£ 401,000
15	Total	Total developed Option 2 (maximise existing building fabric)					£ 17,618,040

Appendices

Appendix G - Order of Magnitude Cost Estimate

Hereford Museum

Order of Magnitude Cost Estimate — 28 July 2021

Option 2a.1: As Option 2 plus Omit 3rd Floor & Enhance Roof Multi Use Spaces — Revision: 4

Option 2a.1 - Order of Magnitude Estimate

Hereford Museum

Order of Magnitude Cost Estimate — 28 July 2021

Option 2a.1: As Option 2 plus Omit 3rd Floor & Enhance Roof Multi Use Spaces — Revision: 4

Ref	Building Element	Notes	Pricing Basis	Quant	Unit	Rate	Total
1	New lift core & main stairs						
1.1	Substructure	*Subject to structural engineering advice / ground conditions / impact on adjoining buildings*	*Underpinning / support to 30m @ £500/m; waterproofing @ say £7,500; slab 65m2 @ £200/m2*	65	m2	£ 550	£ 36,000
1.2	Superstructure	*Subject to design development*	*Based on STC retained cost data on highly insulated high performance superstructures*	205	m2	£ 2,000	£ 410,000
1.3	Extra over for feature stairs	*Subject to design development*	*Allowance*	1	item	£ 200,000	£ 200,000
2	Remove extension and new build circulation elements						
2.1	Demolition / removal works	*Subject to structural advice and support requirements*	*Estimated allowance / m2*	150	m2	£ 300	£ 45,000
2.2	New build circulation shell works	*Lightweight construction: specification / design to be developed*	*Approximate estimate: note fit out costs included in "Museum fit out costs" below*	180	m2	£ 1,750	£ 315,000
3	New stair core and goods lift to create Aubrey St. entrance						
3.1	Substructure	*Subject to structural engineering advice / ground conditions / impact on adjoining buildings*		65	m2	£ 500	£ 33,000
3.2	Superstructure	*Subject to design development*		205	m2	£ 2,100	£ 430,500
3.3	Extra over for stairs	*Subject to design development*	*Allowance*	1	item	£ 130,000	£ 130,000
4	Insulation improvements to retained building elements						
4.1	Generally	*Subject to design development: to include triple glazed windows; insulation to external walls and roof structure to improve thermal efficiency of building*	*Allowance*	1	item	£ 550,000	£ 550,000
5	General building / fabric repairs & refurbishment						
5.1	Structural repairs to existing building	*Subject to detailed structural surveys of existing building*	*Allowance: no specific details available at this stage*	1	item	£ 100,000	£ 100,000
5.2	Building Services replacement / upgrade	*Assumes a full strip out and re-fit of building services throughout existing building: base service distribution; MVHR; low energy lighting*	*STC retained cost data: note rate discounted to take into account potential duplication with Museum fit out costs identified below*	1900	m2	£ 600	£ 1,140,000

Appendices

Appendix G - Order of Magnitude Cost Estimate

Ref	Building Element	Notes	Pricing Basis	Quant	Unit	Rate	Total
5.3	Builders work in connection with services replacement	*BWIC*	*Allowance at 5% of services costs*	5	%	£ 1,140,000	£ 57,000
5.4	Infrastructure	*Allowance for infrastructure upgrades / reinforcements to accommodate new works (i.e. drainage, incoming services and BWIC)*	*Allowance*	1	item	£ 200,000	£ 200,000
5.5	New entrance works to retained façade	*Subject to design development*	*Allowance*	1	item	£ 125,000	£ 125,000
6	Additional upper floor levels						
6.1	New shell works for café / roof garden flexible spaces	*Lightweight construction: specification / design to be developed: high quality external finishes*	*Approximate estimate: note fit out costs included in "Museum fit out costs" below*	600	m2	£ 1,600	£ 960,000
6.2	External roof areas	*External roof terrace area*	*Allowance*	130	m2	£ 950	£ 124,000
7	Extension of key circulation areas to serve additional levels	*Design to be developed*	*Allowance*	1	item	£ 250,000	£ 250,000
8	External Works	*External pavings and streetworks*	*Allowance*	1	item	£ 80,000	£ 80,000
						Sub Total	£ 5,185,500
9	Main contractor preliminaries	*Robust preliminaries allowance to factor in restricted city centre location and proximity to existing buildings. Potential off site storage and material double handling. Significant craneage costs*	*Refer to notes*	17.0	%	£ 5,185,500	£ 882,000
10	Main contractor overheads and profit	*Anticipated OH&P recovery for mid to large sized contractor in the 6% - 8% range*	*Refer to notes*	7.0	%	£ 6,067,500	£ 425,000
						Sub Total	£ 6,492,500
11	Surveys, planning, professional design fees	*Assumes full design team and traditional procurement route i.e. full design.*	*Subject to fee quotations / negotiations*	13.0	%	£ 6,492,500	£ 844,025
						Sub Total	£ 7,336,525
12	Contingency	*As the project is at RIBA Stage 1 / 2, there is a significant level of design development and investigative work into the condition of the existing building to be undertaken.*	*Based on notes and early stage of design development 10% contingency recommended*	10.0	%	£ 7,336,525	£ 734,000
						Sub Total	£ 8,070,525
13	Museum fit out costs						

Ref	Building Element	Notes	Pricing Basis	Quant	Unit	Rate	Total
13.1	Museum spaces	*Area allocation based on preliminary Architype Ltd design and categorisation of spaces*	*Costing based on Preliminary exhibition and public area fit out costs (including fees) : Costs based on initial advice specialist museum advisors.*	1300	m2	£ 3,500	£ 4,550,000
13.2	Non display / commercial / activity / public spaces	*Rate enhanced to reflect enhancement to upper level flexible spaces*	*Ditto*	800	m2	£ 1,500	£ 1,200,000
						Sub Total	£ 13,820,525
14	Inflation						
14.1	Tender price inflation	*Tender price inflation from 3q 2021 to potential earliest start on site in 1q2023*	*BCIS tender price index current at 26 Jul 2021 (353 - 334 i.e. 5.68% increase)*	5.68	%	£ 13,820,525	£ 785,000
14.2	Build cost inflation	*Build cost inflation taken from notional start on site Feb 2023 to mid point of 18 month build contract i.e. November 2023*	*BCIS build cost index current at 26 Jul 2021 (404.3 - 395.1 i.e. 2.33% increase)*	2.33	%	£ 14,605,525	£ 340,000
15	Total	Total developed Option 2a.1 (Omit 3rd floor / maximise flexible roof space)					£ 14,945,525

Appendices

Appendix G - Order of Magnitude Cost Estimate

Hereford Museum

Order of Magnitude Cost Estimate — 28 July 2021

Option 2a.2: As Option 2 plus Re-allocate 3rd Floor to Storage and Plant Space & Enhance Roof Multi Use Spaces — Revision: 4

Option 2a.2 - Order of Magnitude Estimate

Hereford Museum

Order of Magnitude Cost Estimate — 28 July 2021

Option 2a.2: As Option 2 plus Re-allocate 3rd Floor to Storage and Plant Space & Enhance Roof Multi Use Spaces — Revision: 4

Ref	Building Element	Notes	Pricing Basis	Quant	Unit	Rate	Total
1	New lift core & main stairs						
1.1	Substructure	*Subject to structural engineering advice / ground conditions / impact on adjoining buildings*	*Underpinning / support to 30m @ £500/m; waterproofing @ say £7,500; slab 65m2 @ £200/m2*	65	m2	£ 550	£ 36,000
1.2	Superstructure	*Subject to design development*	*Based on STC retained cost data on highly insulated high performance superstructures*	260	m2	£ 2,000	£ 520,000
1.3	Extra over for feature stairs	*Subject to design development*	*Allowance*	1	item	£ 250,000	£ 250,000
2	Remove extension and new build circulation elements						
2.1	Demolition / removal works	*Subject to structural advice and support requirements*	*Estimated allowance / m2*	150	m2	£ 300	£ 45,000
2.2	New build circulation shell works	*Lightweight construction: specification / design to be developed*	*Approximate estimate: note fit out costs included in "Museum fit out costs" below*	180	m2	£ 1,750	£ 315,000
3	New stair core and goods lift to create Aubrey St. entrance						
3.1	Substructure	*Subject to structural engineering advice / ground conditions / impact on adjoining buildings*		65	m2	£ 500	£ 33,000
3.2	Superstructure	*Subject to design development*		260	m2	£ 2,100	£ 546,000
3.3	Extra over for stairs	*Subject to design development*	*Allowance*	1	item	£ 150,000	£ 150,000
4	Insulation improvements to retained building elements						
4.1	Generally	*Subject to design development: to include triple glazed windows; insulation to external walls and roof structure to improve thermal efficiency of building*	*Allowance*	1	item	£ 550,000	£ 550,000
5	General building / fabric repairs & refurbishment						
5.1	Structural repairs to existing building	*Subject to detailed structural surveys of existing building*	*Allowance: no specific details available at this stage*	1	item	£ 100,000	£ 100,000
5.2	Building Services replacement / upgrade	*Assumes a full strip out and re-fit of building services throughout existing building: base service distribution; MVHR; low energy lighting*	*STC retained cost data: note rate discounted to take into account potential duplication with Museum fit out costs identified below*	2370	m2	£ 600	£ 1,422,000

Appendices

Appendix G - Order of Magnitude Cost Estimate

Ref	Building Element	Notes	Pricing Basis	Quant	Unit	Rate	Total
5.3	Builders work in connection with services replacement	*BWIC*	*Allowance at 5% of services costs*	5	%	£ 1,422,000	£ 71,000
5.4	Infrastructure	*Allowance for infrastructure upgrades / reinforcements to accommodate new works (i.e. drainage, incoming services and BWIC)*	*Allowance*	1	item	£ 200,000	£ 200,000
5.5	New entrance works to retained façade	*Subject to design development*	*Allowance*	1	item	£ 125,000	£ 125,000
6	Additional upper floor levels						
6.1	New 3rd and 4th floor shell works	*Lightweight construction: specification / design to be developed: high quality external finishes*	*Approximate estimate: note fit out costs included in "Museum fit out costs" below*	600	m2	£ 2,500	£ 1,500,000
6.2	External roof areas	*External roof terrace area*	*Allowance*	130	m2	£ 950	£ 124,000
7	Extension of key circulation areas to serve additional levels	*Design to be developed*	*Allowance*	1	item	£ 250,000	£ 250,000
8	External Works	*External pavings and streetworks*	*Allowance*	1	item	£ 80,000	£ 80,000
						Sub Total	£ 6,317,000
9	Main contractor preliminaries	*Robust preliminaries allowance to factor in restricted city centre location and proximity to existing buildings. Potential off site storage and material double handling. Significant craneage costs*	*Refer to notes*	17.0	%	£ 6,317,000	£ 1,074,000
10	Main contractor overheads and profit	*Anticipated OH&P recovery for mid to large sized contractor in the 6% - 8% range*	*Refer to notes*	7.0	%	£ 7,391,000	£ 517,000
						Sub Total	£ 7,908,000
11	Surveys, planning, professional design fees	*Assumes full design team and traditional procurement route i.e. full design.*	*Subject to fee quotations / negotiations*	13.0	%	£ 7,908,000	£ 1,028,040
						Sub Total	£ 8,936,040
12	Contingency	*As the project is at RIBA Stage 1 / 2, there is a significant level of design development and investigative work into the condition of the existing building to be undertaken.*	*Based on notes and early stage of design development 10% contingency recommended*	10.0	%	£ 8,936,040	£ 894,000
						Sub Total	£ 9,830,040
13	Museum fit out costs						

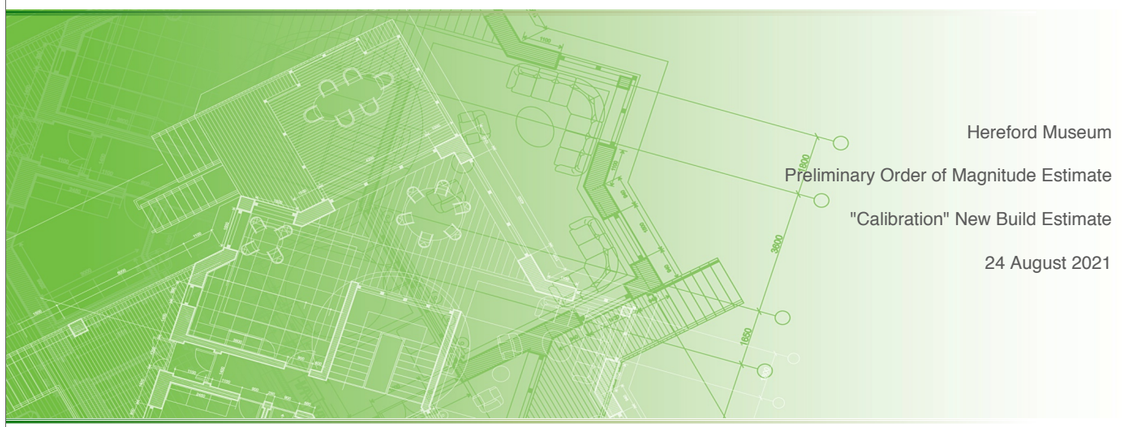
Ref	Building Element	Notes	Pricing Basis	Quant	Unit	Rate	Total
13.2	Museum spaces	*Area allocation based on preliminary Architype Ltd design and categorisation of spaces*	*Costing based on Preliminary exhibition and public area fit out costs (including fees) : Costs based on initial advice specialist museum advisors.*	1100	m2	£ 3,500	£ 3,850,000
13.2	Non display / commercial / activity / public spaces	*Rate enhanced to reflect enhancement to upper level flexible spaces*	*Ditto*	1276	m2	£ 1,500	£ 1,914,000
						Sub Total	£ 15,594,040
14	Inflation						
14.1	Tender price inflation	*Tender price inflation from 3q 2021 to potential earliest start on site in 1q2023*	*BCIS tender price index current at 26 Jul 2021 (353 - 334 i.e. 5.68% increase)*	5.68	%	£ 15,594,040	£ 886,000
14.2	Build cost inflation	*Build cost inflation taken from notional start on site Feb 2023 to mid point of 18 month build contract i.e. November 2023*	*BCIS build cost index current at 26 Jul 2021 (404.3 - 395.1 i.e. 2.33% increase)*	2.33	%	£ 16,480,040	£ 384,000
15	Total	Total developed Option 2a.2 (Re-Categorise 3rd floor / maximise flexible roof space)					£ 16,864,040

Appendices

Appendix H - Order of Magnitude Cost Estimate: New Build Calibration

SmithThomasConsult

QUANTITY SURVEYORS . CONSTRUCTION COST CONSULTANTS



Hereford Museum

Preliminary Order of Magnitude Estimate

"Calibration" New Build Estimate

24 August 2021

St Michaels Cottage, Blaisdon Lane, Blaisdon, Longhope, Gloucestershire, GL17 0AL . Tel 01452 831341

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p.3 Notes, Assumptions & Exclusions

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Appendix H - Order of Magnitude Cost Estimate: New Build Calibration

Hereford Museum

Order of Magnitude Cost Estimate: New Build Option — 24 August 2021

Commentary — Revision: 1

Ref	Commentary
	Commentary
1	Smith Thomas Consult have been requested by Architype Limited to provide initial high level cost advice on a new build options for Hereford Museum. No specific site has been identified, rather the estimate is understood to be required as a "bench-marking" parameter in the consideration of the refurbishment options for the existing Broad Street refurbishment options.
2	The Order of Magnitude estimate has utilised approximate £/m2 rates to idetify the potential size of new build facility that could be generated for the notioanl target cost of £15.0m
3	This estimate should be considered with respect to and subject to the current volatility in material prices with substantial material price increases and labour price pressure as a result of Brexit, the Covid 19 pandemic, and national and international supply chain issues. We strongly advise that any cost forecasts / estimates are reviewed at regular intervals as the impact of the volatile market on potential out turn costs could be significant.
4	Design team fees are included
5	Resultant floor area = 2,250m2 gross internal.

Hereford Museum

Order of Magnitude Cost Estimate: New Build Option — 24 August 2021

Notes, Exclusions & Assumptions — Revision: 1

Ref	Notes, Exclusions & Assumptions
	Notes, Exclusions & Assumptions
1	Professional design and survey fees are **included**
2	**VAT is excluded**
4	S106 charges / agreements excluded
5	Works to existing highways excluded
6	All costs subject to design development
	All costs subject to site specific factors (currently no specific site identified)
7	Costs associated with Party Wall / boundary disputes are excluded
8	Costs include for external works: it is assmed that any alternative site would require hard and soft landscaping
9	Costs exclude costs arising from archaeological findings associated with any aspect of the proposed development
10	Base costs are current at 3rd quarter 2021 with inflationary uplift to an indicative start on site at 1st quarter 2023.
11	Client operation and management costs excluded
12	All costs subject to ongoing review of current high volatility of cost of input materials and labour (Refer also to item 3. on "Commentary" sheet).

Appendices

Appendix H - Order of Magnitude Cost Estimate: New Build Calibration

Hereford Museum

Order of Magnitude Cost Estimate: New Build Option — 24 August 2021

New Build Option — Revision: 1

New Build Option - Order of Magnitude Estimate

Hereford Museum

Order of Magnitude Cost Estimate: New Build Option — 24 August 2021

New Build Option — Revision: 1

Ref	Building Element	Notes	Pricing Basis	Quant	Unit	Rate	Total
1	General building	*Basd on £/m2 allowance: subject to design, sustainability options, site location factors*	*£/m2 allowance including main contractor preliminaries* *Current BCIS analyses used to infirm the BCIS average £/m2 rates for regional museums (category 756.) and display / gallery facilities (category 757.) indicate an averaged mean cost (including preliminaries at today's date) of £2,562/m2. Other cost benchmarking tools indicate a range of £2,400 - £2,650. Fit out costs have been discounted as included separately below.*	2250	m2	£ 2,525	£ 5,681,250
2	External Works	*External pavings and streetworks*	*Allowance: similar to city centre refurb. Options*	1	item	£ 200,000	£ 200,000
3	Services	*Incoming / site upgrade*	*Allowance*	1	item	£ 75,000	£ 75,000
						Sub Total	£ 5,956,250
4	Main contractor preliminaries	*Refer to item 1. above: Main Contractor preliminaries deemed included in £/m2 allowances*	*Refer to item 1. above*	0.0	%	£ 5,956,250	£ 0
5	Main contractor overheads and profit	*Anticipated OH&P recovery for mid to large sized contractor in the 6% - 8% range*	*Refer to notes*	7.0	%	£ 5,956,250	£ 417,000
						Sub Total	£ 6,373,250
6	Surveys, planning, professional design fees	*Assumes full design team and traditional procurement route i.e. full design.*	*Subject to fee quotations / negotiations*	13.0	%	£ 6,373,250	£ 828,523
						Sub Total	£ 7,201,773
7	Contingency	*As the project is at RIBA Stage 1 / 2, there is a significant level of design development and investigative work into the condition of the existing building to be undertaken.*	*Based on notes and early stage of design development 10% contingency recommended*	10.0	%	£ 7,201,773	£ 720,000
						Sub Total	£ 7,921,773

Appendices

Appendix H - Order of Magnitude Cost Estimate: New Build Calibration

Ref	Building Element	Notes	Pricing Basis	Quant	Unit	Rate	Total
8	Museum fit out costs						
8.1	Museum spaces	*Assumed that 66% of proposed building area would be subject to specialist museum fit out requirements*	*Costing based on Preliminary exhibition and public area fit out costs (including fees) circulated by Herefordshire Museum Service based on preliminary advice from Haley Sharpe Design*	1485	m2	£ 3,500	£ 5,198,000
8.2	Non display / commercial / activity / public spaces	*Assumed that 34% of proposed building area would be subject to non-museum fit out requirements*	*Ditto*	765	m2	£ 1,200	£ 918,000
						Sub Total	£ 14,037,773
9	Inflation						
9.1	Tender price inflation	*Tender price inflation from 3q 2021 to potential earliest start on site in 1q2023*	*BCIS tender price index current at 26 Jul 2021 (336 - 353 i.e. 5.06% increase)*	5.06	%	£ 14,037,773	£ 710,000
9.2	Build cost inflation	*Build cost inflation taken from notional start on site Feb 2023 to mid point of 18 month build contract i.e. November 2023*	*BCIS build cost index current at 26 Jul 2021 (401.9 - 411.2 i.e. 2.31% increase)*	2.31	%	£ 14,747,773	£ 341,000
10	Total	Total developed : New Build Option					£ 15,088,773

Award Highlights

2020 Highly Commended for the AJ100 Practice of the Year Award
2020 Education Estates' Education Architect of the Year
2020 CIBSE Building Performance Awards, Residential Project of the Year, Agar Grove Regeneration
2019 AJ100 Sustainable Practice of the Year
2019 RSAW Welsh Architecture Award, Ysgol Trimsaran
2019 RSAW Sustainability Award
2018 CIBSE Building Performance Awards, Commercial Project of the Year
2017 Building Good Employers Guide, 3rd place in the construction industry
2017 RIBA National Award, The Enterprise Centre
2017 Education Estates Awards, Project of the Year, Highgate Junior School
2017 RIBA Regional Awards, Highgate Junior School
2017 RIBA Regional Awards Sustainable Project of the Year
2017 RIBA Regional Awards, St. Michael's Hospice
2017 RICS Awards Design through Innovation Award
2016 RSAW Sustainability Award, Burry Port Community Primary School
2016 RSAW Regional Award, Burry Port Community Primary School
2016 The Guardian Sustainable Business Awards, Built Environment Winner, The Enterprise Centre
2016 CIBSE Building Performance Awards, Public Use Building of the Year, Wilkinson Primary School
2016 Winner of the BCO, Best Office Building of the Year Award, The Enterprise Centre

Contact

Please do not hesitate to get in touch if you need more information. We look forward to hearing from you.

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